



ABSTRACT BOOK



**Centre of Excellence in Unani Medicine
(Pharmacognosy and Pharmacology)**



INTERNATIONAL CONFERENCE 2024

on

**Scientific Research in Unani Medicine:
Current Trends and Approaches**

**21-22 February, 2024
Jamia Hamdard, New Delhi**

Major Sponsors



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DR SAYEED AHMAD

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DR SAGEER ABBAS

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Centre of Excellence in Unani Medicine
(Pharmacognosy & Pharmacology)
Jamia Hamdard, New Delhi

DAY 1: 21 Feb 2024 (INAUGURATION, REGISTRATION & KEYNOTE ADDRESSES)

Venue - HAH Archives Auditorium, Jamia Hamdard			
1:30-2:30 PM	REGISTRATION		
2.30-4:00 PM	INAUGURAL SESSION		
	<p>Patron: Prof (Dr) M Afshar Alam, <i>VC, Jamia Hamdard</i></p> <p>Chief Guest: Dr N Zaheer Ahmed, <i>DG, CCRUM</i></p> <p>Guest of Honor: Prof Pulok K Mukherjee, <i>Director, IBSD, Imphal</i></p> <p>Guest of Honor: Dr Raman Mohan Singh, <i>Director, PCIM&H</i></p> <p>Guest of Honor: Prof Abdul Wadud, <i>Former Director, NIUM, Bengaluru</i></p> <p>Guest of Honor: Prof Marco Leonti, <i>Professor, University of Cagliari, Italy</i></p> <p>Guest of Honor: Dr CK Katiyar, <i>CEO & Advisor Emami</i></p> <p>Guest of Honor: Prof Mohammad F Alajmi, <i>Professor, King Saud University, Saudi Arabia</i></p> <p>Special Guest of Honor: Janab Sajid Ahmed, <i>CEO, Treasurer / Secretary, HNF</i></p> <p>Registrar: Dr MA Sikander, <i>Jamia Hamdard</i></p> <p>Organizing Chairman: Prof Asim Ali Khan, <i>Dean, SUMER, Jamia Hamdard</i></p> <p>Organizing Co-Chairman: Prof Farhan Jalees Ahmad, <i>Dean, SPER, Jamia Hamdard</i></p> <p>Organizing Secretary: Prof Sayeed Ahmad, <i>Director, CoE Unani Medicine, SPER, Jamia Hamdard</i></p> <p>Coordinators: Prof Anwar Hussain Khan, <i>SUMER, JH</i>; Dr Mohammad Ahmed Khan, <i>SPER, JH</i>; Dr Rabea Parveen, <i>SPER, JH</i>; Dr Bushra Parveen, <i>SPER, JH</i></p>		
4:00-5:15 PM	INAUGURAL KEYNOTE ADDRESSES		
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; border: none;"> Prof Marco Leonti <i>University of Cagliari, Italy</i> </td> <td style="width: 50%; text-align: center; border: none;"> Prof Pulok K Mukherjee <i>Director, IBSD, Imphal</i> </td> </tr> </table>	Prof Marco Leonti <i>University of Cagliari, Italy</i>	Prof Pulok K Mukherjee <i>Director, IBSD, Imphal</i>
Prof Marco Leonti <i>University of Cagliari, Italy</i>	Prof Pulok K Mukherjee <i>Director, IBSD, Imphal</i>		
5:15-5:30 PM	HIGH TEA		

DAY 2: 22 Feb 2024 (SCIENTIFIC SESSIONS)

Venue - Hall 1, Convention Centre, Jamia Hamdard					
09:30-10:30 AM	KEYNOTE ADDRESSES				
<i>Session Chairs</i>	Dr Mohd Aslam <i>DBT, New Delhi</i>		Dr Muhammad Iqbal <i>JH, New Delhi</i>		
<i>Keynote Speakers</i>	Dr M Rashid <i>University of Dhaka, Bangladesh</i>		Dr CK Katiyar <i>Emami</i>		
10:30-10:45 AM	HIGH TEA				
PANEL DISCUSSIONS					
10:45-12:00 PM	PANEL 1 Management of Chronic Diseases (esp. Liver and Kidney) in Unani Medicine: Opportunities and Challenges				
<i>Concluding remarks by</i>	Dr Marco Leonti <i>University of Cagliari, Italy</i>	Dr CK Katiyar <i>Advisor, Emami</i>	Dr Mohd Idris <i>Former Principal, A&UTCH</i>	Dr DC Katoch <i>Former Advisor, Ministry of Ayush</i>	Dr Younis Munshi <i>NRIUMSD, Hyderabad</i>
<i>Panelists</i>	Panelist (Ministry & Regulatory): Dr Ghazala Javed <i>CCRUM, New Delhi</i> Dr Misbahuddin Azhar <i>CCRUM, New Delhi</i> Dr Mohammad Khalid <i>ADC/LA(U), New Delhi</i> Dr Nauman Anwar <i>CCRUM, Chennai</i> Dr Jamal Akhtar	Panelist (Industry): Dr Nabeel Anwar <i>Drugs Laboratories</i> Hkm Mohsin Dehlvi <i>Dehlvi Naturals</i> Mr Muneer Azmat <i>New Royal Products</i> Dr Anil K. Sharma <i>Aimil Pharmaceuticals</i> Mr Parvez Ahmed Khan <i>Ratib herbal care</i>	Panelist (Academia): Dr Akhtar Siddiqui <i>SUMER, JH</i> Dr Mohd Zubair, <i>A&UTCH</i> Dr Abdur Rauf <i>AKTC, Aligarh</i> Dr Uzma Bano <i>SUMER, JH</i> Dr Khursheed Ahmad Ansari	Panelist (Modern Medicine): Dr Arun Gupta <i>Ayuswasth, Haryana</i> Dr Kapil Sharma <i>D/o Gastroenterology, Batra Hospital</i> Dr Surender Singh <i>AIIMS, New Delhi</i> Dr Anwar Habib <i>HIMSR, JH</i> Dr Javed A Quadri <i>AIIMS, New Delhi</i>	Opening remarks: Dr Sayeed Ahmad <i>JH, New Delhi, India</i> Moderator Dr Abida Parveen <i>Novartis India</i> Dr Azhar Jabin <i>SUMER, JH</i> Dr Shazia Jilani <i>SUMER, JH</i> Rapporteur: Dr M Ahmed Khan

	CCRUM, New Delhi	Dr Gayoor Ali <i>Rex Remedies Ltd</i> Mr Mohd Tahir <i>Sana Herbals Pvt. Ltd.</i>	SUMER, JH Dr Mohammad Maaz SUMER, JH	Dr Mubasshir Khan, <i>IUF</i>	SPER, JH Mr Syed Sufian Ahmad SPER, JH
12:00-1:15 PM	PANEL 2 Modernization of Unani dosage forms: Current need and Unani principles				
Concluding remarks by	Dr Pulok K Mukherjee <i>IBSD, IMPHAL</i>	Dr Kaustubh Upadhyaya <i>Ministry of Ayush</i>	Dr R Murgeshwaran <i>NMPB, Delhi</i>	Dr Khalid Khan <i>Fermish Clinical Technologies</i>	Dr Abdul Wadud <i>NIUM, Bengaluru</i>
Panelists	Panelist (Ministry & Regulatory): Dr Mustehasan Saifi, CCRUM Dr Mahe Alam, CCRUM Dr N Srikanth, CCRAS Dr Rachna Paliwaal CDSCO Dr Gulamuddin Sofi NIUM, Bengaluru Dr Mohammad Khalid ADC/LA(U), GNCTD	Panelist (Industry): Mr Mohammad Arif Rex Remedies Ltd. Dr Sanjay Tamoli Tulip Lab Pvt. Ltd. Mr Maqbool Hasan Nature & Nurture Pvt. Ltd. Mr Mohd Jalees LIIMRA Remedies Pvt. Ltd. Dr Ikshit Sharma AIMIL Pharmaceuticals Dr Mohammed Najmuddin Halal Herbal Remedies	Panelist (Herbal Medicine): Dr Deepika Gunawant Max Hospital, New Delhi Dr Kshipra Misra DIPAS, DRDO Dr Ajay Sharma DPSRU, New Delhi Dr Mohammad Akram JH, New Delhi Dr SM Arif Zaidi SUMER, JH Dr Saiyad Shah Alam NIUM, Ghaziabad	Panelist (Pharmaceutics): Dr Asgar Ali SPER, JH Dr Farhan Jalees Dean SPER, JH Dr Javed Ali SPER, JH Dr M Aqil SPER, JH Dr Saurabh Arora Arbros Pharmaceuticals Dr Numan Saleem, A&UTCH	OPENING REMARKS: Dr Sayeed Ahmad JH, New Delhi Moderators: Dr Hifzul Kabir SUMER, JH Dr Anzar Alam SUMER, JH Dr Zehra Zaidi SUMER, JH Rapporteur: Dr M Aamir Mirza SPER, JH Ms Monalisha Samal CoE Unani, JH Ms Varsha Srivastava CoE Unani, JH
1:15-2:00 PM	LUNCH				

02:00-03:00 PM	PLENARY SESSION			
Chairpersons	Dr Ubaidullah Khan <i>AMU, Aligarh</i>	Dr TK Mukherjee <i>Former Editor, IJTK</i>	Dr Mahmooduz Zafar <i>SCLS, JH</i>	
Speakers	Dr Ranjan Mitra <i>Dabur India</i>	Dr Saif Ahmad <i>JHMC, Pheonix, AZ, USA</i>	Dr M Rizwanul Haque <i>Central University of South Bihar</i>	
	SHORT LECTURE SESSION			
03:00- 4:30 PM	SHORT LECTURES, BY YOUNG FACULTY MEMBERS			
Chairpersons	Dr M A Jafri, JH, New Delhi Dr Zahid Ashraf, JMI, New Delhi Dr S Raisuddin, JH, New Delhi Dr Uma Bhandari, SPER, JH, New Delhi Dr Kshipra Misra, DRDO, Delhi	Dr Mohammad Hussain, JMI, New Delhi Dr Pradeep Kumar, IBSD Imphal Dr Vidhu Aeri, SPER, JH, New Delhi Dr Shibli Jamil Ahmad, SPER, JH, New Delhi		
Venue - Hall 2, Convention Centre, Jamia Hamdard				
10:45- 4:30 PM	ORAL PRESENTATION SESSION (for Hakeem Abdul Hameed Oral Presentation Awards)			
	Session 1: OP1 - OP20	Session 2: OP21 - OP40	Session 3: OP41 - OP60	Session 4: OP61 - OP100
	10:45 AM - 12:00 PM	12:00 PM - 01:15 PM	2:00 PM - 3:15 PM	3:15 PM - 4:30 PM
Session Coordinators	Session Chairs			
Dr Khalid Bashier SIST, JH Dr Masood S Khan Reckitt Benckiser Dr Karishma Chester Reckitt Benckiser	Dr MZ Abdin, SCLS, JH Dr Abul K Najmi, SPER, JH Dr Mhaveer Singh, IFTM, Moradabad Dr BP Panda, SPER, JH Dr M Irfan Qureshi, JMI, Delhi Dr Kakali Mukherjee, SFE, India Dr Amit Kar, IBSD, Imphal	Dr Neelofar Khan, DIPAS, DRDO Dr Shahid Umar, SCLS, JH Dr SR Wakode, DIPSAR, Delhi Dr Shagufta Parveen, CCRUM, New Delhi Dr Divya Vohora, SPER, JH	Dr Minhaj Ahmad, SUMER, JH Dr A Selvapandiyan, SIST, JH Dr Amitava Das, SFE, India Dr Mukesh Nandave, DPSRU, Delhi Dr Mariyam Sarwat, Amity University	Dr Suhel Parvez, SCLS, JH Dr Mohd Mujeeb, SPER, JH Dr Fehmida Kausar, AUTC, Delhi Dr Zeenat Iqbal, SPER, JH Dr Mohd Aslam, SUMER, JH

Dr Yasheshwar <i>DU, Delhi</i>		Dr Rubi Anjum, AMU, <i>Aligarh</i>	Dr Nazish Ehtesham Azmi, ISF, Delhi	Dr Manju Sharma, SPER <i>JH</i>
VALEDICTORY SESSION				
Valedictory & Hakeem Abdul Hameed Awards & Felicitations				
4:30-5:30 PM	Chief Patron: Patron: Chief Guest: Guest of Honor: Guest of Honor: Guest of Honor: Guest of Honor: Special Guest of Honor: Organizing Chairman: Organizing Co-Chairman: Organizing Secretary: Coordinators:	Janab Hammad Ahmed, Chancellor, Jamia Hamdard Prof (Dr) M Afshar Alam, VC, Jamia Hamdard Dr Mukhtar A Qasmi, Advisor (Unani), Ministry of Ayush Prof Pulok K Mukherjee, Director, IBSD, Imphal Prof Abdul Wadud, NIUM, Bengaluru Prof Marco Leonti, University of Cagliari, Italy Dr CK Katiyar, Advisor, Emami Prof Mohammad F Alajmi, King Saud University Janab Sajid Ahmed, CEO, Treasurer / Secretary, HNF Prof Asim Ali Khan, Dean, SUMER, Jamia Hamdard Prof Farhan Jalees Ahmad, Dean, SPER, Jamia Hamdard Prof Sayeed Ahmad, Director, CoE Unani Medicine, SPER, Jamia Hamdard Prof Anwar Hussain Khan, SUMER, JH; Dr Mohammad Ahmed Khan, SPER, JH; Dr Rabea Parveen, SPER, JH; Dr Bushra Parveen, SPER, JH		
5:30-5:45 PM	HIGH TEA			
POSTER PRESENTATION SESSIONS				
11:00 AM-1:00 PM	POSTER SESSION 1 ABSTRACT No PP01-PP110			
EVALUATORS	Dr Amit Kar, IBSD, Imphal Mr Satyendra Kumar, TLS, Haryana Dr Iqbal Raza Khan, SCLS, JH Dr Aisha Siddiqui, SUMER, JH Dr Pradeep Kumar, CCRUM, New Delhi	Dr Gaurav, Hamdard Laboratories Dr Parakh Basist, KR Mangalam, University Dr M Umar Khan, Dehlvi Naturals Dr Izhar Ahmad, Ayush, UP Dr Kailash Chandra, HIMSR, JH		

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2:00 - 4:00 PM	POSTER SESSION 2 ABSTRACT NO PP111-PP250	
EVALUATORS	Dr Adil Ahamad , <i>SPER, JH</i> Dr Saba Khan , <i>SPER, JH</i> Dr Azka , <i>SPER, JH</i> Dr Suruchi Singh , <i>SPER, JH</i> Dr Mahaveer Dhobi , <i>DPSRU</i> Dr Foziya Zakir , <i>DPSRU</i> Dr Kulsum Jan , <i>SIST, JH</i> Dr Sweta Joshi , <i>SIST, JH</i> Dr Vasudha Sharma , <i>SIST, JH</i> Dr Shiv Prasad Dwivedi , <i>CoE Scheme, Ministry of Ayush</i>	Dr Faiyyazuddin , <i>AKU, Bihar</i> Dr Manju Vyas , <i>SIST, JH</i> Dr Nauman Saleem , <i>AUTC, Delhi</i> Dr Sidra Anjum , <i>NIUM Ghaziabad</i> Dr Shahana Ayub , <i>A&UTC Karol Bagh</i> Dr Vijender Kumar , <i>DPSRU, New Delhi</i> Dr Yasheshwar , <i>DU, Delhi</i> Dr Soumi Dutta , <i>Dabur India</i> Dr Ruhi Ali , <i>DPSRU, New Delhi</i> Dr Renky Thakur , <i>CoE Scheme, Ministry of Ayush</i>
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WORKSHOP PROGRAM SCHEDULE



Centre of Excellence in Unani Medicine
(Pharmacognosy and Pharmacology)



NATIONAL WORKSHOP **2024**

on

Capacity Building of Ayush Professionals

23-25 February, 2024
Jamia Hamdard, New Delhi

Day 1 (23 Feb 2024, Friday)	
Venue - CoE Auditorium, Jamia Hamdard	
09:00 - 09:30 AM	REGISTRATION
09:30 - 10:30 AM	Artificial Intelligence in data analytics Mr Abdul Wahid Khan, <i>BIS, Noida</i>
10:30 - 11:45 AM	INAUGURATION Chief Patron: Janab Hammad Ahmed, <i>Chancellor, Jamia Hamdard</i> Patron: Prof (Dr) M Afshar Alam, <i>VC, Jamia Hamdard</i> Chief Guest: Dr. Munjpara Mahendrabhai Kalubhai, <i>Hon'ble Minister of State Ministry of Ayush and Ministry of Women & Child Development</i> Guest of Honor: Dr Mukhtar A Qasmi, <i>Advisor (Unani), Ministry of Ayush</i> Guest of Honor: Prof Marco Leonti, <i>Professor, University of Cagliari, Italy</i> Guest of Honor: Prof Mohammad F Alajmi, <i>Professor, King Saud University, Saudi Arabia</i> Organizing Chairman: Prof Asim Ali Khan, <i>Dean, SUMER, Jamia Hamdard</i> Organizing Co-Chairman: Prof Farhan Jalees Ahmad, <i>Dean, SPER, Jamia Hamdard</i> Organizing Secretary: Prof Sayeed Ahmad, <i>Director, CoE Unani Medicine, SPER, Jamia Hamdard</i>
11:45 - 12:00 PM	HIGH TEA
Coordinators	Dr Mohammad Ahmed Khan, <i>SPER, JH, New Delhi</i> Dr Azhar Jabeen, <i>SUMER, JH, New Delhi</i> Dr Shazia Jilani, <i>SUMER, JH, New Delhi</i>
Chairpersons	Dr Nahid Parveen, <i>CCRUM, New Delhi</i> Dr Yogita Munjal, <i>Directorate of ISM, Govt of NCT of Delhi</i>
12:00-1:30 PM	Topic: <i>In silico approaches in drug discovery and herbal drug research</i> Dr Ozair Alam, <i>SPER, JH, New Delhi</i>
1:30-2:30 PM	LUNCH
2:30-4:30 PM	Topic: <i>Computational methods in drug discovery with hands on training</i> Dr Imtiyaz Hassan, <i>JMI, New Delhi</i>
4:30-5:30 PM	Interactions & Facility visit
5:30 PM	TEA

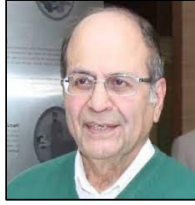
Day 2 (24 Feb 2024, Saturday)
Venue - CoE AUDITORIUM, Jamia Hamdard

Coordinators	Dr Bushra Parveen, <i>SPER, JH, New Delhi</i> Dr Anzar Alam, <i>SUMER, JH, New Delhi</i> Dr Umar Jahangir, <i>SUMER, JH, New Delhi</i>
Chairpersons	Prof Suhail Fatima, <i>SUMER, JH, New Delhi</i> Prof Zeenat Iqbal, <i>SPER, JH, New Delhi</i>
9:30-10:30 AM	Topic: Publication Policies and Clinical Trial Designing Dr Abida Parveen, <i>Novartis, Hyderabad</i>
10:30-10:45 AM	TEA
10:45-12:00 PM	Topic: Zebrafish as a Screening Model Dr Raghavendar M, <i>Dr Reddy's ILS</i>
12:00-1:30 PM	Hands-on Training on ZebraFish Dr Raghavendar M, <i>Dr Reddy's ILS</i>
1:30-2:30 PM	LUNCH
2:30- 4:30 PM	Topic: Systematic review & Meta-analysis with Hands-on training Dr Harsh Preya, <i>Additional Professor, AIIMS</i>
4:30-5:30 PM	Interactive Discussions
5:30 PM	TEA

Day 3 (25 Feb 2024, Sunday) Venue - CoE AUDITORIUM, Jamia Hamdard	
Coordinators	Dr Rabea Parveen , <i>SPER, JH, New Delhi</i> Dr Shahid S Chaudhary , <i>SUMER, JH, New Delhi</i> Dr Zehra Zaidi , <i>SUMER, JH, New Delhi</i>
Chairpersons	Prof SM Arif Zaidi , <i>SUMER, JH, New Delhi</i> Dr Hifzul Kabir , <i>SUMER, JH, New Delhi</i>
9:30-10:15 PM	Topic: <i>In vitro</i> Cytotoxicity of Herbal drugs Dr Anuja Krishnan , <i>SIST, JH, New Delhi</i>
10:15-10:30 PM	TEA BREAK
10:30-12:30 PM	Topic: <i>In vitro</i> Cytotoxicity assay Lecture followed by Hands-on Training Dr Armiya Sultan , <i>JMI, New Delhi</i>
12:30- 1:30 PM	Valedictory Session
	Patron: Prof (Dr) M Afshar Alam , <i>VC, Jamia Hamdard</i> Chief Guest: Prof Pradeep K Prajapati , <i>VC, DSRRAU, Jodhpur, Rajasthan</i> Guest of Honor: Prof Marco Leonti , <i>Professor, University of Cagliari, Italy</i> Guest of Honor: Prof Mohammad F Alajmi , <i>Professor, King Saud University, Saudi Arabia</i> Guest of Honor: Dr Mohammad Khalid , <i>ADC/LA(U), New Delhi</i> Organizing Chairman: Prof Asim Ali Khan , <i>Dean, SUMER, Jamia Hamdard</i> Organizing Co-Chairman: Prof Farhan Jalees Ahmad , <i>Dean, SPER, Jamia Hamdard</i> Organizing Secretary: Prof Sayeed Ahmad , <i>Director, CoE Unani Medicine, SPER, Jamia Hamdard</i>
1:30 PM	LUNCH

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SUMER, Jamia Hamdard



Dr Mohammad Ahmed Khan
SPER, Jamia Hamdard



Dr Rabea Parveen
SPER, Jamia Hamdard



Dr Bushra Parveen
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Head, Department of Food Technology, SIST
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EDITORIAL
Conference Proceedings/ Souvenir
International Conference 2024



The International Conference 2024, on “Scientific Research in Unani Medicine: Current Trends and Approaches”, scheduled on 21-22 February, 2024, is a collaborative effort hosted by Centre of Excellence in Unani Medicine (CoE UM) (Pharmacognosy and Pharmacology), Bioactive Natural Product Laboratory (BNPL), School of Pharmaceutical Education and Research (SPER) (NIRF Rank 2, Pharmacy Institute of India), and the School of Unani Medical Education and Research (SUMER) at Jamia Hamdard. In partnership with CCRUM (Central Council for Research in Unani Medicine), UDMA (Unani Drug Manufacturers Association), and SFE (Society for Ethnopharmacology).

The overarching mission of such conferences is to empower individuals to attain sustainable well-being in today’s dynamic world through the authorized expertise of Ayush in Unani Medicine. By bridging traditional and modern healthcare practices with minimal environmental impact, the conference seeks to chart a path towards holistic wellness and enhanced quality of life.

This international gathering serves as a platform for manufacturers, exporters of Unani products, eminent researchers, students, academicians, physicians, traditional medical practitioners, corporate members, marketing consultants, and stakeholders from around the globe to converge and exchange insights.

We are delighted to announce that over 800 delegates, comprising both national and international participants, have registered for the conference. The scientific program features more than 50 distinguished resource persons, including keynote speakers, panelists, and plenary speakers, who will share their expertise and perspectives. With over 300 abstracts submitted for short lectures, oral presentations, and poster sessions, participants will engage in discussions and debates, vying for the prestigious Hakeem Abdul Hakeem awards. This conference promises to be a catalyst for innovation and collaboration, showcasing the latest advancements and breakthroughs in the field of Unani Medicine.

Of particular significance are the panel discussions focusing on the management of chronic diseases and the modernization of Unani dosage forms. Renowned panelists from regulatory bodies, academia, industry, and clinical practice will convene to explore Unani Medicine’s potential in addressing contemporary health challenges and its integration into modern healthcare systems. Through these deliberations, we aspire to establish standard approaches for integrating Unani Medicine with modern practices, fostering quality development and enhancing formulations. The conference aims to captivate the interest of a broad scientific readership and all stakeholders invested in the advancement of Unani Medicine.

The organizers and authors affirm that the research/work presented at the conference was conducted without any commercial or financial relationships that could be construed as potential conflicts of interest.

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SHORT LECTURES

Need and Importance of Pharmacovigilance practice in Unani Drugs

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ABSTRACT

It is commonly believed that herbal medicines are completely safe, and can therefore be safely consumed by the patient on his/her own, without a physician's prescription. This belief has led to large-scale self-medication by people, occasionally leading to disappointing results, side effects, or unwanted after-effects. The concept of Adverse drug effects had already been mentioned in various classical Unani books in terms of *Muzarrât* (side effect of drugs), *Muslehat* (correctives to drugs), *Parhez* (abstinence of certain drug/diet), and *Tadbir* (purification & detoxification of drugs). Although the concept of ADR was present in earlier days, Unani physicians after noticing any unknown side-effect in patients either used to write those adverse reactions in their *Bayaz* (Notebooks) or communicate their experiences to their pupils (in modern terminology prescription auditing and monitoring). As there was then no association of physicians worldwide as prevalent nowadays, therefore, no random/spontaneous or drug-oriented ADR monitoring was done. Considering the importance of drug safety and having proper documentation, to regulate, monitor, and control the activities of pharmacovigilance, the Ministry of AYUSH launched the National Pharmacovigilance Programme (NPP-ASU) on 29.09.2008 for reporting the adverse drug reactions for Ayurveda, Siddha, and Unani (ASU). The purpose of the pharmacovigilance program is to identify the ADRs in large populations, establish new and rare ADRs, record the frequency, and implement measures for further prevention of these ADRs. For this purpose a three-tier system, viz. one National Pharmacovigilance Centre (NPC), eight Regional Pharmacovigilance Centers (RPC), and thirty Peripheral Pharmacovigilance Centres (PPC) were set up throughout the country. During the period of evaluation since 2008, NPP-ASU observed that the majority of adverse events reported related to the use of ASU medicines, are attributable either to poor product quality or to improper use and can be categorized under two headings i.e. drug and clinics related. By an extensive literature survey, it can be concluded that Pharmacovigilance practice is the need of the hour for Unani systems of medicine, as it helps to prove this system is safe, more scientific, and up-to-date in modern terms.

Keywords: Pharmacovigilance, *Tadbir*, Unani Medicine

Unani Herbs: A Nutritional Revolution for Better Health

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ABSTRACT

The present study explores the profound effects of Unani herbs on general health, taking inspiration from traditional knowledge based on Unani medicine. Unani medicine promotes the use of natural remedies made from herbs. This nutritional revolution reveals the rich nutritional profiles and therapeutic benefits of particular Unani herbs by highlighting their distinctive qualities. Including these herbs in daily routines has the potential to transform personal dietary habits, promote better health, and ward off a host of ailments. In the height of a nutritional revolution that coexists peacefully with traditional values, this study investigates the transformative potential of Unani herbs. Emphasizing characteristics like stress-resilience-enhancing adaptogenic effects, the study also explores their possible influence on digestive health and metabolic disorders. Recent studies suggest that certain Unani herbs may possess anti-inflammatory and antioxidant properties, contributing to overall wellness by combating inflammation and oxidative stress in the body. The study advances a more thorough comprehension of the all-encompassing advantages that Unani herbs offer in the field of health. The research seeks to bridge the knowledge gap between traditional practices and modern health needs as we explore the potential of these herbs, offering insights that could lead to a more culturally relevant and healthy way of living.

Keywords: Herbs, Nutraceutical, adaptogen, metabolic disorders

Evaluating Health Risks, Genotoxicity, and Thiol Compounds in *Trigonella foenum-graecum* (Fenugreek) Under Arsenic Toxicity

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ABSTRACT

Fenugreek (*Trigonella foenum-graecum* L.) has been employed since ancient times not only as a culinary spice but also for its diverse therapeutic properties, making it a medicinal plant of significance. Being carcinogenic, the presence of As in edibles is of great concern as it ultimately reaches humans and animals through the food chain. Besides, toxicity adversely affects the growth, physiology, metabolism, and productivity of crops. In the present study, Fenugreek was exposed to the As stress (0, 50, 100, and 150 μM sodium arsenate) for a week. Further, the evaluation of As accumulation in roots and shoots, magnitude and visualization of oxyradicals, and thiol-based defense offered by *Fenugreek* was assessed. The root and leaf accumulated 258–453 $\mu\text{g g}^{-1}$ dry wt (DW) and 81.4–102.1 $\mu\text{g g}^{-1}$ DW of As, respectively. An arsenic-mediated decline in the growth index and an increase in oxidative stress were noted. Arsenic stress modulated the content of thiol compounds; especially cysteine content increased from 0.36 to 0.43 $\mu\text{mole g}^{-1}$ FW protein was noted. Random Amplified Polymorphic DNA (RAPD)-based analysis showed DNA damage in As-treated plants. Health risk assessment parameters showed that concentration in the consumable plant shoot was below the critical hazard level (hazard quotient < 1). Moreover, *T. foenum-graecum* showed varied responses to As-induced oxidative stress with applied concentrations (150 μM being more toxic than lower concentrations). In addition, the RAPD profile and level of thiol compounds proved significant biomarkers to assess the As toxicity in plants. The Conclusion of this study will help users of fenugreek to have a clue and create awareness regarding its consumption.

Keywords: Medicinal plant, DNA damage, Metalloid, RAPD

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Roots of Wellness: Holistic Benefits of *Dashamoola* in Ayurvedic Medicine

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ABSTRACT

Dashamoola, a Sanskrit term meaning "ten roots," is a crucial component in Ayurvedic medicine, featuring a blend of ten roots with diverse therapeutic properties. These roots are known for their therapeutic potential for balancing the Vata dosha, making them valuable in addressing various health concerns. The roots include familiar elements such as *Bilva*, *Agnimantha*, *Shyonaka*, *Patala*, *Gambhari*, *Brihati*, *Kantakari*, *Gokshura*, *Shalaparni*, and *Prishnaparni*. These roots collectively offer a spectrum of benefits, ranging from anti-inflammatory and analgesic effects to diuretic and bronchodilator properties. *Dashamoola* comprises ten plant roots, with five classified as *brihad panchamoola* and the rest as *laghoo panchamoola*. In Ayurveda, it is utilized as *kwath* or *arishta*, offering relief for conditions such as arthritis, pyrexia, and abdominal distension. *Dashamoola* finds application in Ayurvedic formulations, oils, and decoctions, and is employed in treatments like *Dashamoola Kativasti* and *Dashamoola Kashayam*. This lecture underlines and revisits the importance of the ten roots.

Keywords: *Dashamool*, Ayurvedic medicine, *Dashamool with*

Medicinal herbs are the potential candidate for prevention and therapeutic management of Type 2 *Diabetes mellitus* (T2DM)

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ABSTRACT

Type 2 *Diabetes mellitus* (T2DM) is a prevalent metabolic disorder characterized by elevated blood glucose levels resulting from decreased insulin secretion, impaired insulin action, or both. Its incidence, especially among younger individuals, is rapidly increasing, largely attributed to factors such as obesity, genetics, and environmental influences. In obese patients, adipose tissue releases various substances including non-esterified fatty acids, glycerol, hormones, and pro-inflammatory cytokines, contributing to insulin resistance. Furthermore, in diabetes, oxidative stress induced by reactive oxygen species formation exacerbates insulin resistance and damages cellular components. Hyperglycemia, a hallmark of diabetes, significantly contributes to oxidative stress, leading to endothelial dysfunction in blood vessels. *Tumor necrosis factor* (TNF- α) has been implicated in insulin resistance and diabetes pathogenesis by impairing insulin action. While the management of hyperglycemia remains central in diabetes treatment, addressing associated conditions such as dyslipidemia, oxidative stress, inflammation, obesity, and insulin resistance has gained attention in research and therapy. Medicinal plants have demonstrated promising anti-oxidative, anti-inflammatory, anti-hyperglycemic, and anti-hypertriglyceridemic properties in both animal and clinical studies. Given the multifactorial nature of T2DM development and progression, medicinal plants emerge as potential candidates for developing therapeutic interventions targeting oxidative stress, inflammation, and hypertriglyceridemia in addition to hyperglycemia management.

Keywords: Medicinal plant, Type 2 *Diabetes mellitus*, oxidative stress, Dyslipidemia, inflammation

Chemical Profiling and Antimicrobial Properties of *Curvularia* sp., an Endophytic Fungus Derived from Lemongrass (*Cymbopogon citratus*)

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ABSTRACT

Background: A promising avenue for the efficient industrial-scale production of pharmaceutical compounds is investigating medicinal plants for endophytic fungi (which reside within the tissues of healthy plants without causing visible harm) that are capable of synthesizing bioactive.

Objective: This study aimed to conduct bioprospecting of the medicinal plant *Cymbopogon citratus* (lemongrass) to identify and characterize endophytic fungi capable of producing bioactive compounds.

Methodology: The methanolic extract of endophytic fungi isolated from lemongrass was screened against phytopathogenic fungi. The selected active strain AREF029 was further assessed for its antibacterial potential and anti-inflammatory activity. AREF029 was identified and chemical profiling of the bioactive extract was accomplished using Gas chromatography-mass spectrometry (GC-MS) and Liquid chromatography-high-resolution mass spectrometry (LC-HRMS).

Results: Based on morphological and microscopic analyses, AREF029 was identified as *Curvularia* sp. At the tested concentration, the antifungal efficacy of AREF029 methanolic extract was found to be greater than 70% for *Alternaria solani* and *Rhizoctonia solani*, and greater than 50% for *Colletotrichum capsici* and *Fusarium oxysporum*. The extract displayed a broad-spectrum minimum inhibitory concentration (MIC) of 25 µg/ml against *Staphylococcus aureus*, *Salmonella typhimurium*, and MRSA (methicillin-resistant *S. aureus*). In vitro analysis with murine macrophage RAW 264.7 cells determined 56% nitric oxide inhibition activity at 200 µg/ml concentration of the extract and more than 99% cell viability. GC-MS and LC-HRMS analyses rectified the presence of several putative bioactive compounds in the extract.

Discussion: The significance of the endophytic fungus *Curvularia* sp. as a source of potent antimicrobial compounds is brought to the fore by the current investigation.

Keywords: endophytes, bioactive, antimicrobial, anti-inflammatory

Preparation of Microemulsion Loaded Hydrogel Containing Cinnamaldehyde & Berberine: A Potential Candidate for Acne Treatment

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ABSTRACT

Nowadays, with the improvement in the field of antibiotics, the bacteria are also getting stronger, undergoing mutation to survive, and developing resistance. A similar situation is experienced by acne patients. So, to provide some relief, The study aimed to evaluate the efficacy of cinnamaldehyde & berberine against *Staphylococcus epidermidis* and *Propionibacterium acnes*, then formulated into microemulsion loaded hydrogel. The optimization was done by central composite design with Oilmix, Smix, and water as independent variables. The CA-BER-ME to enhance contact time was converted to hydrogel with the help of carbopol 940. The prepared CA-BER-ME-Gel was characterized by viscosity and pH and the in vitro drug release and ex vivo permeation, F1, F2, and F3 exhibited significant improvement as compared to drug-loaded suspension gel. Then the antiacne potential of the CA-BER-ME-Gel was analysed on the thickness of the ear pinna of the rat. It was found to be the least for the clindamycin gel followed by F-3, F-2, and F-1. Based on histopathological study the potential of F2 and F3 in effective recovery from an acne lesion was comparable to clindamycin gel. The skin irritation study indicated that F3 with a higher amount of cinnamaldehyde produced irritation. Hence based on all the results and efficacy, F2 was selected as the final formulation with sufficient efficacy against *s. epidermidis* and *P. acnes* with no signs of irritation.

Keywords: Microemulsion, acne, herbal, animal model

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Unani Dietetics: A Treasure Trove

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ABSTRACT

Unani System of Medicine has a unique amalgamation of treatment modalities. It does not only rely on drugs for the treatment but it includes nonpharmacological ways of treatment as well. These are given more importance than the drugs and priority is given to them while initiating treatment. One of the nonpharmacological ways of treatment is through ghiza or diet, known as *Ilaj bil ghiza* or dietotherapy. In this, a person's diet is modulated according to his condition. The best application of dietotherapy lies in the management of non-communicable or lifestyle diseases. This is because diet has a strong association with the web of causation of various lifestyle diseases. A considerable proportion of the noncommunicable disease burden can be reduced if a healthy diet and a correct type of dietary regime are followed. Unani Medicine gives a lot of significance not only to a good quality diet but also to a proper dietary regime. It includes different dietary regimes for the treatment of different disease conditions. These dietary regimes may vary regarding the amount of the food or the calorie content of the food which are given according to the condition of the patient, and the type and severity of the disease. The paper will look closely at the peculiarities of *Ilaj bil Ghiza* and its close similarities with the modern aspects of diet and nutrition.

Keywords: diet, nutrition, Unani

Evaluation of the antithrombocytopenic properties and quality control analysis of the bioactive fraction of *Momordica charantia* L.

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ABSTRACT

Background: *Momordica charantia* (MC) L. (*Cucurbitaceae*) is a plant which over the years has been used as a popular medicine since it was found to possess anti-diabetic, immunomodulatory, antimicrobial, anti-inflammatory, anticancer, and antioxidant properties. It is very important to standardize the fruits of MC pharmacognostic ally for its utilization in different formulations.

Aim: Evaluation of the antithrombocytopenic properties and quality control analysis of the bioactive fraction of *Momordica charantia* L.

Methodology: The present study provides pharmacognostic, physicochemical, and phytochemical details, fruits of MC characters were analyzed and WHO-recommended parameters were followed. 100 g dried mashed MC fruits were extracted with 1.5L of 80:20 (ethanol: water) hydro-alcoholic solution using soxhlet apparatus for 4 days and these extracts were used further for fractionation. Fractionations will be carried out in different solvents of increasing polarity such as Hexane, Dichloromethane, n-butanol, and water to get potent fractions having maximum platelet-enhancing activity. Different groups of Wistar rats were used to check the anti-thrombocytopenic activity. The phytochemical profile of the best bioactive fraction was carried out by HPTLC. HPTLC was done using silica gel 60F254 TLC plates as the stationary phase and Toluene: Ethyl acetate: Formic acid (5:4:1 v/v/v %) as the mobile phase.

Result: It has been observed that a total of 27.1% w/w hydroalcoholic extract as mother extract was yielded. Successive polarity-based fractionations with hexane, DCM, n-Butanol, and aqueous yielded of mother extract 12.37, 15.77, 29.25, and 41.11%, respectively. In Wistar rats, maximum anti-thrombocytopenic activity was observed in the DCM fraction, followed by the n-butanol fraction and mother extract. In Wistar rats, platelet count was enhanced up to 49.33 % by DCM fraction, followed by mother extract (33.27%) and n-butanol fraction (10.06%). Ten metabolites in the DCM fraction were separated by HPTLC and compounds at different R_f values were the major contributing metabolites. The developed HPTLC methods can be used for quantitative and qualitative analysis of bioactive fractions of MC, and it can be used as an anti-thrombocytopenic drug.

Conclusion: The result of our study has scientifically justified the traditional use of MC-enriched fraction in the management of thrombocytopenic disorders. The result showed that the DCM fraction of MC fruit possesses platelet-enhancing activity, which may have contributed to its significant anti-thrombocytopenic properties.

Keywords: HPTLC, Quality control evaluation, Thrombocytopenic activity, Fingerprinting

In-vitro Assessment of Natural Antibiofilm Agent Loaded Minocycline Nanoemulsion for Periodontal Infections

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ABSTRACT

Periodontitis, a major oral disease, affects a vast majority of the population but has been often ignored without realizing its long-fetched effects on overall human health. Microorganisms have a special ecological niche in the oral cavity, where they typically build up on tooth surfaces to produce dental plaque/oral biofilms. Minocycline is the widely prescribed drug for periodontal biofilm management. However, increasing antimicrobial resistance has paved the way for the exploration of novel herbal-origin antibiofilm agents. Therefore, in the present study w/o nanoemulsion of minocycline and fulvic acid was prepared by oil titration method. For the optimized formulation, the droplet size was found to be 82nm, sustained drug release was observed till 2 hours in in-vitro release studies, and in ex-vivo permeation studies, 62.5% of the drug is being permeated through the buccal mucosal membrane in 4 hours. Rheological studies confirm that the nanoemulsion shows the properties of a Newtonian fluid. Further, the optimized nanoemulsion was found to be compatible with NIH3T3 cell lines and human periodontal ligament cells when subjected to in-vitro studies. Next to this, for the assessment of antibiofilm activity, plaque samples from the periodontal patients were collected, *Porphyromonas gingivalis* and *Prevotella* were isolated and biofilms were developed. The synergistic anti-biofilm effect of fulvic acid was observed in the nanoemulsion. Hence based upon the above positive results it can be concluded that the proposed nano-antimicrobial strategy using fulvic acid nanoemulsion can be a pragmatic approach for reducing the bacterial load in periodontitis.

Keywords: Natural antibiofilm agent, periodontitis, peat-derived fulvic acid, cell line studies

Targeted Lipid Nanocarriers of Antiepileptic Drug and Phytoconstituent in Therapeutic Alleviation of Epilepsy

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ABSTRACT

Objective: The current study was aimed to decipher the capability of developed lipid nanocarriers of potent antiepileptic in combination with a potential phytoconstituent to deliver the drug to the site of action in the brain through a non-invasive nasal route that would enhance its bioavailability and therapeutic efficacy.

Background: The targeting strategy of direct nose-to-brain via intranasal drug administration represents a promising approach that can substantially affect the efficacy of antiepileptic drugs.

Methods: In the present work, a chitosan-coated lipid nanocarrier of a potent antiepileptic drug was fabricated by melt emulsification method. The prepared formulation was optimized using a Central Composite Rotatable Design (CCRD). Nasal histopathology was examined to ascertain how formulation toxicity affects the integrity of the nasal mucosa. The biodistribution and pharmacokinetic parameters and oxcarbazepine levels in the brain were duly examined.

Results: The study findings of physicochemical characterization of prepared formulation showed spherical globules with no aggregation possessing 1.8 folds and 2 folds enhanced in vitro release and permeation respectively. CLSM investigation demonstrated that prepared lipid nanoparticles were highly penetrable (up to 40 μ m) through the various layers of the nasal mucosa, exhibiting a higher fluorescence intensity than drug suspension (up to 22.8 μ m).

Conclusion: The study outcome demonstrated that the developed phytoconstituent loaded lipid nanocarrier formulation is a viable synergistic method producing alluring results for the alleviation of epilepsy.

Keywords: Antiepileptic drug, Epilepsy disease, lipid nanocarriers, Intranasal, nanoformulation

Hepatoprotective Effect of a Saffron-based Polyherbal Formulation (*Duk*): Complete Saga from Bioinformatics to Animal Studies

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ABSTRACT

Background: *Dawa ul Kurkum (Duk)* is a well-established traditional drug that has been used since time immemorial by Indian practitioners to cure various human ailments.

Objective: The purpose of this study was to explore the anti-cancer activity and the possible mechanism of *Duk* against diethylnitrosamine (DEN)-initiated hepatocarcinogenesis.

Methods: We administered *Duk* at 3 doses, viz., 75, 150, and 300 mg/kg/day, 2 weeks before the DEN and continued it for 16 weeks. After 1 week of DEN recovery, 2-aminoacetylflourine (2- AAF) was administered to promote hepatocarcinogenesis. We found that *Duk* significantly reduced the DEN and 2-AAF-induced phenotypical changes in rats and restored the levels of liver function markers. Furthermore, *Duk* counteracted the oxidative stress induced by carcinogens as observed by restoration in the levels of superoxide dismutase (SOD) and catalase (CAT).

Results: *Duk* significantly diminished the levels of malondialdehyde (MDA) in a dose-dependent manner and restored the liver microarchitecture as assessed by histopathological studies. The results of immunohistochemical staining showed that *Duk* inhibited the DEN-induced decrease in the number of cells positive for Bid and Caspase-9. It also reduces the number of cells positive for Cyclin D. Conclusion: *Duk* significantly protects rat liver from hepatocarcinogenesis by regulating oxidative damage and restoring liver function markers. The chemopreventive effect of *Duk* might be through the induction of apoptosis.

Keywords: Hepatocellular Carcinoma, *Dawa ul Kurkum*, saffron, polyherbal formulation, apoptosis, oxidative stress

Green Initiatives in Pharmaceutical Waste Management: Shaping a Sustainable Future

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ABSTRACT

Background: The pharmaceutical industry, vital for global healthcare, concurrently poses environmental challenges due to the substantial generation and improper disposal of pharmaceutical waste. Traditional waste management practices contribute significantly to environmental degradation. This study addresses the imperative need for eco-friendly approaches in pharmaceutical waste management to alleviate the environmental impact associated with current disposal methods.

Objective: This study aims to investigate and propose sustainable strategies for pharmaceutical waste management, aiming to establish a foundation for environmentally conscious practices within the industry as well as society.

Methodology: The research employs a comprehensive review of current pharmaceutical waste management practices and explores eco-friendly alternatives. It evaluates the adoption of green chemistry principles, the reduction in hazardous materials usage during drug manufacturing, and the promotion of responsible waste disposal methods. Stakeholder collaboration and the role of education in fostering environmentally responsible behavior are also examined.

Results: The findings underscore the viability and efficacy of adopting eco-friendly approaches in pharmaceutical waste management. Reductions in hazardous materials usage, implementation of green chemistry, and the promotion of responsible disposal practices emerge as promising strategies. Collaborative efforts among pharmaceutical companies, regulatory bodies, healthcare facilities, and consumers are identified as crucial for successful implementation.

Conclusion: This study advocates for a paradigm shift in pharmaceutical waste management towards sustainable practices. The study emphasizes the potential cost savings for the industry, improved public perception, and positive impacts on human health and the environment. By fostering a culture of environmental responsibility and collaboration, the pharmaceutical sector can play a pivotal role in building a greener and more sustainable future.

Keywords: Pharmaceutical waste, eco-friendly, sustainability, green chemistry, waste management.

Neuroprotective Potential of *Guggulipid* Alone and in Combination with Aspirin on Middle Cerebral Artery Occlusion (MCAO) Model of Focal Cerebral Ischemia

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ABSTRACT

This study was designed to test the pre-treatment doses of guggulipid (50 mg/kg), aspirin (100 mg/kg) per orally and co-administration of both drugs for 28 days followed by middle cerebral artery occlusion – a model of focal cerebral ischemia in rats. The middle cerebral artery was occluded for two hours, followed by reperfusion for 22 hours for the induction of focal cerebral ischemia in rats. Neurobehavioral tests like locomotor activity and grip strength tests were performed before sacrificing the animal. After neurobehavioral tests, the animals were sacrificed for the measurement of infarction areas and biochemical estimations in the brain. Locomotor activity and grip strength were significantly improved in *guggulipid* and aspirin-pre-treated rats. *Guggulipid* and aspirin pre-treatment reduced the infarction areas as compared with middle cerebral occluded (MCAO) rats. An elevation of TNF- α , nitrite, thiobarbituric acid reactive substance (TBARS), acetylcholine esterase activity (AChE), and reduction in antioxidant enzymes like superoxide dismutase (SOD), glutathione (GSH), and catalase was observed following MCAO. Pre-treatment with *guggulipid* and aspirin caused a reduction in TNF- α , TBARS, nitrite levels, and AChE, but an elevation in GSH level, SOD, and catalase activities as compared with MCAO rats. The protective effects observed in this study were due to the antioxidant, anti-inflammatory, and anti-hyperlipidemic properties of guggulipid. The protective effect of guggulipid in cerebral ischemia is that it may have a role in reversing the symptoms and may offer significant neuroprotection in stroke.

Keywords: *Guggulipid*, aspirin, MCAO, Cerebral ischemia

Molecular Docking Studies on Unani Formulations for Lead Identification

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ABSTRACT

Background: COVID-19, although on the decline currently with the role of vaccines, public health challenges persist due to the quick evolution of SARS-CoV-2 into several variants and periodic surge in cases. *Triyaq-e-Wabai*, Novel Unani formulation, and *Arq Ajeeb* have been used widely as prophylactic and curative remedial measures during epidemics. The ingredients of these formulations have been shown to exhibit diverse biological activities.

Aim/Objective: The current study was aimed at investigating the inhibitory response of phytochemicals contained in these formulations on putative SARS-CoV-2 drug targets.

Methods: Phytochemical structures were retrieved from the PubChem database, with some being constructed using Marvin Sketch. 3CLpro and SARS-CoV-2 S glycoprotein were chosen as the target proteins. To determine the binding affinities and predict top-ranking poses with the highest scores, AutoDock Vina was utilized. GROMACS 5.1.4 software was used for molecular dynamic simulation.

Results: The results of molecular docking indicated that the phytoconstituents of these formulations interacted well with 3CLpro and S glycoprotein with strong binding affinities. Crocin, Zijusesquilignan A, Zijusesquilignan B, Emetine, Glycyrrhizin, Isorhoifolin, and Aloin A, 3,4-Dicaffeoylquinic acid, Vicenin-2, Isoschaftoside, Schaftoside, Zijusesquilignan A & C, Emetine, Glycyrrhizin, Isorhoifolin, Quercetin, were shown to be intriguing candidates with the capability of interacting with spike glycoprotein and 3CLpro respectively and preventing the virus from replicating and infecting the host. Molecular dynamic simulation results showed the structural stability, accelerated rigidity, and compactness of the protein-ligand docked complexes.

Conclusion: The lead phytochemicals contained in these formulations may have the potential to conquer the SARS-CoV-2 transcription, replication, and its entry into the host cell, and hence, these formulations may be useful in the development of novel remedial candidates for COVID-19. However, further in-vitro and in-vivo investigations are required to ascertain this claim.

Keywords: *Triyaq-e-Wabai*, *Arq Ajeeb*, SARS-CoV-2, Unani medicine, Molecular docking

Phytoconstituent Loaded Lipid Nanocarrier for Treating Dyslipidaemia

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ABSTRACT

The present study was aimed at developing and characterizing lipid nanocarriers of poorly water-soluble statins for improving their dissolution rate and thereby bioavailability. Reportedly, lipid nanocarriers offer additional advantages like greater drug loading potential, improved release properties, and higher stability of incorporated drugs during storage as compared to other lipid-based formulations. Additionally, the incorporated phytoconstituent could play a significant role in minimizing the P-gp efflux of atorvastatin and can contribute significantly to improving its in vivo performance. In this study, chlorogenic acid was used as an excipient in the NLC formulation development of AT Ca which has the potential to modulate Pgp efflux transporter activity in addition to its hypocholesterolemic effect. All the components selected for the NLC formulation were of the GRAS category. In Conclusion, AT Ca integrated NLC formulation was developed to a satisfactory level in terms of lower surfactant concentration, optimum particle size, minimum polydispersity index, higher drug entrapment, increased dissolution rate as well as enhanced bioavailability. The present study illustrated NLCs to be a promising choice over conventional oral formulations of AT Ca with the merits of improved dissolution rate and thus enhanced bioavailability.

Keywords: Nanocarrier, statins, P-gp efflux, hypocholesterolemic

Materiovigilance - An Emerging Discipline in Health Care" Adverse Event: Think beyond Pharmacovigilance

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ABSTRACT

Medical devices have now become an indispensable part of the healthcare system. There has been an increase in the number and use of medical devices nowadays and so has the number of adverse events associated with them. This requires regular monitoring of adverse events due to medical devices to protect the health of the patient. Post-marketing surveillance of medical devices is done in many countries but it is still in its nascent stages in India unlike that of pharmacovigilance. The materiovigilance program of India (MvPI) was launched at the Indian Pharmacopoeia Commission by the Drug Controller General of India in 2015. The ultimate objective of this program is to monitor adverse events associated with medical devices to generate safety data related to the use of medical devices, to create awareness among the different stakeholders, and to promote best practices to improve Patient Safety. It is very important to have an ingrained level of awareness of the program for all healthcare professionals as well as the public to fill the gaps in the knowledge regarding the use of medical devices. Since ages Ayurveda, Siddha, and Unani systems have been practised in India. Considering the growing use of ASU & H products and related medical devices globally; the inclusion of medical devices used in the traditional system of medicines in the Materiovigilance program has become equally important.

Keywords: medical device, Materiovigilance, adverse events, postmarketing surveillance

“Nanodecoys” - Future of Drug Delivery by Encapsulating Nanoparticles in Natural Cell Membranes

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ABSTRACT

Biomimetic nanotechnology could serve as an advancement in the domain of drug delivery and diagnosis with the application of natural cell membranes or synthetically derived membrane nanoparticles (NPs). These biomimetic NPs endow significant therapeutic and diagnostic efficacy by their unique properties, such as immune invasion and better targeting ability. Additionally, these NPs have a unique ability to retain the inherent properties of the cell membrane and the membrane's intrinsic functionalities, which helps them to exhibit superior therapeutic effects. In this, we describe how these membrane-clocked NPs endow superior therapeutic effects by immune invasion; along with this, the development of membrane-coated NPs and their method of preparation and characterization have been clearly described in the manuscript. Moreover, Various developed membrane-coated NPs such as red blood cell membrane-coated NPs, white blood cells membrane-coated NPs, platelet membrane coated, cancer cell membrane coated, bacterial membrane vesicles, and, mesenchymal stem cells membrane-coated NPs have been established in this manuscript. At last, the discussion on the role of membrane-coated NPs as theranostics, and notably, the literature that demonstrates the shreds of evidence of these NPs in targeting and neutralizing the SARS-CoV-2 virus have also been incorporated.

Keywords: Nanodecoys, biomimetic nanoparticles, drug delivery

Collaborative Research: The Key to Establishing Integrative Medicine

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ABSTRACT

Based on a nationally representative health survey in 2014, about 7% of patients seeking outpatient care utilize AYUSH services across all socioeconomic and demographic groups in India. Integrative medicine brings conventional and complementary healthcare approaches together in a coordinated way. Whereas, a holistic health system refers to helping individuals, and communities improve and restore their health in multiple interconnected domains; biological, behavioral, social, and environmental; rather than just treating the disease. NIH/NCCAM has identified five domains or types of complementary therapies, which are; mind-body therapies, biologically-based therapies, manipulative and body-based methods, energy therapies, and alternative medicine systems. Whole systems of complementary and alternative medicine are the traditional systems of medicine that are practiced by individual cultures throughout the world such as; Traditional Chinese Medicine, Ayurvedic Medicine, Unani medicine, classical homeopathy, and indigenous healing systems. All of these systems share a perspective that inherited and/or acquired imbalances in the patient's overall constitution are at the root of the manifestations of disease. Researchers are currently exploring the potential benefits of integrative health in a variety of clinical situations. Research on holistic health includes expanding the understanding of the connections between these various aspects of health. Collaborative research which is the key to establishing Integrative Medicine, aims to determine through rigorous scientific investigation, the fundamental science, usefulness, and safety of complementary and alternative medicines and their roles in improving health care. It envisions that scientific evidence informs decision-making by the public, healthcare professionals, and policymakers regarding the integration of complementary and alternative health approaches in a holistic health framework.

Keywords: Collaborative Research, Integrative Medicine, Complementary & Alternative Medicine, Holistic Healthcare

Anti-Diabetic Effect of Unani Formulations: PICO-SMART Based Research

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ABSTRACT:

Background and objective: Diabetes is a common metabolic problem among people. It affects both genders. A sedentary lifestyle is the major cause of diabetes. Uncontrolled diabetes may lead to both microvascular and macrovascular complications. There is strong evidence that the Unani Formulations have positive effects on diabetes and its consequences. This study aims to explore the benefits of Unani drugs on their scientific parameters to reduce the burden of diabetes, and its associated complications.

Material and Methods: Extensive literature surveyed was through Unani classical text, and internet database sources like PubMed, Medline, Scopus, Web of Science, Publons, Google Scholar, etc., with appropriate 'keywords' such as; diabetes, Unani Formulations, Anti-diabetic compound, etc. There are some Unani formulations (eg. *Qurs Ziabetus*, *Qurs Tabasheer*, *Qurs Gulnar*, *Safoof Ziabetus*, *Safoof Sat Gilo*, etc.) were selected for study, based on their scientific data.

Results and Conclusion: Persuasive data suggests that the 'chosen formulations' have potential effects against diabetes and its consequences. Moreover, none of the trials have documented any adverse drug reactions to the formulations. Furthermore, there is evidence to support the idea that the Unani medicines recommended way of use may minimize or prevent any adverse effects. There is a critical need for more research on improving the efficacy of the above Unani Formulations.

Key Words: *Diabetes mellitus*, Medicinal Plants, Unani Formulations, Unani Medicine

Naringin Ameliorates Topiramate-Induced Cognitive Impairment and Oxidative Stress in PTZ-Kindled Mice

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ABSTRACT

Background: Topiramate is prescribed for various seizure types, but its potential cognitive adverse effects remain a concern. This study aims to investigate the impact of Naringin, a bioflavonoid, on topiramate-associated cognitive impairment and oxidative stress in a pentylenetetrazole (PTZ)-a kindled model of epilepsy in Swiss albino mice.

Methodology: Four groups of mice (n=8/group) were used: control receiving vehicle (1% CMC), PTZ (25 mg/kg) i.p. + vehicle, PTZ (25 mg/kg) i.p + topiramate (35 mg/kg) p.o. per se, and PTZ (25 mg/kg) + topiramate (35 mg/kg) p.o. + Naringin 40 mg p.o. PTZ was administered alternate days for 35 days to induce kindling, followed by cognitive assessment and estimation of oxidative stress markers in brain tissue. Cognitive assessment was done using the passive avoidance response apparatus (step-down latency) and the elevated plus maze (transfer latency). Malondialdehyde (MDA), reduced glutathione (GSH), superoxide dismutase (SOD), and catalase activity were measured as oxidative stress markers.

Results: TPM significantly impaired retention latency, demonstrated by decreased step-down latency ($p < 0.001$) and transfer latency ($p < 0.001$) compared to control. It also increased MDA and decreased GSH levels ($p < 0.001$), while SOD and catalase activity remained unchanged as compared with the control group. Naringin co-administration significantly improved cognitive function ($p < 0.001$) and reversed oxidative stress markers ($p < 0.001$) compared to the PTZ + TPM group.

Conclusion: Naringin attenuated TPM-induced cognitive impairment and oxidative stress in PTZ-kindled mice, indicating its neuroprotective potential against TPM's adverse effects. Further mechanistic studies and clinical investigations are required to elucidate its underlying action and therapeutic implications.

Keywords: Naringin, topiramate, pentylenetetrazole, cognitive impairment, oxidative stress, Swiss albino mice

Artificial Intelligence in Clinical Trials: Prospects And Challenges

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ABSTRACT

Clinical trials play a vital role in expanding scientific knowledge and improving healthcare outcomes and hence are the cornerstone of generating scientific evidence that is ethical, valid, and reliable. This facilitates medical decision-making and ultimately improves patient outcomes. A broad array of opportunities for Artificial Intelligence (AI) in clinical trials can be identified, both near- and long-term. It can range from pre-clinical research to clinical trials, evolving research methodology, data collection, statistical analysis, and even patient monitoring. In healthcare systems, evidence generation from multiple data sources is now possible using AI tools. The implementation of AI will certainly speed up clinical development by increasing numerous possibilities. AI technologies make possible innovations that may prove fundamental for transforming clinical trials. The paper will discuss the identified opportunities, challenges, and possible implications of AI in Clinical Trials.

New Developments and Advances in Urinalysis

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ABSTRACT

New technologies, techniques, and advances have paved the way for significant progress in the field of pathology shedding light on the intricacies of various diseases day by day. Many novel and improved techniques have been introduced in Urinalysis, which is a valuable diagnostic tool in pathology, thus improving individual patient management, infection control, antimicrobial stewardship, facilitation of clinical trial enrolment, and the co-development of drugs. The ability of new diagnostic technologies to work directly with urine samples without compromising the sensitivity and specificity of standard methods is of paramount importance. With the current available digital microscopy technologies significant time reduction can be achieved with much more samples being processed in a significantly short time in comparison to manual microscopy which is time-consuming and labor-intensive. Digital imaging with particle recognition is another technique used to classify and quantify urine particles in uncentrifuged urine using a single, laminar flow of the specimen through the lens of a charged coupling device video camera. The captures are evaluated by identification software, and each particle is classified based on characteristics based upon size and shape, contrast, and texture. The analyzer's software classifies images including RBC, WBC, WBC clumps, hyaline casts, unclassified casts, EC, non-squamous EC, bacteria, yeast, crystals, mucus, sperm, and amorphous substances. Flow cytometry is another technique in which Urine particle flow cytometers (UFCs) are being used as a reliable method for fast diagnosis of UTIs by counting the bacteria in the urine specimen giving highly accurate results with labor reduction. Test strip technology, giving quantitative results for urinary proteins, Ketones, etc with cost-effectiveness, especially in the third world and developing countries is another method that shows promising results in antibiotic susceptibility tests; if the optimum diagnostic requirement is reached. Matrix-assisted laser desorption ionization–time-of-flight mass spectrometry (MALDI-TOF MS) has been recently introduced in routine clinical microbiology laboratories, in which charged molecules are created by ionization, and their identity is determined based on the mass: charge ratio. Fluorescence in situ hybridization (FISH) assay is another cytogenetic technique that uses fluorescent probes that bind to complementary sequences in target cells (such as bacterial pathogens) and aid in diagnosing diseases. Biosensors are an excellent option for integration into diagnostic platforms as they enable manipulation of small fluid volumes, short assay time, low energy consumption, high portability, high throughput, and multiplexing. Many more techniques and tools have been introduced in urinalysis that aid in the diagnosis of many chronic and deadly diseases. The paper aims to provide a thorough insight into each technique more elaborately.

Key Words: Biosensors, cytometers, FISH

Development and Pharmacological evaluation of Herbal Tablet Formulation for Obesity

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ABSTRACT

Background: Obesity is a complex, multifactorial condition characterized by an excessive accumulation of body fat, which poses significant health risks and challenges worldwide. It is a chronic disease with serious implications for physical, psychological, and social well-being.

Aims and objectives: In the present study, a new anti-obesity herbal formulation was developed using standardized arjuna (*Terminalia arjuna*) bark and brahmi (*Bacopa monnieri*) herb extract by optimizing the formula through assessment of recommended parameters. The optimized formulation was studied in a high-fat diet rat model to ascertain its pharmacological efficacy.

Method: The drugs were collected, authenticated, and extracted by using an optimized extraction procedure and dried extracts were used to compress the tablet formulation along with suitable excipients. The anti-obesity potential of individual extract along with developed formulation was demonstrated in Wistar albino rats by feeding them a high-fat diet (HFD) for 14 days. Animals were divided into six different groups Control, Toxic control, Brahmi and Arjuna extract, Combination of both drugs, and a Standard group. All the animals were kept under observation and daily weight and sugar levels were also recorded. After 14 days of the study, blood was withdrawn from animals, and lipid profile, SGPT, and SGOT were estimated.

Results: The research findings suggest significant anti-obesity activity of Brahmi and Arjuna, whereas a synergistic effect has been observed while used in combination in the form of tablet formulation.

Conclusion: In Conclusion, the exploration of Brahmi and Arjuna as potential anti-obesity agents, especially in combination formulations, represents a promising avenue for future research and therapeutic development in the fight against obesity and its associated health complications.

Keywords: Anti-obesity, *Terminalia arjuna*, *Bacopa monnieri*, High Fat Diet, Lipid profile, Triglycerides

Physiotherapy and Functional Foods: Preventing and Managing *Diabetes*

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ABSTRACT

Background: The prevalence of type 2 *Diabetes mellitus* (T2DM) is increasing at an alarming rate worldwide. Functional foods contain biologically active ingredients associated with physiological health benefits. Appropriate prevention strategies have primarily focused on lifestyle interventions involving physical activity and diet strategies showing a significant reduction in T2DM incidence rate from 28% to 58% around the world.

Aims/Objectives: This review aims to highlight the health-protective effectiveness of functional foods, either alone or when combined with physical activity in T2DM prevention.

Methods: The evidence cited in this review was obtained through searches in PubMed, Scopus, and Google Scholar using the following keywords: “Type 2 diabetes or hyperglycemia and”, “insulin resistance”, in combination with “functional foods” and “Exercises”. Relevant articles of acceptable quality were used.

Results: Ten controlled interventional studies met the inclusion criteria. Eight studies investigated the effect of functional food along with exercise on *Diabetes mellitus*. Two studies show superior effects of physical training combined with functional food.

Conclusion: This review focused on selected physiological responses that can aid T2DM prevention and management when functional foods are consumed along with exercises. Reciprocal health risk-reduction functions are expected when physical activity is combined with consuming functional foods.

Impact of Physiotherapy with Dietary Supplements on Pain and Functional Outcomes in Tendinopathies: A Systematic Review

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ABSTRACT

Background: Tendinopathy has a high prevalence and incidence in the general population and among athletes, with a lack of consensus among medical practitioners on optimal management strategies.

Aims/Objectives: The objective of this review was to evaluate the effects of dietary supplements in combination with physiotherapeutic treatment on pain and functional outcomes in tendinopathies.

Methods: A comprehensive search of PubMed, The Cochrane Library, Web of Science, and Embase databases was conducted from inception to December 2023. Eligible studies included RCTs that incorporated physiotherapeutic interventions combined with dietary supplementation and reported measures of pain and/or function. This literature review considered primary studies investigating nutritional supplements for tendinopathies and was reported under the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA).

Results: A total of 94 potentially eligible articles were identified during the trial selection process. Sixty-two articles remained for screening after removing duplicates. After screening titles and abstracts, six articles were included in the current review. The interventions in all six studies compared dietary supplementation combined with physiotherapy and placebo combined with physiotherapy or physiotherapy alone. Two trials combined dietary supplementation with ESWT (extracorporeal shockwave therapy) or therapeutic ultrasound; four trials combined dietary supplementation with exercise therapy.

Conclusion: This systematic review provides evidence suggesting that incorporating additional nutritional interventions alongside physiotherapy may lead to improved treatment outcomes in managing tendinopathies, particularly in reducing pain. However, the impact on functional outcomes remains inconclusive. Additional investigation utilizing larger sample sizes and standardized outcome measures is necessary to validate these results and clarify the potential mechanisms behind the observed effects.

Role of Phytochemical-Based Solid Lipid Combo-nanoformulation for Effective Cancer Management

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ABSTRACT

Background: Since ancient times people tried to find medications to cure different illnesses. Similarly in cancer, several chemotherapeutic drugs are derived from plants. However, the effectiveness of chemotherapeutic drugs is hampered due to severe side effects and Multidrug resistance. Nowadays plant or their phytoconstituents are used in combination.

Aim: To evaluate the anticancer activity of AG in combination with 5-FU solid lipid nanoformulation to synergize the action.

Methodology: Solid lipid nanoparticles (SLNs) of AG and 5-FU were synthesized and characterized for average particle size, surface morphology, DSC, and FTIR. *In vitro*, cytotoxicity was performed using an MTT assay. Further, an *in vivo* study on Ehrlich Ascites Carcinoma-induced tumor in female Balb/c mice was performed for anti-tumor activity and tumor regression parameters and lifespan analysis.

Results: The nanoformulation was prepared successfully by solvent injection method and the average particle size was in the range of 100-120 nm. The *in-vitro* results showed enhanced cytotoxic activity by AG-SLN and 5-FU-SLN combination than alone. The *in vivo* study showed a decrease in tumor regression parameters and an increase in mean survival time

Conclusion: This study suggests a new approach of using AG combination with 5-FU for cancer treatment that can minimize the side effects by 5-FU, improving its aqueous solubility, oral bioavailability and improve immunity.

Keywords: Phytochemical, Solid Lipid Nanoparticles, Combination nanoformulation, Cancer

Employing the Therapeutic Potential of Traditional Medicine Through Reverse Pharmacology

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ABSTRACT

Growing interest has been shown in natural medicine in recent years as a therapeutic substitute for traditional medications. This has led to the emergence of a new field of study known as reverse pharmacology, which focuses on identifying and understanding the active compounds in natural substances and their potential therapeutic effects. It is an approach that involves starting with traditional medicine or natural products and then identifying the active compounds and their mechanisms of action. This method can help harness the benefits of traditional medicine by integrating ancient knowledge with modern scientific methods. This is in contrast to traditional pharmacology, which typically starts with a specific disease or condition and then searches for compounds that can treat it. Many traditional medicines have been used for centuries to treat various ailments, and ethnopharmacology aims to understand the mechanisms behind their effectiveness. By studying the traditional uses of natural substances, researchers can identify potential therapeutic compounds and their targets. While reverse pharmacology shows promise, there are also challenges and limitations to consider. One of the main challenges is the lack of standardization and regulation in the production of natural-based medicines. This can lead to variations in the potency and effectiveness of these substances, making it difficult to replicate results in clinical trials. However, further research and collaboration are needed to fully realize the potential of this new frontier in medicine.

KEYWORDS: Traditional medicine, reverse pharmacology, drug discovery, herbal plants

ORAL PRESENTATIONS

JH/ICUM2024/ OP 1

Fatty liver disease (FLD): A holistic concept and management in Unani system of medicine

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ABSTRACT

Fatty liver or fatty liver disease (FLD) sums up a spectrum of injuries to liver ranging from steatosis (i.e. abnormal retention of lipids within a cell), steatohepatitis (accumulation of fat with inflammation) progressing to fibrosis and cirrhosis.

Keywords: Fatty liver Disease, *Tashhamul kabil*, *Sue mizaj Barid / Haar*, triacylglycerol, Unani

Effects of E-Spinning Variables on Plga-Based Nanofibers for the Delivery of Sustain Release Anti-Tumor Drug

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ABSTRACT

Chemotherapeutic agents struggle to achieve therapeutic concentrations at the tumor site due to the protective environment of the central nervous system (CNS). Nanofibers could pave the way for the development of 'smart' polymeric drug delivery system to create a sustained release that shows an alleviated initial burst release of trapped drug from core shell, giving better sustainability. The experiment was carried out at several trials on different parameters such as voltage, distance, flow rate, syringe type and rotation or translational speed of the collector to obtain the desired size range of nanofibers at room temperature at RH 25–28%. For the PLGA nanofiber concentration from 7 to 20% of polymer, distance from 10 to 14 cm, voltage from 9 to 16 kV, and flow rate from 0.2 to 0.5 ml/hr respectively, they were dispersed in a DCM and DMF (4:1v/v) to form a homogeneous solution, and all the prepared fibers were then e-spin to fabricate fibers, evaluated by FE-SEM to study size and morphology and emphasis was given to the fiber size range of 200–300 nm. To obtain a deeper understanding of the electrospinning technique and the fabrication of polymeric nanofibers, it is essential to fully comprehend all these variables, which play an influential role in generating smooth and bead-free electrospun fibers and affect drug release kinetics.

Keywords: E-spinning, Nanofiber, PLGA, sustain release

Revolutionizing Transdermal Therapeutics: Nanogels, Essential Oils, and Advancements in Colchicine Delivery for Enhanced Anti-Inflammatory Action and Permeation Boost

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ABSTRACT

This study explores groundbreaking developments in transdermal therapeutics, specifically focusing on the synergistic potential of nanogels and essential oils for advancing colchicine delivery. With the limitations of oral medication administration in mind, researchers are leveraging innovative carriers to navigate skin barriers and enhance permeability for effective transdermal drug delivery. Nanogels, intricate nanoscale polymer-based networks, have shown promise as delivery systems for genes, vaccines, and poorly soluble medications. Additionally, essential oils, such as *Nigella sativa*, are considered a non-toxic avenue for improving transdermal penetration. The primary objective of this research is to assess and address colchicine's challenges related to poor permeability and water solubility. The study aims to contribute to the revolutionizing of transdermal therapeutics by enhancing anti-inflammatory action and permeation for improved colchicine delivery.

Keywords: anti-inflammatory, colchicine, Nanoemulgel , Permeability enhancement, *Nigella sativa*

Optimization and formulation of Eribulinbased Silver Nanoparticles Loaded Microemulsion for Targeted Oral Delivery System: A Cost-Effective and Eco-Friendly Approach with Dual Anticancer and Antibacterial Properties

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ABSTRACT

The most frequent sickness to affect women is breast cancer. A targeted drug delivery strategy for an anticancer agent is required to treat breast cancer (BC) cells to the appropriate therapeutic potential without endangering healthy cells. The main objective of this work is to optimise and synthesise silver nanoparticles (AgNPs) for oral usage in a cost-effective and ecologically friendly way. Furthermore, using animal models and cancer cell lines, AgNPs laden ME will be examined for antibacterial and anticancer properties. Eribulin is a synthetic medication having potent anticancer effects against breast cancer. A neural network (NN) optimisation technique was used to synthesise AgNPs and determine the relationship between the formulation elements and response variables (AgNPs size). For the improved AgNPs in the AgNPs loaded ME formulation, evaluations were conducted regarding particle size and shape, morphological characterisation, particle charge, and in vitro drug release investigations. The 3-factor, D-optimal mixture model and the pseudo-ternary phase diagram were used for the synthesis and evaluation of AgNPs loaded ME. The microemulsion containing silver nanoparticles was evaluated for its physicochemical properties, particle size, shape, surface morphology, zeta potential and in vitro release assays. AgNPs loaded ME exhibit active drug release, which increases the drug's therapeutic concentration and bioavailability in cancer cells compared to healthy cells. In addition to having great anticancer potential against MCF-7 cancer cells, the synthetic AgNPs in the AgNPs-loaded microemulsion may also be able to stop the growth of bacteria. The in-vivo study revealed that, in comparison to the tumor control, swallowing AgNPs-loaded ME formulations dramatically decreased the tumor mass and Ehrlich ascites solid tumor development rate in the mice. The results indicate that AgNPs in AgNPs loaded ME appear promising as an anticancer therapy in terms of stability, cost, and simplicity of fabrication.

Keywords: Silver Nanoparticles Loaded Microemulsion, breast cancer, Anticancer and Antibacterial Properties, Eribulin

DNA Fragmentation and apoptosis in Human colorectal cancer cell lines by *Sesamum indicum* dried seeds

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ABSTRACT

The four fractions of aqueous extract of Sesame Seeds (*Sesamum indicum* L.) were Studied for invitro DNA fragmentation, Cell migration and cellular apoptosis on SW480 and HTC116 Human colorectal cancer cell lines. The seeds of *Sesamum indicum* were extracted with six solvents including Methanol, Ethanol, Aqueous, Chloroform, Acetonitrile and Hexane. The aqueous extract (IC50 value 154 µg/ml) was found the most active in terms of cytotoxicity with SW480 Human colorectal cancer cell lines. Further fractionation of this aqueous extract on flash chromatography gave four fractions. These four fractions were studied for anticancer and DNA binding studies. Cell viability was assessed by colorimetric assay (MTT)IC50 values for all these four fractions ranged from 137 to 548 µg/mL for HTC116 cancer cell line and 141 to 402 µg/mL for the SW480 cancer cell line. The four fractions showed good anticancer and DNA binding properties. The DNA binding constants ranged from 10.4×10^4 to 28.7×10^4 ; showing good interactions with DNA. The DNA binding interactions were due to intercalative and π - π electron forces. The results indicate that aqueous extract fractions of sesame showed inhibition of cell migration of SW480 and HTC116 Human colorectal cancer cell lines and induced DNA Fragmentation and apoptosis. This was demonstrated by calculating low wound closure percentage in cells treated with these fractions as compared to control (80%). Morphological features of nuclei of cells treated with fractions revealed chromatin compression, nuclear shrinkage and apoptotic bodies formation which indicate cell death by apoptosis. The flow cytometer of fraction treated cells of SW480 and HTC116 Human colorectal cancer cell lines revealed death due to apoptosis. The results of the study indicate that aqueous extract of sesame seeds may be used to treat Colorectal cancer.

Keywords: *Sesamum indicum*, cell migration inhibition, apoptosis induction, anticancer activity, colorectal cancer

Role of Phytoconstituents in Multi Drug Resistnce -Tuberculosis

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ABSTRACT

Global health concerns about tuberculosis (TB) are still present, which are deteriorated by the advent of multidrug-resistant strains of the disease that made standard treatment plans extremely difficult to implement. The potential of phytoconstituents in addressing the problem of multidrug resistance in tuberculosis is investigated in this study. Plant-based phytoconstituents have shown a range of bioactive characteristics, such as immunomodulatory and antimicrobial activities. This review explores the mechanisms of multidrug resistance in tuberculosis, highlighting the function of biofilm formation, post translational modification , and efflux pumps. It examines the present problems with antitubercular medications and emphasizes on the need for alternative treatment approaches treating resistance. Numerous phytoconstituents with promising anti-TB properties are studied, including terpenoids, polyphenols, alkaloids, and flavonoids. These organic substances have the capacity to work in concern with traditional medications to reduce the emergence of drug resistance and the host's defense mechanisms against *Mycobacterium tuberculosis* can be strengthened by their immunomodulatory qualities. With an emphasis on in vitro investigations, the review summarizes the data currently available regarding the effectiveness of phytoconstituents including Licarin A &B, Aristolactam I, Fargesin, Ursolic acid, hydroquinone, Spathulenol, Beilschmin A, 25-Hydroperoxycycloart-23-en-3^Î2-ol, dihydroagrifuran, , Ursolic acid, cucurbitacin, Oleanane triterpenoid aegicerin, Isoxazole analogs of curcuminoids, Diospyrin against multidrug-resistant tuberculosis with their specific mechanism of treating resistance. Incorporating these organic substances into traditional therapeutic methods could present a fresh and enduring approach to enhance treatment results and lessen the worldwide impact of drug-resistant tuberculosis.

Keywords: resistance, efflux pumps, post translational modification gene mutations , phytoconstituents

Implementing Network Pharmacology and Molecular Docking Studies to Investigate the Therapeutic Potential of Natural Compounds Ajugasterone C and 20-Hydroxyecdysone in *Seborrheic Dermatitis*

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ABSTRACT

Seborrheic dermatitis (SD) is a frequently encountered inflammatory dermatological disorder that predominantly impacts areas of the body that produce considerable amounts of sebum. Notable symptoms comprise erythema, scaling, and inflammation. although SD is extremely widespread, it has constraints on treatment options available, and they are frequently associated with adverse effects. The natural components Ajugasterone C and 20-Hydroxyecdysone have been demonstrated to possess anti-inflammatory and antioxidant qualities; however, nothing has been determined about the efficacy of these compounds as treatments for SD. In this work, a novel in-silico network pharmacology and a novel molecular docking methodology were employed to outline the complex mechanism by which Ajugasterone C and 20-Hydroxyecdysone execute as a treatment for SD. By leveraging network pharmacology analysis, we gained the ability to identify putative protein targets that were closely associated with the pathophysiology of SD, divulging the complex biological mechanisms that underlie these drugs' curative effects. After the network pharmacology was clarified, molecular docking simulations were carried out to examine the binding affinities and complex interactions between 20-Hydroxyecdysone, Ajugasterone C, and other significant protein targets linked to SD. All of our observations demonstrate that these naturally occurring substances have potential therapeutic value in the treatment of SD because they can effectively regulate inflammatory cascades, reduce oxidative stress, and coordinate the improvement of additional pathological processes that are essential to the pathophysiology of the disease. This comprehensive computational analysis demonstrates invaluable insights into the molecular mechanisms underlying the effectiveness of Ajugasterone C and 20-Hydroxyecdysone in treating SD. It also establishes a strong basis for further experimental validation and clinical translation, which may position these compounds as effective therapeutic agents.

Keywords: *Seborrheic dermatitis*, Ajugasterone C, 20-Hydroxyecdysone, Network pharmacology, Molecular docking

Role of Unani composition in “Menorrhagia affects the quality of life – A Case Report

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ABSTRACT

Background: About 10–15% of women experience episodes of abnormal uterine bleeding (AUB) during the reproductive years of their lives. Disorders of abnormal uterine bleeding presents in variety of clinical scenarios including menorrhagia, metrorrhagia, polymenorrhea, dysfunctional uterine bleeding.

Case presentation: An unmarried female of 25 years of age presented to Gynae & Obs. OPD of A & U Tibbia College & hospital, with a chief complaint of the heavy and prolonged menstrual cycle for 4 years. She got treatment in Lok Nayak Hospital for 4 months and had no result. After when she was advised to undergo surgical procedure, she refused. After that, she came to A & U Tibbia College & hospital. At that time research study on menorrhagia was held in the department. She was treated with a polyherbal formulation for 15 days. Then her cycle became regular in one month.

Discussion: The purpose of the case study was to determine the benefits of Unani drugs which treat the target disease as well as their ailments unlike allopathic drugs, it is evidenced by this report. Unani medicines can play a key role in improving the overall health of the patient and day to day activities which are interrupted due to heavy bleeding. Further, research is needed in this field.

Keywords: Menorrhagia, *Kasrat-e-tams*, Unani composition

Maternal health care through *Asbab -e-Sitta zarooriya*- Unani Approach

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ABSTRACT

Maternal health refers to the health of women during pregnancy, childbirth and the postnatal period. Each stage should ensure women and their babies to reach their full potential for health and well-being. About 287 000 women died during and following pregnancy and childbirth in 2020. Through joint targets, new strategies are being developed to ensure that every pregnant woman receives essential interventions, including four or more antenatal care visits (*tadabeer hamla*), delivery by a skilled attendant, and postnatal care. The most common direct causes of maternal injury and death are excessive blood loss, infection, high blood pressure, unsafe abortion, and obstructed labour, as well as indirect causes such as anemia, malaria, metabolic disorders and heart disease. Maternal health can reduce maternal morbidity and mortality. The Unani System of Medicine which is holistic in nature, has its own approach in describing the concepts of maternal health. Six factors are essential in order to maintain good health which are *Hawae Muheet* (pure atmospheric air), *Makool wa mashroobat* (food and beverages), *Harkat wa sukoon e badnia* (Physical movement and Rest), *Harkat wa sukoon e nafsania* (Psychic movement and Rest), *Naum wa yaqzah* (Sleep and Wakefulness) and, *Ehtibas wa istafraagh* (Retention and Evacuation). Ideally, it should be well planned before or soon after conception and continue throughout pregnancy. Therefore, Unani medicine can protect and preserve health through proper dietary intake, effective drug-less regimens, and day-to-day activities.

Keywords: Maternal health, Antenatal care, Unani medicine, *Asbab -e-sitta zarooriya*, Anemia

Unani: Challenges and India's role globally

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ABSTRACT

Unani is a branch of medicine that was invented by the Greeks and found its way through to India in the 9th century. Since then it has grown by leaps and bounds due to the deep-rooted traditions of the civilization in natural systems of medicine. In 1976, WHO recognized it as a system of medicine, and it is now widely accepted across the world. Unani is practiced in India, Persia (now Iran), Pakistan, South Africa, England, and many Arab and East Asian countries. India has been since its independence, working hard on improving the Unani system of medicine. The Ministry of AYUSH was formed in 2014 for the growth of traditional systems of medicine with the most recent development being funding of 45.34 crores for the growth of Unani centers across the country in 2023. But it continues to face challenges on a global level. Non-availability of pure crude drugs, adverse drug reactions of many herbal medicines, non-standardization of Unani drugs, etc. are some of the major challenges being faced. As India aims to become a world leader in the pharmacy sector, its role, due to its expertise in the field of Unani becomes essential to take it to the international stage. The following presentation covers the various challenges, the solutions, and the approaches that can be taken to make India a world leader in the Unani market.

Keywords: AYUSH, Unani, challenges, global health, herbal medicines

Non-Alcoholic Fatty Liver Disease (NAFLD) a Most Ubiquitous Disease: Possible Solutions from Unani Medicine

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ABSTRACT

Globally and in India, Non-alcoholic fatty liver disease (NAFLD) is a foremost cause of chronic liver disease. With the high burden of NAFLD in India, it is anticipated to further surge in the forthcoming years in parallel with the enduring epidemics of obesity and type 2 diabetes mellitus. Given the high prevalence of NAFLD in the community, it is crucial to identify those drugs that can avert and treat the progression of NAFLD through proper management. For centuries, Unani Medicines have been used traditionally for the treatment and prevention of liver disorders. The use of herbal remedies in the management of NAFLD has gained tremendous popularity owing to their safety and therapeutic potential. In the recent past, there has been a great surge in the number of NAFLD patients and therefore there has been an increasing trend in the usage of Unani medicine. Many scientific studies have been conducted to evaluate and validate the therapeutic potential of Unani medicines in NAFLD. Among Ayush systems of medicine, the Unani system of medicine also has a rich heritage of knowledge for managing Non-Alcoholic Fatty Liver Disease (NAFLD). This review work is an effort to highlight the efficacy of certain Unani drugs in the management of NAFLD paving the way for future research opportunities to investigate the hidden potential of Unani Medicine.

Keywords: Non-Alcoholic Fatty Liver Disease (NAFLD), Unani Medicine, Ayush System of Medicine.

Quality by Design based fabrication of Herbal-loaded Nanoemulgel Drug Delivery System

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ABSTRACT

Background: Eczema, a chronic inflammatory skin condition, affects millions of people worldwide due to hereditary and environmental factors. Curcumin, a natural herb, has been shown to reduce inflammatory responses without side effects. However, it faces challenges like water insolubility and limited permeation. Herbal oils, with their antimicrobial, antioxidant, and anti-inflammatory properties, can inhibit inflammatory mediator production.

Objective: This work focuses on developing herbal-loaded nanoemulgel using QbD-based technology to get enhanced activity for eczema.

Method: The study selected oils, surfactants, and co-surfactants based on their solubility and miscibility with curcumin and oil respectively. Pseudoternary phase diagrams were created to create a stable nanoemulsion region for different ratios of herbal oils, surfactant, co-surfactant, and water proportions. Further, QbD based CCRD approach was used to optimize the nanoemulgel using Oil, Smix as independent variables, and droplet size, PDI and % transmittance as dependent variable. The optimized formulation was converted to gel using Carbaopol and characterization was carried out.

Result: Curcumin loaded nanoemulsion was successfully developed using Smix ratio of 4:1. The droplet size, % transmittance, and PDI of the optimized formulation were found to be 41.055 ± 27.1 nm, 92.96 ± 0.14 %, and 0.281 ± 0.008 respectively. The developed nanoemulgel was found to have good extrudability, spreadability, homogeneity and viscosity.

Conclusion: The developed nanoemulgel was stable and had a desired droplet size which has the potential to get better permeation and release. Further pharmacokinetic and pharmacodynamic studies need to be performed to assess the anti-inflammatory and activity of developed nanoemulgel.

Keywords: Eczema, Curcumin, Herbal oils, Nanoemulgel, Topical delivery

An overview of Unani drugs in the management of *Warm-e-Halaq* (Pharyngitis)

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ABSTRACT

Pharyngitis is the mucosal and submucosal inflammation of the pharynx which affects in back of the throat. It is most often referred to simply as sore throat; it is one of the most common reasons for medical consultation. The condition has become a usual phenomenon in the population owing to the frequent consumption of cold drinks, junk food, candies, etc. Pharyngitis is far more prevalence nowadays than earlier. As per Unani classical literature, the condition is known as “*Warm-e-Halaq*” characterised by inflammation of *Ghisha-e-mukhati* (mucous membrane) of *Halaq* (Pharynx). For ages, the Unani system of medicine has been known for quite successful and effective treatment for Pharyngitis with many single and compound herbal drugs without any known side effects. For e.g.: *Khyar Shambhar* (*Cassia fistula* L.), *Banafsha* (*Viola odorata* L.), Milk of Fig, *Tukhm-e-Hulba* (*Trigonella foenum*), *Sharbat-e-Toot Siyah*, *Lauq Sapista*, etc.

Keywords: *Warm-e-Halaq*, Pharyngitis, Herbal, Unani

Statistical Modeling, Optimization And Characterization of Andrographolide Loaded Emulgels for its Therapeutic Application on Skin Cancer Through Enhancing its Skin Permeability

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ABSTRACT

Andrographolide is a natural diterpene lactone with multiple biological effects. In the present study, total of 11 andrographolide loaded emulgels (ANG 1- ANG 11) were formulated by 2-Factor, 5-level design. Based on the responses, with Design expert software, optimized emulgel ANG 12 was formulated and evaluated. The pH of 6.4 ± 0.5 , viscosity of 5258 ± 132 cp, spreadability of 30.14 gcm/s, and extrudability of 29.47 gm/cm, droplet size of 203 nm, with a PDI 0.025. In vitro drug release was found to be 95.7% following Higuchi kinetics. Ex vivo skin retention of 784.78 ug/cm² was observed. MTT assay on epidermoid carcinoma A-431 cells demonstrated cell growth arrest at G0/G1 and G2/M phase after 24 h of ANG 12 treatment (IC₅₀: 11.5 µg/ml). The cellular permeability of ANG-12 was assessed by FITC assay. Compared to untreated cells (0.54% uptake) the ANG-12 treated cells had shown 87.17% of FITC permeation. Biocompatibility study performed on HDF cells shows 91.54% viability after 24 h, shows the nontoxic nature on the healthy skin cells. In vivo cell uptake by confocal imaging has shown the significant time-dependent increase in the uptake with enhanced, penetration of the emulgel into the skin. In vivo skin irritation study conducted on Swiss albino mice, confirm the safety of the ANG 12 emulgel formulation as there was no irritation/ redness observed after 24h of treatment. In conclusion, andrographolide can be successfully loaded in the form of nano emulgel ANG 12, which could be a Phytotherapeutic approach to treat skin cancer.

Keywords: Andrographolide, HDF cells, skin cancer, cell uptake, MTT, FITC

Therapeutic Potential of *Hijamah* in Sciatica: An Overview

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ABSTRACT

Hijamah is a Unani regimenal mode of treatment which is carried out by application of cup shaped glass or plastic vessels on the body surface, creating vacuum by fire or by special suction apparatus, in order to divert the material from diseased part or to evacuate the morbid material. It has played a significant role in Musculoskeletal disorders and other issues including Sciatica (*Irq-un-Nasa*), where all types of *Hijamah* have been found to be efficacious. As per Many Unani Scholars, the pain that radiates from hip joint to leg is named as *Irq-un-Nasa* also known as SCIATICA and the nerve affected is named as Nasa which runs from hip to thigh laterally upto the ankle joint. When morbid matter descends in this nerve, it gets inflamed and the person feels pain along the course of the nerve. For the management of Sciatica, *Hijamah* is done on various sites like *warik* (hip), *fakhiz* (thigh), *saaq* (calf), and *ka'ab* (ankle). These are the traditional sites mentioned in Unani literatures proposed by different Unani physicians like *Ibn Hubal Baghdadi*, *Zakariya Razi*, *Al Zahrawi* etc. As per previous studies that had been conducted to evaluate the efficacy of *Hijamah* in Sciatica, it was observed that Hijamah is a much effective regimen for the management of Sciatica.

Keywords: Hijamah, Cupping, Sciatica

Exploring Unani-Based Herbal Remedies for Alzheimer's Disease

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ABSTRACT

Background: Alzheimer's disease (AD) steadily degrades cognition, behaviour, and memory. It is a primary cause of dementia, which impairs cognition and daily life. Memantine and NMDA antagonists treat mild to severe Alzheimer's. Cholinesterase inhibitors improve memory and learning by increasing brain acetylcholine. The Unani medical system does not officially specify such a disease, but it is assumed to fall under Nisyan (forgetfulness/dementia), *Humq*, and *Al-Fasad Zehan*. Unani medicine scholars believe excessive brain moisture (*rutubat*) and sticky phlegm (*Balghame Ghaleez*) cause this.

Aim: The aim of the current work is to investigate the Unani based herbal remedies of AD to devoid the adverse effects of synthetic medication.

Method: Eminent Unani scholars believe that the first step in treating AD is removing irritated material from the brain tissue, since the condition is caused by an excess of abnormal mucus accumulating in the brain tissue. In addition to eradicating pathogenic material, tissue metabolism and its faculties such as memory-enhancing *Muslihat* (reconnecting), *Moaddilaat*, and *Muqawwiyaat* (stamina-boosting) can be strengthened. Indian herbs include *Jalbrahmi*, Brahmi, Turmeric, Aprajita, and Ashwagandha might treat cognitive impairment.

Result: The basic elements of AD were well understood by the Unani healthcare professionals. Various Unani Medicine have been proven to have actions that can aid in reducing cognitive impairment.

Conclusion: Pharmacological phytoconstituents must be identified, isolated, and rigorously tested. Multicentric clinical trials are needed to prove the efficacy of these herbal medicines alone or in combination with current AD treatments. Unani medicine must be integrated into national and global healthcare.

Keywords: Alzheimer's disease, Cholinesterase inhibitors, Cognitive Impairment, Dementia, Phytoconstituents

Unani Herbal Remedies: A Traditional approach to the management of Daul Shalal al Ra'ash (Parkinson's disease)

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ABSTRACT

Background: Parkinson's disease (PD) is a degenerative neurological illness that damages dopamine-producing brain nerve cells. Tremors, stiffness, and bradykinesia develop gradually and worsen. Degeneration of the substantia nigra and related cerebral tissues causes this sickness. Parkinson's is not mentioned in Unani literature. One finds a lot of material on *Ra'asha*, or tremor, a fundamental Parkinson's symptom. *Ra'asha* is caused by sue-mijaz barid of *Aasab* (cold nerve temperament), nerve and muscle dryness, and abundant nerve phlegm.

Aim: The study aims to determine the efficacy and potential of Unani-based herbal remedies in treating PD, including specific herbs and formulations, their pharmacological actions, and their ability to reduce symptoms and improve quality of life.

Method: Several studies have revealed alternatives to conventional treatments have been developed, with the most promising being the use of traditional medicines such as Neem, Karela, Pipalli. The Unani medical system offers several drugs for the treatment of neurological associated illness that have worked for centuries. Some traditional formulations including Majoon-e-Jograj Gogul, Itrifal Muqawwi-e-Dimagh, Majoon-e-Falasma, and Safoof-e-Rasha have shown positive medicinal results and are being used today.

Results: Unani medicine may improve quality of life and neuroprotection in PD care, offering an alternative or supplement to conventional therapies. Traditional remedies may improve tolerability and disease-modifying effects, addressing physical symptoms and mental and emotional well-being for a more holistic approach to care.

Conclusion: Unani herbal medicines have neuroprotective properties and effectively reduce clinical symptoms and signs of PD; however, the molecular mechanism requires further validation through experimental and clinical research.

Keywords: Keywords: *Ra'asha*, Parkinson's disease, Majoon-e-Falasma, *Safoof-e-Rasha*, neuroprotective effects

Design of Experiment based development and optimization of dual drug-loaded nanoemulsion gel of herbal drugs for the treatment of Psoriasis

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ABSTRACT

Background: Psoriasis is a chronic autoimmune and inflammatory dermal disease which majorly affects the skin and joints. Almost, 2-5% of the worldwide population is affected by Psoriasis. Histopathological symptoms include keratinocyte differentiation, enhanced angiogenesis and extreme inflammatory invasion. Various natural oils and herbs have the potential to be effective in the treatment of Psoriasis. Targeted drug delivery, increased bioavailability, therapeutic efficacy and reduced drug side effects are possible with nanoemulsion gel formulation.

Aim: Development and Optimization of dual drugs loaded nanoemulsion gel based system for the treatment of Psoriasis.

Methodology: Selection and Screening of oils, surfactants, and co-surfactants ratios with the proper conduction of experimental studies are miscibility, solubility and Pseudo ternary phase diagrams were done. Also, Design of Expert (DoE) software was used to design and optimize the nanoemulsion.

Results: The selection of oils was done by maximum drug solubility. With the help of pseudo ternary diagrams, Smix ratio (5:1) was finalized. For optimization of nanoemulsion gel, CCRD design was chosen and total of 13 runs were generated out of which 4 were axial, 4 were factorial and 5 were central runs. CCRD suggested the quadratic model for all the dependent variables, additionally quadratic model has p value (<0.05) which ensures better results and minimum errors with least variations in experiments.

Conclusion: With the utilization of DoE, stable formulation was formulated concerning minimal droplet size, PDI, and maximum transmittance. Further, in vitro and in vivo studies are required to determine the pharmacodynamic potential of nanoemulsion gel.

Keywords: Design Expert, Herbal oil, Nanoemulsion Gel, Psoriasis

Ajwain [*Trachyspermum Aammi* (Linn.)]: An Evidence-Based Review On Its Phytochemical Aspect, Ethnopharmacology, Therapeutic Potential And Its Dermatological Benefits

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ABSTRACT

Background: The Umbelliferae family, which includes the well-known Unani plant Ajwain, is found in tropical Africa, the Mediterranean region, South-West Asian countries, India, and West China. Ajwain has long been used in Unani medicine to treat conditions related to the digestive system, the respiratory system, neurological illnesses, and hepatic and genitourinary disorders. Using a variety of electronic databases, including Pub Med, Web of Science, Science Direct, Elsevier, Google Scholar, and others, a thorough review of the literature on Ajwain has been done. Books like *Azam Khan's Muheet e Azam*, *Khazainul Advia of Najmul Ghani*, *Hakim Abdul Hakeem's Bustanul Mufradat*, *Hakim Kabeer-ud-din's Ikseere Azam*, and *Abu Alhassan Ali Ibne-e Abbas's Kamil Sanaa* were also consulted. Using the Glossary of Indian Medicinal Plants and a number of indexed publications, a comprehensive analysis of the botanical and English names of medicinal plants was carried out (Chopra et al., 1956). The results showed that the plant possesses a wide range of pharmacological properties, including digestive, anti-cancer, anti-inflammatory, antifungal, anti-bacterial, and estrogenic effects. These properties are likely caused by the presence of aromatic compounds like thymol, carvone, limonene, dillapiole, hygroscopic saponin, and crystalline flavone. Because of its many pharmacological qualities and significance to human health, *Trachyspermum ammi* is potentially useful in the creation of a variety of drugs.

Keywords: *Trachyspermum ammi*, Pharmacology, skin.

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Efficacy and Safety Potentials of *Shahtara* (Fumitory) in the Management of Eczema: A Review of Evidence

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ABSTRACT

Background: Nar Farsi (Eczema) is a chronic inflammatory skin disease significantly impairing the quality of life due to the vicious cycle of severe itching and scratching leading to complaints like insomnia, depression, and anxiety, and hence an economic burden to society. The major treatment options include immune-suppressive topical or systemic steroids whose long-term use further results in adverse reactions and steroid addictions. Unani system of Medicine is an ancient, time-tested medicine with a rich literature of Dermatology in which renowned physicians have elaborately mentioned and successfully treated various skin disorders and is gaining popularity because of lesser documented side effects. *Shahtara* is one such herb mentioned as having blood purifier, anti-pruritic, anti oxidant, and various other effects which can reduce eczema or its related disorders.

Objective: To correlate the Phytochemistry and actions of *Shahtara* given the causes of eczema to validate its long-term use and historical mentioning.

Material and methods: A thorough literature review was done through International and National Journals. The major search engines utilized were PubMed, Google Scholar, Elsevier, Research gate, and various classical books available in HSZH Government Unani Medical College Library.

Conclusions: After analyzing the literature, it can be concluded that the use of *Shahtara* has beneficial medicinal activity in alleviating symptoms of eczema.

Keywords: Shatar, Nar farsi

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A Comprehensive study on Physiological validation of *Quwā Mudrika*

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ABSTRACT

Scientific progress in medicine has evolved from macroscopic observations to nano-scale investigations, marking a pivotal shift in our understanding of the human body. Rooted in comprehensive theories, *Tibb* represents a holistic repository of knowledge concerning the human body. Today, the scientific method emphasizes evidence-based research, elucidating the intricacies of phenomena through the lens of "what, how, and why." To analyze the data and draw conclusions about current aspects of logic and philosophy, the data must be interpreted in the context of both ancient and modern science. It's possible that old philosophical theories were partially incorrect or misinterpreted at the time due to a lack of resources, or they may have been correct in every way. The foundational Unani concepts are being supplemented with fresh knowledge as technology advances. To create a path that will lead to an understanding of the Unani Tibb, this paper seeks to analyze the *Quwā Mudrika* (receptive faculties) in the context of both ancient and contemporary science. This paper is an attempt to use contemporary understanding to bring Greek literature up to date without erasing or modifying the Unani medical system's definitions or terminology. By uncovering the physiological significance of *Quwā Mudrika*, we aim to bridge the gap between ancient wisdom and modern science, offering valuable insights for promoting holistic well-being in today's diverse and dynamic world.

Keywords: *Quwā Mudrika*, receptive faculty, mental faculty, brain.

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Studies on Dietary Supplements, Nutraceuticals and Functional Foods

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ABSTRACT

Background: The term "nutraceuticals", coined by Stephen Defelice in 1989, merges "nutrition" and "pharmaceutics." It refers to products derived from herbal sources, dietary supplements, specific diets, and processed foods used medicinally rather than as nutritional supplements.

Objective: To explore the historical roots of nutraceuticals in Unani Medicine and understand their significance in preventive health care and therapeutic interventions.

Method: Review historical texts by Unani physicians like Hippocrates and Avicenna. Analyze Unani pharmacopeias for dietary patterns and nutraceuticals. Examine recent studies on the link between diet and disease prevalence. Explore the significance of nutraceuticals in preventive and therapeutic interventions.

Result: Hippocrates and Avicenna underscored the medicinal value of food, with Hippocrates famously stating, "Let food be thy medicine and medicine be thy food." Avicenna highlighted the transformative nature of food (Jauhar) into bodily tissues or organs ("*Badal ma yatahallul awwal*"). Unani pharmacopias outline various dietary patterns considered as nutraceuticals for managing different diseases.

Conclusion: Nutraceuticals, deeply rooted in the historical practices of Unani Medicine, offer promising avenues for preventive healthcare and therapeutic interventions. There is a pressing need to explore and develop nutraceuticals, especially herbal derivatives, targeting hard-to-treat disorders related to oxidative stress, thereby enhancing overall health outcomes.

Keywords: Nutraceuticals, Functional Foods, Dietary Supplement, Unani food Supplement

A Review on garlic extract in the management of *Alopecia areata*

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ABSTRACT

Alopecia areata, characterized by non-scarring hair loss, poses a challenge in both modern medicine and traditional systems like Unani medicine. While Unani medicine may not explicitly recognize alopecia areata, certain concepts such as *Daus Saalab*, *Daul Hayya*, and *Safa* in classical Unani literature bear resemblance to the clinical features of this condition. Even with the successful treatment plans that are currently accessible in western medicine for *alopecia*, many patients still have adverse effects or inadequate response. Due to its comprehensive approach, the Unani medical system provides a very successful treatment for this illness. *Alopecia areata* (AA) is a non scarring localized hair fall, probably of autoimmune aetiology, that responds to treatment with many topically applied irritant muhammir substances. Garlic had been known for a long time by its unique chemical composition that has many pharmacological implications. In Unani literature and contemporary research on garlic extract reveals potential mechanisms by which it may influence the factors contributing to alopecia areata. Allicin, a key component of garlic, exhibits anti-inflammatory, immunomodulatory, and antioxidant properties, which could address the autoimmune aspects associated with alopecia areata. Other components which helpful in AA like, Allicin, sulfur, selenium, vitamin E, manganese etc. which helps in reduce inflammation and promote hair growth over affected area using locally application.

Keywords: Garlic extract, *Alopecia areata*, daaus saalab, unani medicine.

The Role of *Miswak* (*Salvadora persica*) in Preventing Dental Caries: A Systematic Review

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ABSTRACT

Background: Hippocrates and Aristotle have in their compositions talked about dentistry, decayed tooth, teeth extraction with forceps etc. *Miswak*, derived from the *Salvadora persica* tree, has been used for centuries as a traditional oral hygiene tool. Ajmal Khan has advocated the use of *miswak* for protecting teeth against decaying. Its potential in preventing dental caries has gained attention due to its natural properties.

Objective: This systematic review aims to evaluate the effectiveness of *miswak* in preventing dental caries and its associated benefits for oral health.

Methods: A systematic search of databases was conducted to identify relevant studies investigating the role of *miswak* in preventing dental caries. Only studies meeting predefined inclusion criteria were *included*, and their quality was assessed using appropriate tools. Classical Unani books were also explored for relevant literature.

Results: The review summarizes findings from studies evaluating the antibacterial, antiplaque, and remineralization properties of *miswak*. It also discusses its effects on reducing plaque accumulation, gingival inflammation, and dental caries incidence compared to conventional oral hygiene methods.

Conclusion: *Miswak* demonstrates potential in preventing dental caries and promoting oral health due to its natural antimicrobial, antifungal and mechanical cleaning properties. Studies show significant reduction in gingival index, plaque index and bleeding index. Incorporating *miswak* into oral hygiene practices could serve as a valuable adjunct or alternative to conventional methods. Further research is needed to explore its long-term efficacy and safety.

Keywords: Miswak, Dental Caries, Unani Medicine, Oral Health

Integrative Approaches for the Promotion & Development of Herbal & Traditional Medicines: A Review

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ABSTRACT

Integrative medicine is evolving and promises to bridge the gap between herbal/traditional medicines and modern pharma. As more research is conducted and knowledge about plant-based remedies increases, we can expect to see even greater integration of these approaches in mainstream healthcare. With advancements in technology, it may be possible to extract specific compounds from plants and create targeted therapies for various health conditions. Integrative medicine, a holistic approach that combines the best of both traditional and modern healthcare modalities, is gaining popularity worldwide. Integrative medicine recognizes that each individual has unique needs, and aims to address those needs through a combination of therapies such as herbal remedies, acupuncture, massage therapy, and nutritional counseling. Another factor contributing to its popularity is the increasing awareness about the potential side effects of certain medications. Many individuals are looking for natural alternatives that have fewer adverse effects on their overall health. Moreover, integrative medicine emphasizes preventive care rather than just treating symptoms. It focuses on enhancing overall well-being by promoting healthy lifestyle choices like exercise, stress management techniques, and proper nutrition. In conclusion, there's an escalating interest in integrative medicine due to its patient-centric approach, which focuses on prevention rather than treatment alone.

Keywords: herbal remedies, traditional medicines, healthy lifestyle, nutrition, natural alternatives

Molecular Docking Analysis of *Woodfordia fruticosa* Bioactive Compounds with Human Protein Kinase ZAK

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ABSTRACT

Background: Human Protein Kinase ZAK is a serine/threonine protein kinase that has been linked to the Mitogen-Activated Protein Kinase (MAPK) signaling pathway. Doxorubicin increases ZAK expression, leading to elevated JNK levels due to stress. This upregulation further boosts MLK4 and MLK7 expression, triggering apoptosis and ultimately causing cardiomyopathy. Recent studies demonstrated that inhibiting ZAK prevents cardiomyopathy. *Woodfordia fruticosa*, also recognized as Fire flame bush, belongs to the Lythraceae family and is purported to harbor cardioprotective attributes.

Objective: The objective of this study is to conduct molecular docking analysis of bioactive compounds present in flower extract of *Woodfordia fruticosa* against human protein kinase ZAK, which serves as a novel therapeutic target in the treatment of cardiomyopathy.

Methods: Molecular docking was conducted using iDock software to analyze the interaction between Human Protein Kinase ZAK and phytoconstituents found in the flower extract of *Woodfordia fruticosa*, including Hecogenin, Beta-sitosterol, Pulmatin, Prunin, Quercitrin, Epigallocatechin gallate, Myricetin 3-galactoside, Avicularin, Ellagic acid, Kaempferol, Cyanin, Pelargonidin 3,5-diglucoside, 2-Hydroxy-1,4-naphthoquinone, 1-Octacosanol, Beta-sitosterol-beta-D-glucoside, Ursolic acid, Asiatic acid, and Crataegolic acid (Maslinic acid).

Results: The results of active site molecular docking using iDock indicate that Hecogenin (iDock score: -12.07), Beta-sitosterol (iDock score: -11.42), and Pulmatin (iDock score: -11.04) are the prominent phytochemicals present in *Woodfordia fruticosa*, contributing significantly to its cardioprotective properties.

Conclusion: Hecogenin, Beta-sitosterol and Pulmatin can be used to inhibit the ZAK and can prevent the cardiomyopathy. Furthermore, in-vitro and in-vivo studies can be performed for the validation of results.

Keywords: Cardiomyopathy, Human Protein Kinase ZAK, iDock, Molecular docking, *Woodfordia fruticosa*

Involvement of Phytochemical-Encapsulated Nanoparticles' Interaction with Cellular Signalling in the Amelioration of Benign and Malignant Brain Tumours

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ABSTRACT

Brain tumours have unresolved challenges that include delay prognosis and lower patient survival rate. The increased understanding of the molecular pathways underlying cancer progression has aided in developing various anticancer medications. Brain cancer is the most malignant and invasive type of cancer, with several subtypes. According to the WHO, they are classified as ependymal tumours, chordomas, gangliocytomas, medulloblastomas, oligodendroglial tumours, diffuse astrocytomas, and other astrocytic tumours on the basis of their heterogeneity and molecular mechanisms. The present study is based on the most recent research trends, emphasising glioblastoma cells classified as astrocytoma. Brain cancer treatment is hindered by the failure of drugs to cross the blood-brain barrier (BBB), which is highly impregnable to foreign molecule entry. Moreover, currently available medications frequently fail to cross the BBB, whereas chemotherapy and radiotherapy are too expensive to be afforded by an average income person and have many associated side effects. When compared to our current understanding of molecularly targeted chemotherapeutic agents, it appears that investigating the efficacy of specific phytochemicals in cancer treatment may be beneficial. Plants and their derivatives are game changers because they are efficacious, affordable, environmentally friendly, faster, and less toxic for the treatment of benign and malignant tumours. Over the past few years, nanotechnology has made a steady progress in diagnosing and treating cancers, particularly brain tumours. This presentation discusses the effects of phytochemicals encapsulated in nanoparticles on molecular targets in brain tumours, along with their limitations and potential challenges.

Keywords: astrocytoma; blood–brain barrier; brain tumour; glioblastoma; nanoparticles; phytochemicals.

Role of Dietotherapy and Unani Pharmacotherapy in the Management of *Ziabetes Shakri (Diabetes Mellitus)*: A review of Evidence

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ABSTRACT

Background: *Diabetes mellitus* is a common chronic metabolic disorder of glucose, amino acid, lipid. Therefore, it is associated with long term as well as short term complications like neuropathy, nephropathy, retinopathy and diabetic foot. According to the World Health Organization (WHO), *Diabetes mellitus* (DM) is rapidly becoming one of the most common non-communicable diseases. Diabetes is one of the top killer diseases of mankind. The estimated total number of diabetics in India by 2023 is 79.4 million. As per Unani imbalance in *Asbab Sitta Daruriyya* over a long period of time leads to lifestyle disease like DM, Hypertension, Obesity etc. And it can be managed through, certain diet, and several herbal drugs described by our unani scholars in unani literature. The review focuses on presenting the studies in which *Asbab Sitta Daruriyya* is used in prevention and control of DM. Controlling of blood glucose level and glycosurea is the only aspect of management through dietotherapy, life style modification, unani herbal drugs described in unani system of medicine will be discussed . The following literature review from The classical text book of unani system of medicine and also conducted via searching data bases like google scholar, pubmed, science direct. Analyzing various classical text book, research papers and journals it can be concluded that the disease can be reversed or reduced by changes in diet, lifestyle modification and several herbal drugs, which reduce the burden of disease and to increase the awareness and knowledge on diabetes.

Keywords: *Diabetes mellitus*, Dietotherapy, Unani medicine

Analysis of Metabolites and Synergistic Nephroprotective Effects of Cinnamomum zeylanicum and Piper cubeba in Counteracting Cisplatin-Induced Kidney Toxicity

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ABSTRACT

Background: The background of this study revolves around exploring the potential nephroprotective effects of Cinnamomum zeylanicum (CZE) and Piper cubeba (PCE) either alone or in combination in mitigating cisplatin-induced nephrotoxicity.

Aims/Objectives: The primary aim of this research was to evaluate the nephroprotective efficacy of single extracts and their combinations against cisplatin-induced nephrotoxicity, following an assessment of acute toxicity.

Methods: The methods employed in this study included standardization of CZE and PCE extracts using HPTLC analysis, identification of bioactive compounds through UPLC-MS, acute toxicity testing of single high doses of the extracts in Wistar Albino rats, and evaluation of nephroprotective activity using various biochemical, histopathological, and immunohistochemical markers in cisplatin-induced renal toxicity models.

Results: Analysis of CZE revealed the presence of compounds like cinnamaldehyde, cinnamic acid, and quercetin, while PCE contained piperine, caffeic acid, and digallic acid among others. Both extracts were found to be non-toxic at high oral doses in rats. Cisplatin-induced nephrotoxicity was evidenced by changes in kidney and liver markers, oxidative and inflammatory markers, and histopathological alterations in the kidneys. Pretreatment with CZE, PCE, and their combinations normalized kidney function and histopathological features, showing nephroprotective effects comparable to a standard α -ketoanalogue.

Conclusion: In conclusion, this study highlights the nephroprotective potential of CZE and PCE either alone or in combination against cisplatin-induced nephrotoxicity. The observed synergistic effects of combining CZE and PCE suggest enhanced nephroprotective activity. However, further research, including in silico and clinical studies, is warranted to validate these findings and explore potential therapeutic applications in kidney-related disorders.

Keywords: Nephroprotection, Synergy, medicinal plants, metabolite analysis

Importance of Nutraceuticals in the Prevention of Disease

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ABSTRACT

Background: The importance of nutrition in sustaining life cannot be overlooked. It is essential for the survival of all living beings, including humans. Also, it plays a crucial role in promoting and maintaining good health throughout all stages of life, particularly in old age. Unani medicine, one of the oldest forms of medicine, has long recognized the significance of various nutrients and functional foods and their beneficial effects for individuals of different age groups and under different conditions. These conditions: may include infancy, adolescence, adulthood, old age, and various disease states. In his renowned book "*Al-Qanoon fit tib*," the esteemed Unani physician *Ibn-e-Sina* extensively discussed the importance of different dietary supplements, nutraceuticals, and functional foods such as *Mau sheer*, *Maul fawakeh*, and *Talbeena*.

Objective: This paper is aimed to find out economical and effective food recipes of nutraceuticals that may use to prevent many life-threatening diseases.

Method: a thorough study of classical Unani literature, Google Scholar, pub med, and Scopus indexing journals.

Result: Many nutraceuticals and functional foods have been documented in various Unani literatures, and extensive research has validated many of their claims.

Conclusion: Based on the aforementioned investigation, it was determined that Unani medicine offers a plethora of distinctive and innovative formulas that can be employed to mitigate the onset and advancement of numerous chronic ailments, particularly among elderly individuals.

Keywords: Dietrysuppliments nutraceuticals, functional foods., functional foods.

A Review of Unani drugs and pharmacological actions of their phytochemical constituents in the management of *Acne vulgaris*

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ABSTRACT

Background: *Acne vulgaris* is a chronic pleomorphic condition affecting the pilosebaceous units and having a multifactorial etiology. According to ancient Unani physicians, it is described *Buthūr Labaniyya* as small, white eruptions resembling as condensed drop of milk. *Acne* can cause severe psychological distress and undermine one's self-confidence.

Objectives: This paper delves into the therapeutic exploration of Unani drugs which are mentioned in classical Unani literature for the treatment of *Acne vulgaris*.

Methods: In this review paper, we have attempted to provide a comprehensive overview of the clinical uses of medicinal Unani drugs which possess anti-acne properties. The information was gathered from classical Unani literature and leading scientific databases and some articles using PubMed, Google scholar, etc. In this paper, we tried to summarize all Unani drugs which help to manage the disease of *acne vulgaris*.

Results: According to various clinical studies which have reported that these Unani drugs possess anti-acne properties that are worth investigating if their chemical constituents are responsible for the reported anti-acne activities.

Conclusions: According to this paper, an updated overview of the most widely reported active ingredients with anti-acne effects is presented. Conventional treatment of *acne* has been used for a long time which led to the emergence of resistance to *acne*-related pathogens. Alternatively, Unani medicine offers an affordable, comparatively safer method of prevention and treatment with minimal adverse effects when used consistently.

Keywords: *Acne vulgaris*, Unani drugs, Anti-acne properties, *Buthūr Labaniyya*

Formulation and Evaluation of Herbal Tooth Powder for the Treatment of Plaque

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ABSTRACT

Background: Oral hygiene is essential for health. It helps prevent dental diseases, enhances one's appearance, and improves the quality of life. Toothpowder has been used for centuries to maintain oral hygiene.

Objective: This paper aims to prepare and evaluate herbal toothpowder for treating plaque. To study the herbs used in herbal toothpowder formulation and to study their organoleptic properties, whitening effect, antiplaque activity, and flow properties.

Methods: All the ingredients were taken in fine powder form and were passed through sieve no. 60. The required quantities of the ingredients were weighed and mixed according to the ascending order of their weights. After mixing, they were stored in air-tight containers labeled F1, F2, F3, F4, and F5. Various tests are performed on the above toothpowder formulations (F1, F2, F3, F4, and F5). The formulation showing the best results is then optimized.

Results: The formulation's colour was reddish brown due to the presence of Cinnamon and clove; it had a minty odour due to peppermint. The formulation F4 had Carr's index, Hausner ratio, and angle of repose within appropriate limits, ensuring smooth powder distribution, preventing clumping, and enhancing the consumer experience. F4 showed the best foamability; the pH ranges between 7.0 and 7.8, within the mouth's physiological pH range. F4 had moderate whitening activity and excellent antiplaque activity.

Conclusion: It was concluded from the observations that F4 had better whitening, cleaning, and antiplaque activity than other prepared formulations, which were F1, F2, F3, and F5.

Keywords: Herbal, Toothpowder, Plaque

Formulation Development of Vesicular Nanoformulation via Intranasal Delivery for the Management of Seizures

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ABSTRACT

Epilepsy, a chronic central nervous system (CNS) condition characterized by repeated and unexpected seizures affects around 50 million individuals worldwide. Treating epilepsy entails challenges because drugs cannot cross the blood-brain barrier (BBB) to reach their molecular targets in the brain. Spanlastics are a relatively recent development in the field of vesicle-based drug delivery systems. They resemble non-ionic surfactant vesicles (niosomes), but are distinct in containing an edge activator. This study aims to formulate a benzodiazepine loaded spanlastics nanoformulation along with herbal antioxidant for intranasal delivery with the objective of improving drug delivery to the brain. In the pre-formulation analysis, organoleptic properties, DSC thermograms and FTIR spectra was analyzed. UV analytical method was developed and validated for further analysis in different media. The formulation was prepared by using the non-ionic surfactant and edge activator. The levels of the factors were decided by hit and trial approach by making different ratios of concentrations. For optimization, (Central composite design) CCD was employed for the generation of runs by incorporating the concentration of non-ionic surfactant and edge activator as two independent variables whose effect will be seen on particle size, polydispersity index (PDI) and entrapment efficiency (EE%), which were considered to be the dependent variables. The runs generated will be formulated to give an optimized formulation, which will be further evaluated using different studies.

Keywords: Spanlastics, Seizures, Intranasal delivery, Blood brain barrier (BBB), Formulation development

Anti-Inflammatory Properties of Eucalyptus: A Review of Evidence

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ABSTRACT

Background: *Eucalyptus*, a genus comprising over 700 species of flowering trees and shrubs native to Australia, has long been recognized for its medicinal properties. Among its various therapeutic effects, the anti-inflammatory properties of eucalyptus have garnered significant attention in recent years.

Aim: This abstract aims to provide a concise overview of the scientific evidence supporting the anti-inflammatory effects of eucalyptus.

Method: Comprehensive information was searched systematically from electronic databases, namely, PubMed, ScienDirect, Wiley, Scopus, Google scholar and Springer until February 2021 to find relevant data for publication on phytoconstituents with nephroprotective potential.

Result: Several bioactive compounds found in eucalyptus, including eucalyptol, flavonoids, and tannins, have been identified as key contributors to its anti-inflammatory activity. Eucalyptol has been extensively studied for its potent anti-inflammatory effects. Research indicates that eucalyptol exerts its anti-inflammatory action through various mechanisms, including inhibition of pro-inflammatory enzymes such as cyclooxygenase (COX) and lipoxygenase (LOX). Numerous preclinical studies using animal models have demonstrated the efficacy of eucalyptus extracts in reducing inflammation in various conditions, including arthritis, asthma, and dermatitis. Nonetheless, the existing evidence underscores the therapeutic potential of eucalyptus as a natural remedy for inflammatory conditions.

Conclusion: The result of the abstract highlights the evidence supporting the anti-inflammatory properties of eucalyptus. It summarizes findings from preclinical studies, clinical trials, and observational research demonstrating the efficacy of eucalyptus in reducing inflammation and alleviating symptoms associated with inflammatory disorders.

Keywords: Eucalyptus, Anti-inflammatory, Phytoconstituents

Improvement of nutrition and health-promoting bioactive compounds in mustard by using PGPR

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ABSTRACT

Mustard (*Brassica juncea*), also commonly known as brown mustard, leaf mustard, vegetable mustard, or Oriental mustard, belongs to the cruciferous family and is oil-yielding crop. Farmers eagerly cultivate mustard because of its adaptability to a variety of agroclimatic situations and good production. Seeds and leaves both are edible and are also used as spice and vegetables. Mustard is a cheap and nutritious food that contains various phytochemicals compounds like vitamins, minerals, chlorophylls, glucosinolates (and their degradation products), polyphenols and volatile components (allyl isothiocyanate, 3-butyl isothiocyanate, etc.), Saponins, Flavonoids, Alkaloids, Carbohydrates, Proteins etc. Additionally, mustard have wide range of pharmacological activities, including anti-oxidant, anti-inflammatory, bacteriostatic, antiviral, antidiabetic, anticonvulsant, anti-obesity, antihyperglycemic and antidepressant etc. Owing to the medicinal and economical benefit of mustard, we have explored the effects of soil-inoculated PGPR on physiological attributes, antioxidant system and glucosinolate content besides its implications for growth and productivity of mustard plant. We have given treatment of two bacterial strains *Pseudomonas fluorescens*, *Azotobacter chroococcum* individually as well as in combination and examined their impacts on mustard's phytochemicals, growth and yield. In mustard plants treated with PGPR, eight flavonoids showed significant increase. Kaempferol and cyanidin showed the highest concentrations and are reported to act as antioxidants with protective functions under stress. It was observed that inoculated plants had more phytochemical content and automatically more pharmacological activities as compared to non-inoculated plants.

Keywords: Phytochemicals, mustard, PGPR

Integrating Nanotechnology with Unani Herbal Medicine for Advanced Cosmeceuticals

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ABSTRACT

Nanotechnology is a cutting-edge scientific method that offers novel opportunities for various fields of application, including natural medicine. Unani medicine is an ancient system of healing that relies on herbal remedies, dietary practices, and alternative therapies. However, the bioavailability and efficacy of Unani medicines can be limited by factors such as poor solubility, stability, and penetration. Nanotechnology can overcome these challenges by enhancing the delivery, performance, safety, and stability of Unani medicines. It provides a comprehensive overview of the potential applications of nanotechnology in Unani herbal medicine for cosmeceutical purposes. Cosmeceuticals are products that combine cosmetic and therapeutic benefits, such as anti-aging, anti-inflammatory, and antimicrobial effects. Nanotechnology can improve the quality and functionality of cosmeceuticals by enabling the controlled release, targeted delivery, and improved absorption of active ingredients. It also discusses the challenges and prospects of this emerging technique, such as the need for standardization, quality control, regulatory compliance, and ethical considerations. Nanotechnology can open up new horizons for the development and innovation of Unani herbal cosmeceuticals, thus contributing to the promotion and preservation of this ancient system of medicine.

Keywords: Nanotechnology, Unani Herbal Medicine, Cosmeceuticals , Applications.

Novel Lipid Nanocarriers for Intranasal Delivery of Anticancer Drug Combined with Phytoconstituent for Therapeutic Intervention of Glioblastoma

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ABSTRACT

Glioblastoma multiforme (GBM) stands as the predominant and highly aggressive primary brain tumor, constituting 60% of adult brain tumors. Despite advancements, GBM's prognosis remains grim, with a 37.2% one-year survival rate. This research employing lipid-polymer hybrid nanoparticles (LPHNPs) as a nanolipidic carrier offer superior structural stability, prolonged circulation time, high encapsulation efficiency, and controlled release kinetics aiming to overcome limitations encountered with conventional delivery systems. Furthermore, the study advocates for the intranasal route of drug delivery due to its effectiveness, safety, and convenience for direct brain delivery. Integrating alkylating agent and phytoconstituent presents a promising strategy to enhance the efficacy of GBM treatment. In the preformulation analysis organoleptic properties, DSC thermograms and FTIR spectra was analyzed. UV analytical method was developed and validated for further analysis in different media such as nasal saline buffer (pH 6.4) and phosphate buffer (pH 7.4). For optimization, Central composite design (CCD) was employed for the generation of runs by incorporating the concentration of phospholipid, polymer and surfactant as three independent variables whose effect will be seen on particle size, polydispersity index (PDI) and entrapment efficiency (EE%) which were considered to be the dependent variables. The runs generated will be formulated to give an optimized formulation which will be further evaluated using different studies. Overall, this research provides insights into novel therapeutic strategies for GBM treatment, aiming to improve patient outcomes in this challenging landscape.

Keywords: Glioblastoma multiforme (GBM), lipid-polymer hybrid nanoparticles (LPHNPs), Intranasal (IN)

Herbal Spray Formulation for Delivery Of Glucocorticoids and Local Anesthetics for Mouth/Oral Ulcer Healing

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ABSTRACT

Oral ulcers, affecting approximately 4% of the global population, present as painful aphthae, characterized by mucosal ulceration. These disruptions, stemming from factors like trauma, immune system disorders, and nutritional deficiencies, manifest with symptoms such as inflammation, redness, and discomfort, impacting essential oral functions and overall quality of life. This research study entails a combination of glucocorticoids and local anesthetics, leveraging anti-inflammatory and pain-relief properties respectively, to promote healing and alleviate symptoms. This study proposes Herbal oral spray as a promising solution to the challenges inherent in conventional treatment methods. Their portability enables convenient application, catering to hectic lifestyles and ensuring consistent use. Comprehensive pre-formulation has been conducted, placebo and local anesthetic-loaded sprays formulated and subjected to physical evaluation and assay. The upcoming stages involve chemical analysis and in-vivo studies to assess efficacy and safety further. The introduction of oral sprays signifies a novel and efficient approach to managing mouth ulcers, potentially revolutionizing treatment paradigms. By amalgamating therapeutic agents in a user-friendly format, these sprays offer advantages in terms of ease of administration, effectiveness, and patient adherence. Further research promises to elucidate their therapeutic potential, offering insights into enhanced oral ulcer management strategies for clinical implementation. Embracing oral sprays could herald a new era in oral ulcer care, empowering patients with improved treatment options and better outcomes.

Keywords: Herbal oral spray, Glucocorticoids, Local anesthetics, Oral ulcer.

Gokhru kalan [Pedalium murex (Linn.)]: An Evidence- Based Review on its Phytochemical Aspect, Pharmacological Screening especially Anti-Inflammatory and Analgesic Activity.

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ABSTRACT

Pedalium murex Linn. (Pedaliaceae) also known Large Caltrops. It is a glabrous annual succulent herb found in Southern part, Deccan region of India and in some parts of Ceylon as a weed of waste places. It is generally called *Brihata Gokshur*, *Bara Gokhru*, *Dakshini Gokshur*, *Khaar-e-Khasak Kalaan/khurd*, *Gokhru Kalaan*. Its major phytochemical constituents include diosgenin and vanillin. Stem contains phytosterols, saponins, tannins and carbohydrates while roots are hub for reducing sugars, xanthoproteins, saponins, alkaloids, triterpenoid, flavonoids and phenolic compounds while leaves contain alkaloids, resins, flavonoids, saponins, proteins and steroids. The fruits are rich source of stigmaterol, flavonoids, alkaloids, glycosides, stable oil, resins, aromatic oil, triterpenoid, carbohydrates amino acids and phenols. A number of pharmacological studies have been reported from *P. murex* for antiulcerogenic, nephroprotective, hypolipidemic, aphrodisiac, antiproliferative activity, anti-inflammatory, antioxidant, antimicrobial and for insect insecticidal activity. Muralidharan and Balamurugan 2008 reported that Ethanolic extract of *P. murex* fruit is reported to have anti-inflammatory and analgesic effects. Patel et al. 2013 conducted a experiment in Lambda-carrageenan induced paw oedema in Wistar albino rats at a doses of 200 and 400 mg/kg, P.O. These doses resulted in significant anti-inflammatory activity from 15 to 180 min as compared to positive control Diclofenar sodium.

Keywords: *Pedalium murex* , Phytochemistry, Pharmacology

Role of Flaxseed in The Management of *Saman-e-Mufrit* (Obesity): A Review

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ABSTRACT

Obesity is a state of abnormal growth of adipose tissue, due to enlargement of fat cell size or an increase in fat cell number or in combination. In Unani medicine obesity is termed as *Saman-e-Mufrit* means excessive fat and *Farbahi* (Persian word) means *Motapa* (obese). Most of the Unani Physicians *Buqrat, Rufas, Jalinoos, Rabban Tabari, Ibn Sina, Ibn Nafis, Zakariya Razi* described *Saman-e-Mufrit* in classical Unani treatise with detailed description of its aetiology, sign and symptoms, complications and treatments. *Saman-e-Mufrit* is considered as balghami disease. It is a dangerous public health problem of present century and is one of the leading preventable causes of death which is affecting the whole world. According to W.H.O. 39% of adults aged 18 years and above were overweight in 2016, and 13% were obese. 39 million children under the age of 5 years were overweight or obese in 2020. Obesity is a risk factor in the development of hypertension, diabetes, gall bladder diseases, coronary heart diseases, certain types of cancers and infertility. It reduces life expectancy by 7.1 years in men and 5.8 years in women. Modern medicine has developed many drugs but side effects have limited their role in treating obesity. While, Unani system of medicine is endowed with enormous single drugs one of them is *Alsi* “Flaxseed” (*Linium usitatissimum*), that is rich in, omega-3 fatty acids, and dietary fibres, is used as dietary supplement in obesity since ages. Thus, in this paper authors have tried to highlight the efficacy of Flaxseed in the management of obesity.

Keywords: Obesity, Unani Medicine, *Saman-e-Mufrit*, *Farbahi*, Flaxseed.

Liposomal Intranasal Delivery of tyrosine kinase inhibitor and phytoconstituent: Approach for Parkinson's Disease Management

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ABSTRACT

Background: Parkinson's disease is a neurodegenerative disorder characterized by progressive loss of dopaminergic neurons. Current therapeutic strategies aim at symptomatic relief with limited success in halting disease progression. Repurposing established drugs offers a promising avenue for novel treatment approaches. Drug, tyrosine kinase inhibitor (TKI) primarily used in cancer treatment, has shown potential neuroprotective effects in preclinical PD models. However, its clinical translation is hindered by poor blood-brain barrier penetration.

Aim: This study explores the potential of liposomal intranasal delivery of tyrosine kinase inhibitor, with emerging evidence of neuroprotective effects, along with a phytoconstituent known for its antioxidant properties, as a novel strategy for PD management.

Methods: Liposomes, comprised of phospholipid, cholesterol, and Tween 80, were formulated as carriers for drug and phytoconstituent. A comprehensive pre-formulation study was conducted to optimize the formulation parameters using a Central Composite Design (CCD) approach. The dependent variables included size, Polydispersity Index (PDI), and entrapment efficiency, while independent variables encompassed phospholipid and cholesterol concentrations, along with sonication time.

Results: The resultant liposomal formulation will be characterized in terms of particle size, PDI, and drug entrapment efficiency. This study represents a significant step towards the development of an effective and targeted therapeutic approach for PD, leveraging the potential of liposomal intranasal delivery to enhance the bioavailability and efficacy of TKI and phytoconstituent in combating the pathological mechanisms underlying PD progression. Conclusion: Further in vitro and in vivo investigations are warranted to validate the therapeutic efficacy of the formulated liposomal delivery system.

Keywords: Parkinson's (PD), Tyrosine kinase inhibitor (TKI), Liposome, Intranasal.

Assess the diversity of secoisolariciresinol diglycoside (SDG) content in various accessions and get insight into the synergistic effect of PGPR and nano zinc on SDG accumulation in linseed (*Linum usitatissimum*) L.

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ABSTRACT

Secondary metabolites of plants such as lignans are obtained from phenylpropanoids. They possess various health benefits such as antitumor, antioxidant, antiviral, antimicrobial, etc. The podophyllotoxin-containing species are widely uprooted to fulfill ever-increasing pharmaceutical requirements, making some of the species endangered. The assessment of genetic variability in accessions of germplasm enables the most efficient utilization of genetic resources in the development of new varieties. The current study used mass spectrometry (MS) analysis to identify genetic variability among distinct linseed accessions (*Linum usitatissimum* L.) in SDG accumulation. The genetic variations among the accession were further confirmed using hierarchical cluster analysis. Multiple parameters were employed in conjunction with multivariate analysis to precisely identify the accessions with the highest efficiency as EC1537 (V7) and the genotype with the lowest efficiency as IC0345421 (V1). Our study also quantified SDG content in screened accessions and SDG content was found to be of the order of 19.33% in EC1537 (V7; high yielding) as compared to 9.49% in IC0345397 (V1; low yielding) accession. The screened contrasting (low and high) accessions were used in subsequent experiments using different concentrations of ZnO nanoparticles (100 and 1000 ppm) and PGPR (*Bacillus megaterium*). When we compared the control plant to the treated plant (Bacillus + nano ZnO (1000ppm) of low-yielding accession, a 33.81 % variation in SDG content was found. The results show that sustainable approaches such as PGPR and nano zinc fertilization can be used in breeding lines to produce a sustainable crop with high SDG content and serve agricultural and economic needs.

Keywords: Flaxseed, SDG, antioxidant

Integrating Nanotechnology with Unani Herbal Medicine for Advanced Cosmeceuticals

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ABSTRACT

Nanotechnology is a cutting-edge scientific method that offers novel opportunities for various fields of application, including natural medicine. Unani medicine is an ancient system of healing that relies on herbal remedies, dietary practices, and alternative therapies. However, the bioavailability and efficacy of Unani medicines can be limited by factors such as poor solubility, stability, and penetration. Nanotechnology can overcome these challenges by enhancing the delivery, performance, safety, and stability of Unani medicines. It provides a comprehensive overview of the potential applications of nanotechnology in Unani herbal medicine for cosmeceutical purposes. Cosmeceuticals are products that combine cosmetic and therapeutic benefits, such as anti-aging, anti-inflammatory, and antimicrobial effects. Nanotechnology can improve the quality and functionality of cosmeceuticals by enabling the controlled release, targeted delivery, and improved absorption of active ingredients. It also discusses the challenges and prospects of this emerging technique, such as the need for standardization, quality control, regulatory compliance, and ethical considerations. Nanotechnology can open up new horizons for the development and innovation of Unani herbal cosmeceuticals, thus contributing to the promotion and preservation of this ancient system of medicine.

Keywords: Nanotechnology, Unani Herbal Medicine, Cosmeceuticals , Application

A review on Phytonanomedicines for the treatment of neurological disorders

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ABSTRACT

Neurodegenerative diseases (NDs) are characterized by progressive loss of functioning and structure of neurons and are of great burden to individuals and society. Protein degradation, inflammation, oxidative stress, environmental factors, mitochondrial defects, abnormal protein accumulation in neurons, and familial history are among the commonly studied environmental causative factors for NDs. These disorders are a significant cause of disability and mortality, and consequently, increasing life spans is one of the key challenges for medical research. The blood-brain barrier (BBB) is a system of blood vessels and endothelial cells that prevents potentially dangerous compounds from entering the brain. Treatments for disorders that harm nerve cells are now extremely difficult to discover. Phytochemicals are promising therapeutics for various neurodegenerative disorders. However, their efficacy, pharmacokinetic properties, and penetration across the blood-brain barrier can be improved using nanotechnology-based drug delivery systems such as nanoparticles. The emergence and advancement of nanotechnology show favourable prospects for overcoming this phenomenon. Nanotechnology-based drug delivery systems that have dimensions between 1 and 100 nm could potentially be used to ensure enhanced efficacy, cellular uptake, specific transport, and delivery of specific molecules to the brain, owing to their modified physico-chemical features. The conjugates of NBDDS and medicinal plants, or their components known as nano phytomedicine, have been gaining significance lately in the development of novel neurotherapeutics owing to their natural abundance, promising targeted delivery to the brain, and lesser potential to show adverse effects. The use of synthetic drugs is associated with many side effects, which make them inappropriate for regular treatment. Considering the adverse effects of these synthetic drugs, scientists have made a soft turn towards the utilization of phytochemicals, as they have minimal side effects. The antioxidative, anticholinesterase, anti-inflammatory, and anti-amyloid properties of phytochemicals make them a promising therapeutic agent.

Keywords: Neurodegenerative, Nanotechnology, Nanophytomedicinee

Anti-Inflammatory Properties of Eucalyptus: A Review of Evidence

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ABSTRACT

Background: Eucalyptus, a genus comprising over 700 species of flowering trees and shrubs native to Australia, has long been recognized for its medicinal properties. Among its various therapeutic effects, the anti-inflammatory properties of eucalyptus have garnered significant attention in recent years.

Aim: This abstract aims to provide a concise overview of the scientific evidence supporting the anti-inflammatory effects of eucalyptus.

Method: Comprehensive information was searched systematically from electronic databases, namely, PubMed, ScienceDirect, Wiley, Scopus, Google Scholar and Springer until February 2021 to find relevant data for publication on phytoconstituents with nephroprotective potential.

Result: Several bioactive compounds found in eucalyptus, including eucalyptol, flavonoids, and tannins, have been identified as key contributors to its anti-inflammatory activity. Eucalyptol has been extensively studied for its potent anti-inflammatory effects. Research indicates that eucalyptol exerts its anti-inflammatory action through various mechanisms, including inhibition of pro-inflammatory enzymes such as cyclooxygenase (COX) and lipoxygenase (LOX). Numerous preclinical studies using animal models have demonstrated the efficacy of eucalyptus extracts in reducing inflammation in various conditions, including arthritis, asthma, and dermatitis. Nonetheless, the existing evidence underscores the therapeutic potential of eucalyptus as a natural remedy for inflammatory conditions.

Conclusion: The result of the abstract highlights the evidence supporting the anti-inflammatory properties of eucalyptus. It summarizes findings from preclinical studies, clinical trials, and observational research demonstrating the efficacy of eucalyptus in reducing inflammation and alleviating symptoms associated with inflammatory disorders.

Keywords: Eucalyptus, anti-inflammatory, phytoconstituents

Exploring Phytochemical and Pharmacological Properties of Methanolic Silk Extract from Resha-e-Makka: In Vitro and In Vivo Evaluation

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ABSTRACT

Background: Resha-e-Makka (*Zea mays*), ranked as the world's third leading cereal grain, holds significant traditional importance in the Unani system of Medicine due to its various pharmacological properties. Nonetheless, there's a lack of scientific validation and documentation regarding the phytochemical screening of *Z. mays* silk and its nephroprotective potential in live organisms.

Objectives: This study aims to assess the initial phytochemical, antioxidant, HPTLC, and LC-MS analyses, as well as the in vivo nephroprotective activity of methanolic silk extract from *Z. mays*.

Methods: Antioxidant activity was evaluated through in vitro assays, while chemical fingerprinting was conducted using HPTLC and LC-MS. Furthermore, in vivo experiments on Wistar rats were conducted to assess nephroprotective potential.

Findings: *Z. mays* demonstrates significant antioxidant potential and is enriched with high phenolic and flavonoid content. Moreover, HPTLC and LC-MS analyses reveal numerous compounds belonging to different classes of polyphenols. In vivo, studies on Wistar rats induced with nephrotoxicity by chemicals show nephroprotective activity through antioxidant, anti-inflammatory, and anti-apoptotic mechanisms.

Conclusion: In summary, the results indicate that the methanolic silk extract of *Z. mays* possesses high antioxidant effects in vitro and contains potent polyphenolic compounds that may prevent various diseases and could potentially be utilized in food and pharmaceutical products. Additionally, the extract shows nephroprotective potential through antioxidant, anti-inflammatory, and anti-apoptotic effects.

Keywords : *Zea mays*, Nephroprotection, metabolite analysis

Phytochemicals in Alzheimer's Disease: Exploring Natural Compounds for Therapeutic Potential

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ABSTRACT

Background : Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by memory loss and cognitive decline, lacking effective treatments. Phytochemicals, plant-derived bioactive compounds, have garnered attention for potential therapeutic roles in AD. This abstract summarizes recent findings on phytochemicals and their impact on AD. Various phytochemicals, including polyphenols, flavonoids, alkaloids, and terpenoids, exhibit neuroprotective properties by possessing anti-inflammatory, anti-amyloidogenic, and antioxidant qualities crucial for mitigating AD-related degeneration. Notably, polyphenols like resveratrol and curcumin show promise in reducing beta-amyloid plaque and neurofibrillary tangle formation, pivotal in AD pathogenesis. Phytochemicals influence cellular signaling pathways tied to AD pathophysiology, modulating transcription factors and kinases involved in inflammation, neuronal survival, and synaptic plasticity. This regulation holds potential for enhancing cognitive performance and slowing disease progression.

Aim : The study aims to systematically identify and assess natural substances with potential AD therapeutic effects.

Methodology : The methodology involves an extensive literature review, in silico screening, selection criteria establishment, in vitro studies for bioactivity confirmation, and in vivo assessments in AD models.

Result : Results indicate several naturally occurring substances, such as flavonoids, polyphenols, alkaloids, terpenoids, and other bioactive compounds, exhibiting therapeutic potential against AD.

Keywords : Alzheimer's disease, Phytochemicals, Neuroprotection, Beta-amyloid, Neurogenesis

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Synthesis and structure activity relationship for new class of tetrahydronaphthalene amide inhibitors of Mycobacterium tuberculosis

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ABSTRACT

Background/objectives: Tuberculosis has become one of the top infectious killer in the world. The rise of drug-resistant tuberculosis (TB) in recent times has become a major global health problem and this resurgence of such a major infectious disease has also provided an impetus for the development of new classes of drugs. The current investigation is aimed to synthesize and evaluate the anti-TB activity of tetrahydronaphthalene derivatives (isosteres of tetrahydroisoquinolines) to inhibit ATP synthase.

Methodology: Three different series of tetrahydronaphthalene derivatives were synthesized by varying substitutions. Structure -activity relationship was determined. Biological activity of synthesized derivatives was determined by using MABA and LORA culture. Preclinical evaluation was done which include testing of inhibitory effects of THNA on ATP synthase and mammalian cell toxicity.

Results and Discussion: A new class of ATP synthase inhibitors tetrahydronaphthalene derivatives were synthesized. Compounds showed good biological activity and potent inhibitory effects on ATP synthase. Systematic investigation of THNA structure-activity relationships revealed the optimal linker and terminal units, stereochemical requirements and tolerated positions for improvement of PK properties.

Conclusion: The study concluded that tetrahydronaphthalene amides, a new class of ATP synthase inhibitors were effective inhibitors of M.tb in culture. smaller panel of these compounds exhibited potent M.tb growth inhibition and were therefore taken forward to pharmacokinetic studies. These findings show the potential of novel tetrahydronaphthalene amide-based compounds to be further developed into drug candidates for tuberculosis.

Keywords : Tetrahydronaphthalene, Mycobacterium tuberculosis, ATP synthase

***Linum ussitatissimum* (Alsi): Impact on reproductive health health of Polycystic Ovarian Syndrome (PCOS) patients**

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ABSTRACT

Linum ussitatissimum is one of the most significant medicinal plants and is traditionally utilized for both nutritional and varied health benefits. It is an annual herbaceous plant with a height range of 60 to 120 cm. It has tiny, terminal panicle-borne blue, bluish-violet, or white blooms. The fruits are capsular with two seeds in each of their five cells. Flaxseed is a nutrient-dense plant that has been categorized as a functional food due to its many health advantages. The plant has a wide range of pharmacological and biological properties. The most abundant phytoconstituents in flaxseeds are lignan and α linolenic acid. Additionally, it is one of the best sources of antioxidants, high-quality protein, and soluble fibre. Its long journey from being an elderly drug to the 21st century has made it possible for a large population. A Comprehensive description of the plant, with a focus on its medicinal uses and pharmacological efficacy in the treatment of Polycystic Ovarian Syndrome(PCOS), is included in the current review. PCOS, a prevalent endocrine disorder, has effects on metabolism and reproduction, including anovulation, infertility, and a higher risk of developing diabetes mellitus. This review offers information on the pharmacological properties, phytochemistry, and traditional usage of the Flaxseed.

Keywords : *Linum ussitatissimum*, antioxidants, PCOS, Flaxseed

***Tylophora indica* (Burm. f.) Merr alleviates asthma by concurrently reducing tracheal ring contraction and airway inflammation.**

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ABSTRACT

Background: *Tylophora indica* (Burm. f.) Merr is a traditional medicinal plant known for its wide-ranging therapeutic properties in addressing asthma, diarrhoea, cancer, and inflammation, yet there is a lack of scientific evidence confirming its efficacy in treating asthma.

Aim: In this study, we have investigated the tracheal relaxation ability and antiasthmatic activity of the selected bioactive fraction of *T. indica*.

Methods: The most active fraction of *T. indica* leaves selected through bio-guided activity was subjected to LC–MS analysis for chemical profiling. The binding affinity of identified compounds in fraction towards M3 and H1 receptors was determined by molecular docking study. Further, the active fraction was evaluated for its tracheal smooth muscle relaxant activity and in vivo antiasthmatic activity.

Results: Analysis using LC-MS revealed the presence of five primary bioactive compounds in F-2 (most active fraction). Identified compounds demonstrated good docking interactions with M3 and H1 receptors. The ex vivo study showed that F-2 effectively relaxed tracheal rings by targeting several signaling pathways, specifically, through noncompetitive antagonism of histamine and muscarinic receptors, stimulation of β 2-adrenergic receptors, and activation of soluble guanylyl cyclase. In in vivo experiments, F-2 alleviated airway hyperresponsiveness and reduced the levels of inflammatory cytokines and IgE in BALF.

Conclusions: These findings validate the traditional usage of *T. indica* as an antiasthmatic remedy, supported by ex vivo, in silico, and in vivo investigations.

Keywords : Asthma, H1 receptor, M3 receptor, tracheal relaxant

Antimicrobial Activity of the Medicinal Plants

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ABSTRACT

BACKGROUND: The healing properties of the *Withania somniferum*, *Aloe vera*, *Ocimum basilicum* have proven invaluable in combatting the debilitating effects of microbial infections. Additionally, the vast potential of medicinal plants to yield novel chemical compounds for the development of effective therapeutic agents cannot be underestimated. Throughout history, plants have been a rich source of breakthrough drugs, contributing greatly to the betterment of human health and vitality. While some plants have been scientifically validated by various researchers for their medicinal properties, many others remain unexplored. It is imperative that we revive and explore the medicinal potential of these plants in order to fully harness their healing powers.

Aim and objectives: Numerous researchers have conducted extensive bioassays on various plant extracts to determine their antimicrobial properties. The findings of these studies should be widely disseminated to the public. Thus, the current study aims to provide a comprehensive review of select plants that have shown promising antimicrobial effects.

Methods: Data on antimicrobial activity of medicinal plant were collected and compiled from Scientific Databases like Google Scholar, Pub Med.

RESULT: The various sources demonstrated promising result. It was proved that medicinal plant exhibited antimicrobial properties.

Conclusion : In conclusion, our investigation into the properties of medicinal properties has revealed promising evidence of its effectiveness as antimicrobial agent.

Keywords : Antimicrobial, therapeutic, medicinal

Effect of *Hijamah* (Cupping) on *Kalaf* (Melasma): Case Study

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ABSTRACT

In primary care, skin problems are very important, and the prevalence of some skin conditions is very common such as Psoriasis, Dermatitis, Leucoderma, Eczema, Urticaria, Melasma, Pityriasis, Leprosy, Ringworm etc. Skin is the largest organ of the body and almost all disease has manifestation in the form of skin eruptions or lesions. Illaj bit tadbeer (regimental therapy) one of the modes of treatment in Unani medicine has been successfully used in treatment of various diseases and improving the completion of skin and appendages. This can be achieved with the help of *irsal-e-alq* (leeching), *al-hijamah* (cupping), *nutool* (irrigation), *fasd* (venesection) etc., as mentioned in our classical literature. Al-Hijamah (Cupping) literally means to ‘reduce in size’. It is an ancient method of treatment and it cures broad range of conditions such as blood diseases, sterility/impotency, skin diseases, arthritis/rheumatism, back pain, migraines and general well-being. Here we report a case study of cupping on skin diseases *Melasma* (Kalaf). *Hijamah Bila Shurt* (dry cupping) was done on alternate days for twelve days followed by *Hijamah Bil Shurt* (Wet cupping) on fourteenth day then continued follow up for one week with dry cupping. The results were evaluated and compared before and after the treatment with the help of photographs. Evaluation of results will be elaborated in full length paper.

Keywords : Cosmetology, Melasma, Hijamah, regimental, Kalaf

Nattokinase: A Miracle traditional Japanizes food from fermented soybean for cardiovascular & other related disorders

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ABSTRACT

Background: A classic Japanese dish called nattō is fermented whole soybeans using *Bacillus subtilis* var. natto. It is frequently served with rice for breakfast in Japan, which is believed to be one of the factors associated with fewer cardiovascular incidences in Japan. **Methodology:** Two (black and white) different varieties of soybean were collected from the local market; six different *B. subtilis* microbial strains were collected from MTCC Chandigarh, India; and *B. subtilis* natto was procured from Japan. Solid-state fermentation (SsF) and submerged fermentation (SmF) were developed for each microbial strain and for each type of soybean (White & Black) Microbial strain improvement was carried out by treating *B. subtilis* natto under UV for different time intervals (0–30 minutes). For the determination of fibrinolytic activity, a fibrin plate assay and a fibrin solution dissolving assay were developed. **Results:** The maximum fibrinolytic activity was found in a strain exposed to UV for 20 minutes. Submerged fermentation has been shown to produce a nattokinase yield of 4107.64 FU/ml, & solid-state fermentation has a yield of 3576.25 FU/ml. Fibrinolytic activities were checked at 275nm using the spectrophotometric method and a fibrin plate assay. **Conclusion:** Nattokinase has the potential to dissolve the fibrin clot; SmF produces the maximum NK enzyme as compared to the SSF process.

Keywords: Nattokinase, cardiovascular diseases, *Bacillus subtilis*

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The Role of Vitamin D in Alleviating Primary Dysmenorrhea: A Comprehensive Review

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ABSTRACT

Primary dysmenorrhea is a frequent gynecological ailment that interferes with women's daily activities and social lives. The severity of dysmenorrhea varies among women, and its management is of high importance for them. Given that non-steroidal anti-inflammatory drugs (NSAIDs), the established treatment for dysmenorrhea, are associated with many adverse events, alternative therapeutic options are under evaluation. This abstract delves into the emerging evidence surrounding the role of Vitamin D in the relief of primary dysmenorrhea. Vitamin D, traditionally recognized for its crucial role in calcium homeostasis and bone health, has garnered attention for its non-skeletal effects, including its potential impact on reproductive health. Several studies have suggested a correlation between Vitamin D deficiency and increased severity of primary dysmenorrhea symptoms. This association may be linked to the immunomodulatory and anti-inflammatory properties of Vitamin D, as well as its role in neuromuscular function. In conclusion, this abstract provides a comprehensive overview of the current state of research on the role of Vitamin D in alleviating primary dysmenorrhea. It highlights the potential of Vitamin D supplementation as a promising avenue for non-pharmacological management of this prevalent gynecological condition, paving the way for future investigations and personalized interventions in women's health.

Keywords: Primary dysmenorrhea; vitamin D

**Role of *Baboona* (*Matricaria chamomile*) in the Management of *Usre Tams*:
A Case series**

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ABSTRACT

Introduction : Dysmenorrhea is one of the most common Gynecologic complaints. In the present scenario it affects half of all the adolescent females and represents the leading cause of school or college absenteeism. Hence, is most common in the age group of 20 and 24 years.

Methodology : 5 patients were enrolled in this study .and the drug is given for the 3 consecutive menstrual cycle.

Discussion: The management mainly includes the use of NSAIDs and COX-2 inhibitors. However, the treatment only provides temporary relief to the patient. . A number of therapeutic interventions are used to manage the pain during menstruation, including the role of Ilaj Bil Dawa, Ilaj bil Ghiza and Ilaj Bil Tadbeer etc. In the vast literature available in Unani texts, there are number of drugs are available which are recommended for the management of dysmenorrhea . The unani drug Baboona is given for 3 consecutive cycles and in these patient signs and symptoms of dysmenorrhea were improved

Conclusion : even though disorders are common ,dysmenorrhea presently has no permanent cure as a result ,the alternative available to treat the ailment within the current medical system are fairly restricted perhaps some have negative impact as well .so unani drugs should be used to overcome the problem of dysmenorrhea .

Keywords: Usre Tams, *Matricaria chamomila*, Primary Dysmenorrhea, Women, NSAIDs

Effect of Plant based collagen and animal based collagen in Knee Osteoarthritis Patients

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ABSTRACT

Background: Over the last three decades, the number of prevalent symptomatic cases of osteoarthritis (OA) in India has increased by 2.66 times. Osteoarthritis becoming more common among today's elderly generation as because of the life expectancy of people has increased with the progression of medical health care. Among the most prevalent degenerative disorders that impair elderly people's mobility is knee osteoarthritis (KOA). Available evidence indicate collagen as a symptomatic slow-acting drugs for OA (SYSADOAs). Collagen has become as an emerging focus of research for articular health. Collagen preparations are prescribed widely by physicians now a days, with proven efficacy. Different forms of collagen have been used including plant based collagen and animal based denatured & undenatured collagen.

Objective: This study focuses on evaluating the effects of these market available collagen supplements in the osteoarthritis patients.

Methodology: The extensive survey carried out on clinical and preclinical studies using digital databases PubMed, Cochrane, Mendeley, Google scholar etc. that contain the collagen supplement in osteoarthritis patients.

Result: The available research indicates a definite correlation between the symptomatic relieve and mode of action of collagen, even if preclinical and clinical studies demonstrate the safety and effectiveness of food items containing both forms of collagens. But further large population based studies yet to report for further evaluation of effectiveness of collagen supplements.

Conclusion: Collagen supplements relieve the symptoms in osteoarthritis patients in short period studies further large population studies need to be design for further evidences.

Keywords: Collagen; osteoarthritis; knee osteoarthritis; collagen supplements; collagen peptide; undenatured collagen; plant collagen

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Comparative Study Of Otorrhea, Unani And Modern Aspect

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ABSTRACT

Word otorrhea is derived from a Greek word oto' means ear and 'rhea means discharge. In unani terminology otorrhea is known as "sailan-ul-uzn". Sailan-ul-uzn is derived from an arabic word sailan' means a discharge and 'uzn' means ear. This disease is more common in children because they have wet temperament. According to unani medicine this disease occurs in those who have excessive fluid (ratubat) in the body and their temperament is balghami (phlegmatic). According to modern concept the discharge is due to infection in external ear and middle ear caused by staphylococcus aureus, pseudomonas aeruginosa. Symptoms appear as wajaul uzn (earache), izdiyad-e-hararat, fullness in ear. The unani drugs used for its treatment are musaffi e dam, musakkin and dafae taaffun and mujaffif.

Keywords: otorrhea, *sailan-ul-uzn*, ear discharge.

An Overview of *Waram al Lawzatayn* (tonsillitis) and its Management Through Unani and Modern Medicine

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ABSTRACT

Tonsillitis is a prevalent clinical condition, particularly impacting school-age children making regular visits to doctor necessary. It is part of the spectrum of pharyngitis, which ranges from localised tonsillar infection to generalised infection of the pharynx and commonly affects young healthy adults. In unani medicine tonsillitis is known as *Waram al Lawzatayn*. Depending on the humours involved it is of four types i.e *Damvī* (sanguineous), *Balgamī* (phlegmatic), *Safrawī* (bilious), and *Safrawī* (melanotic). According to modern system of medicine pathophysiology of tonsillitis involves the invasion of the tonsillar tissue by various pathogens, predominantly bacteria and viruses. The interplay of microbial invasion and the host immune response triggers the characteristic symptoms of tonsillitis, including sore throat, difficulty swallowing, fever, and tender cervical lymphadenopathy. Clinical evaluation, throat culture, and rapid antigen tests are common diagnostic tools. In modern system of medicine treatment the management of tonsillitis encompasses both conservative medical as well as surgical approach. In unani medicine treatment typically involves balance of humour through herbal formulation such as *Lu, āb bahidana*, *Lu, āb isapghol*, *sheera unnab arq gaozaban* along with *sharbat toot siyah*. Integrating traditional systems of medicine like Unani with modern medical approaches can offer a holistic, comprehensive and patient-centered approach to managing tonsillitis.

Keywords: Tonsillitis, *Waram al lawzatayn*, humour

A review on Phytonanomedicine for the treatment of neurological disorder

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ABSTRACT

Neurodegenerative diseases (NDs) are characterized by progressive loss of functioning and structure of neurons and are of great burden to individuals and society. Protein degradation, inflammation, oxidative stress, environmental factors, mitochondrial defects, abnormal protein accumulation in neurons, and familial history are among the commonly studied environmental causative factors for NDs. These disorders are a significant cause of disability and mortality, and consequently, increasing life spans is one of the key challenges for medical research. The blood-brain barrier (BBB) is a system of blood vessels and endothelial cells that prevents potentially dangerous compounds from entering the brain. Treatments for disorders that harm nerve cells are now extremely difficult to discover. Phytochemicals are promising therapeutics for various neurodegenerative disorders. However, their efficacy, pharmacokinetic properties, and penetration across the blood-brain barrier can be improved using nanotechnology-based drug delivery systems such as nanoparticles. The emergence and advancement of nanotechnology show favourable prospects for overcoming this phenomenon. Nanotechnology-based drug delivery systems that have dimensions between 1 and 100 nm could potentially be used to ensure enhanced efficacy, cellular uptake, specific transport, and delivery of specific molecules to the brain, owing to their modified physico-chemical features. The conjugates of NBDDS and medicinal plants, or their components known as nano phytomedicine, have been gaining significance lately in the development of novel neurotherapeutics owing to their natural abundance, promising targeted delivery to the brain, and lesser potential to show adverse effects. The use of synthetic drugs is associated with many side effects, which make them inappropriate for regular treatment. Considering the adverse effects of these synthetic drugs, scientists have made a soft turn towards the utilization of phytochemicals, as they have minimal side effects. The antioxidative, anticholinesterase, anti-inflammatory, and anti-amyloid properties of phytochemicals make them a promising therapeutic agent.

Keywords : Neurodegenerative, Phytonanomedicine, Nanotechnology

Hepatoprotective and immunomodulatory effects of Dawa-UI-Kurkum, a Unani polyherbal preparation and the possible mechanisms in experimental model of anti-tubercular drug induced hepatotoxicity in rats

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ABSTRACT

Objective: The effects of a polyherbal Unani formulation, Dawa-ul-Kurkum was evaluated on anti-tubercular (TB) drug induced hepatotoxicity in rats and its possible causes were investigated.

Materials and Methods: Biochemical markers also done with the manual of biochemical kit. Immunoglobulin and cytokine levels were assessed by ELISA kit manual method. The Griess reaction was used to assess NOx concentrations, and lipid peroxidation was evaluated spectrophotometrically as 2-thiobarbituric acid-reactive substance (TBARS). Glutathione (GSH) levels were estimated using the Ellman method.

Results: In the vehicle treated experimental group, anti-TB drugs induced significant hydropic degeneration in the hepatocytes as evidenced by increased level of biochemical markers, cytokine as well as immunoglobulin as compared to controls. Histopathological examination showed histologically the hepatic tissue shows hydropic degeneration in the hepatocytes. There is vasodilation and perivascular infiltrate of inflammatory cells. The normal radiating pattern of the hepatocytes was not preserved. Pretreatment with Dawa-UI-Kurkum (DK, 250 and 500 mg/kg) had significant protective and immunomodulatory benefits against anti-TB drug-induced cytokine, immunoglobulin, biochemical and histopathological liver function derangements. The hepatoprotective effects of DK were comparable to that seen after silymarin therapy. Anti-TB drug-induced liver damage was linked to higher levels of MDA and NOx, but lower levels of GSH, as compared to controls. Different degrees of attenuation in these oxidative stress markers were induced by pretreatments with DK and HA.

Conclusion: The findings support Dawa-UI-Kurkum has hepatoprotective and immunomodulatory benefits in anti-TB drug-induced hepatotoxicity, and imply that the polyherbal's attenuation of oxidative stress may be the mechanism of action for such effects.

Keywords : Hepatotoxicity, antitubercular, Dawa-UI-Kurkum, Histopathology

Biological evaluation of novel triterpenoids isolated from *Helichrysum stoechas* (L.) Moench. collected from Mediterranean Sea bank: Misurata-Libya.

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ABSTRACT

Helichrysum stoechas (L.) Moench (Family Compositae) is a medicinal herb endowed with several pharmacological activities. Ethanolic extract of the aerial parts of the plant was used for the isolation of lignoceric acid (HS-02), lanost-5-en-3 β -ol-26-oic acid (HS-03), and lanost-5-en-26-oic acid-3 β -olyl palmitate (HS-04). All molecules were screened for anti-inflammatory and analgesic activities at 5 and 10 mg/kg body weight doses, and the TEST program assessed their toxicity. The molecular interaction profile with numerous anti-inflammatory drug targets was investigated by molecular docking. Compounds HS-03 and HS-04 showed a significant reduction in paw volume compared to the control group challenged with carrageenan in the rats, and prolongation of the paw licking/jumping and reduction in the number of writhes was noted after the injection of acetic acid in mice. In a hot plate test, all compounds showed significant pain inhibition. These findings might aid in the development of anti-inflammatory and anti-analgesic therapies.

Keywords : *Helichrysum stoechas* (L.) Moench, Compositae, lanostane triterpenoids, anti-inflammatory, analgesic, molecular docking.

Concept of Antenatal Care in Unani System of Medicine- A review

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ABSTRACT

Systematic care of women during pregnancy is called Antenatal Care/ Tadbeer-e-hamla. Good health of the fetus not only impact the health of the newborn but also has a major effect on adult life and disease risk. Ideally, the care should begin soon after conception and continue throughout pregnancy. Most problems at birth are caused by prematurity, fetal growth restriction, congenital abnormalities, or asphyxia. The primary aim of antenatal care is to prevent birth defects, preterm labour, neural defects and achieve a healthy mother and healthy baby at the end of pregnancy. Antenatal care (ANC) has repeatedly been shown to reduce neonatal deaths via the identification of high-risk pregnancies. In Unani literature, the comprehensive explanation of antenatal care is mentioned under the heading of "Tadabeer-e-Haamla" where there is a detailed description about presumptive and definitive signs of pregnancy, dietary regimens and lifestyle during pregnancy. Eating behaviors and other lifestyle habits have a major role in optimizing the health of women in pregnancy. In Unani system of medicine, paying special attention to correction of diet, lifestyle, and preventive attitude with effective and simple therapeutic procedures, it seems that traditional (Unani) medicine can offer efficient management to alleviate some pregnancy complications.

Keywords: *Tadbeer-e-hamla*, Antenatal Care, Congenital abnormalities, Asphyxia

Biosensors for Herbal Medicine Quality Control Biosensors have Emerged as Valuable Tools For the Quality Control of Herbal Medicines, Enabling the Detection of Various Compounds and Ensuring Their Authenticity. In the Context of Herbal Medicine

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ABSTRACT

Biosensors have emerged as valuable tools for the quality control of herbal medicines, enabling the detection of various compounds and ensuring their authenticity. In the context of herbal medicine, biosensors have been employed to detect heavy metals, pesticide residues, and the authenticity of raw materials. For instance, molecular technology has been used for the rapid and accurate identification of medicinal materials, while gene chips have been utilized to detect the authenticity of raw materials, heavy metals, and pesticide residues. Additionally, enzyme biosensors have been developed to measure pesticide residue levels in samples. These applications demonstrate the potential of biosensors in ensuring the quality and safety of herbal medicines. The use of biosensors in the pharmaceutical industry, including herbal medicine, is a rapidly growing field, offering precise and reliable monitoring of various compounds and processes. This abstract provides a concise overview of the role of biosensors in herbal medicine quality control, highlighting their various application and the potential impact on ensuring the quality and safety of herbal medicines.

Keywords: Biosensors, Herbal Medicine, Quality Control, Heavy Metals, Pesticide Residues, Authenticity

Exploring Phytochemicals and Antibacterial Efficacy in *Pistacia integerrima*: A Computational and Experimental Study

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ABSTRACT

The global issue of antibiotic resistance arises from bacteria's ongoing capacity to evolve resistance mechanisms against a variety of antimicrobial classes. Consequently, it is imperative to actively seek out diverse antibiotics characterized by innovative chemical structures and distinct modes of action. The study aimed to examine the comprehensive antibacterial effects and phytochemical composition of the methanolic extract derived from *Pistacia integerrima* galls. The antibacterial attributes were assessed using the well diffusion method, and the minimum inhibitory concentration (MIC) was established through the broth dilution technique. The MIC for *Pistacia integerrima* extract (PIE) was determined to be 10 mg/mL against both *E. coli* and *S. aureus*. Biofilm inhibition was evaluated using the crystal violet method, revealing substantial inhibition by PIE. Transmission electron microscopy (TEM) illustrated morphological alterations in both bacterial strains in the presence of PIE. A total of 17 metabolites were identified through GC-MS analysis with most of the compounds exhibiting antibacterial properties, HPTLC shows the presence of the important metabolite quercetin. Furthermore, virtual ligand screening revealed quercetin and phthalic acid as the most medicinally active constituents and potential inhibitors of tyrosyl-tRNA synthetase (TyrRS) and Dihydrofolate reductase (DHFR). Further research into PIE's bioactive compounds could lead to the development of new antibacterial compounds.

Keywords : *Pistacia integerrima*, antibacterial, bacterial membrane integrity, biofilm, HPTLC, GC-MS.

Integration of Herbal Medicine with Wearable Devices

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ABSTRACT

Wearable gadgets are increasingly being linked to healthcare systems, providing real-time data for personalized and preventive care. The combination of herbal medicine and wearable technology opens up prospects for personalized and data-driven treatment. Data quality, interoperability, and health equity are all issues that must be solved before wearables may be successfully integrated into clinical settings. Wearables have the potential to help doctors monitor patients, make better medical decisions, and improve outcomes. Wearable technology, such as fitness bands, smartwatches, and other devices, is predicted to become more popular, opening up new avenues for healthcare innovation and disruption. By fusing the holistic principles of herbal medicine with the precision of wearable devices, we seek to establish a comprehensive approach to individualized healthcare. The integration involves developing algorithms that analyze wearable data to inform personalized herbal prescriptions, and optimizing treatment plans based on continuous health assessments. The use of wearables in telehealth and remote patient monitoring has already demonstrated positive results in terms of patient care and outcomes. As wearable technology evolves, it is vital. Ultimately, this innovative integration aims to create a harmonious synergy between the natural healing properties of herbal medicine and the precise monitoring capabilities of wearable devices, revolutionizing healthcare practices and contributing to a more holistic and personalized approach to well-being.

Keywords : Herbal medicine , Health monitoring , personalized wellness

Effect Of Unani Drugs In *Waja-Ul-Mafasil (Rheumatoid arthritis)* – A Case Study

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ABSTRACT

Waja-ul-mafasil (Rheumatoid arthritis) is an autoimmune, chronic inflammatory disease characterized by symmetric polyarthritis of small joints of hands and feet, with a prevalence of about 1 % of total population worldwide; and estimate 5–50 per 100000 new cases recorded annually. The current line of treatment in conventional medicine depends on the use of disease-modifying anti rheumatic drug (DMARD) such as methotrexate, nonsteroidal anti-inflammatory drugs (NSAIDs), glucocorticoids or surgery. But all the above mentioned treatments are known to be associated with multiple side effects. The scientific explanation of *waja-ul-mafasil* and its treatment can be found in the Unani system of medicine. The aim of the present case study was to assess the efficacy of single as well as compound unani drugs formulation used orally in the management of *Waja-ul- mafasil* . In the present paper, subject of the study was 38 years old female; she was diagnosed as a case of rheumatoid arthritis. Treatment was planned which includes *Safoofkundur* (Powder of *Boswellia serrata*) along with *Majoon Chobchini*. The efficacy was scientifically evaluated by subjective scores and Serum RA Factor. After three months of treatment, the patient's signs and symptoms of disease improved significantly. The unani drugs was proven to be effective and safe in treating *Waja-ul-Mafasil (Rheumatoid arthritis)*.

Keywords: *Waja-ul- mafasil, safoof kundur, rheumatoid arthritis, Majoon chobchini, Unani drugs*

Evaluation of the antioxidant and anti-cancer activities of *Abutilon indicum* (Linn.), *Atibala*

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ABSTRACT

Abutilon indicum is a commonly found shrub that is widely used in a variety of chronic and acute diseases. Its Sanskrit name is 'Atibala'. Ati literally translates to very while Bala translates to powerful, indicating that the plant contains some extreme powerful properties. It belongs to the *Malvaceae* family and is widely distributed over the Indian subcontinent as well as in other tropical and subtropical countries of America, Africa, Asia and Australia. It is widely used in Ayurveda, Siddha and Unani systems of medicine. In traditional systems of medicine, the roots, stems, leaves, fruits and seeds of the plant are used for a variety of diseases like mouth ulcers, urinary disease, hemorrhoids, vaginal infections, tuberculosis, blood dysentery, leprosy, rheumatism, mumps, diarrhea; etc. It contains a variety of secondary metabolites which shows anti-inflammatory, antioxidant, analgesic, immunomodulatory, anti-diabetic, anti-microbial as well as anti-cancer effects. *A. indicum* is used as an aphrodisiac, demulcent, diuretic, laxative, pulmonary and sedative (leaves). The bark is astringent and diuretic; laxative, expectorant and demulcent (seeds); laxative and tonic, anti-inflammatory and anthelmintic (plant); analgesic (fixed oil); diuretic and for leprosy (roots). The phytochemical analysis showed the presence of alkaloids, saponins, amino acid, flavonoids, glycosides and steroids and several volatile oils. Phytoconstituents like β -Sitosterol, caffeic acid, fumaric acid, vanillin, p-coumaric acid, p-hydroxybenzoic acid, sesquiterpene including lactones, alantolactone and isoalanto-lactone along with this hexose, n-alkane mixtures (C22-34), alkanol, gallic acid has also been reported from different part of the plant. The plant can be very easily procured and it grows without a lot of care and also shows a lot of promising pharmacological properties and thus shows promising future perspectives

Keywords: *Abutilon indicum*, Atibala, Pharmacology, Phytoconstituents, Anti-oxidant.

Evaluation of Oral Hygiene Habits, Exploring Herbal Remedies, among Undergraduate Medical Students

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ABSTRACT

Introduction: Oral health constitutes a crucial component of overall health and wellness. Enhanced awareness and adherence to proper oral hygiene practices are pivotal in attaining improved oral health. It is imperative for undergraduate medical and nursing students to be knowledgeable about oral health and dental hygiene, given their roles as future healthcare providers upon whom the nation's health relies.

Material methods: This cross-sectional study involved 130 participants comprising BUMS and Diploma in Nursing (Unani) programs at the Faculty of Unani Medicine, AKTC, AMU, Aligarh. A validated, self-structured questionnaire consisting of 18 questions related to oral health awareness was developed using Google Forms. The questionnaire was then distributed to the participants via digital communication, and the resulting data were analyzed utilizing appropriate statistical techniques.

Results: Of the study participants, 61.5% were female and 38.5% were male. 57.7% demonstrated good oral health awareness, while 26.2% had an average level of awareness. Additionally, 43.1% of students reported using herbal toothpaste. All participants engaged in daily tooth brushing, with 36.2% even brushing twice a day. Significant associations were found between gender and variables such as the frequency of changing toothbrushes, tooth brushing methods, use of inter-dental aids, tobacco and alcohol use, as well as causes of bad breath.

Conclusions: Understanding the proper use of toothbrushes and abstaining from tobacco and alcohol are indicators of oral health knowledge among these students. It's crucial to impart accurate information about maintaining good oral health effectively and early, integrating it into their lifestyle. Opting for herbal toothpaste is a prudent and healthier decision for those seeking to reduce exposure to potentially harmful chemicals that could impact overall health. Herbal toothpaste typically contains natural antibacterial elements like spearmint and peppermint oils, which aid in bacteria elimination and promote oral health.

Keywords : Awareness, Oral hygiene, medical students, Nursing students, Unani

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Assessing the Prevalence of Chronic Neck Pain among Students at AMU: A Cross-sectional Online Survey

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ABSTRACT

Introduction: Neck pain is increasingly prevalent worldwide, exerting significant impacts on individuals, families, communities, healthcare systems, and businesses. Understanding the prevalence and specific risk factors is crucial for effectively managing patients with Chronic Non-specific Neck Pain (CNP). In Unani literature, neck pain is referred to as '*Waja-ul-unq*'. It is a multifactorial condition and a significant issue in contemporary society, despite not being the most prevalent musculoskeletal disorder.

Methods: We conducted an online survey using a questionnaire among students of AMU to ascertain the prevalence of neck pain within this population. Participants voluntarily completed the online form and responded.

Results: Detailed findings will be discussed in the full-length paper.

Discussion: This study aims to evaluate the prevalence of chronic neck pain among students at AMU.

Keywords: Neck Pain, Students, *Waja-ul-unq*, musculoskeletal disorder

Prevention and Management of Psychiatric Disorders: An Unani Overview

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ABSTRACT

One crucial component of overall human health is mental wellness. It is the need of hours to preserve this dimension of health. The positive dimension of mental health is stressed in the World Health Organization's definition of health as a state of well-being in which the abilities are realized by an individual, can cope with the normal stress of life, can work productively, and can contribute to his or her community. Mental disorders are increasing due to higher stress levels. At some point in their lives, one in four persons worldwide will experience a mental or neurological disease. Depression, bipolar illness, dementia, schizophrenia and other psychoses, intellectual disabilities, and developmental diseases such as autism are examples of mental disorders. According to a World Health report, depression is a common mental disorder and one of the main causes of disability worldwide. An estimated 350 million people worldwide suffer from depression. Women are more affected than men. Unani system of medicine is the only system that intervenes with *Asbab-e-Sitta Zarooriya* (six essential causes) especially by *Harkat wa sukoon Nafsani* (Bodily & Psychic movement) and *Naum wa yaqza* (sleep & wakefulness). In this regard, *Tadeel Ruh* is the basic concept to keep away mental disorders. Equilibrium between these two *Asbab e Sehat* (causes of health) is enough to keep away mental problems. Despite that, there are a lot of Unani *Mufradat* (single) and *Murakkabat* (compound) drugs for example *Musakkin* (Sedave), *Mufarrihat* (the drug which induces pleasurable effect), *Mubrridat* (the drug which induce cold effect) and *Muqawwi Dimagh* (brain strengthener) which can not only preserve mental health but also keep away mental disorder such as Nisyan (Dementia), Insomnia, Headache, Depression and other mental problems.

Keywords: Psychiatric disorders, Six Essentials Factors (*Asbab-e-Sitta Zarroriya*), Sleep & Wakefulness (*Naum wa yaqza*), *Mufradat*, Sedaves (*Musakkin*).

Anxiolytic Effects of Medicinal Plants: An update

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ABSTRACT

Anxiety disorders are the most common type mental disorder that are characterized by symptoms which include uncontrollable and persistent worry, excessive fear, avoidance behavior, and panic attacks. There is need for improved treatments for anxiety disorders as the current available treatments for anxiety disorders have limitation because of their safety and efficacy. Consequently, patients with anxiety seek for the alternative treatment having fewer side effects, which can be addressed by using natural derived drugs. Medicinal plants and natural drugs are currently experiencing a surge in popularity as alternative medicine and potential source for development of novel drug. The objective of the review is to provide a comprehensive updated overview of medicinal plants used in the management of anxiety and proposing directions for future research. A systemic investigation was conducted to explore the medicinal plants exhibiting the anti-anxiety properties and mechanism, employing several search engines including Pubmed, Google scholar, Semantic scholar, Science Direct, Web of science, as well as various online journals. There is increased evidence that indicates that these medicinal plants exert their therapeutic effects on anxiety through various cellular mechanisms which include modulation of neurotransmission pathways involving gamma-aminobutyric acid (GABA), serotonin (5HT), norepinephrine (NE), glutamate and monoamine oxidase enzymes. Further investigations are required to assess the anti-anxiety properties of the plants and validate the mechanism involved. Identifying the potential bioactive compound from the plants could serve as sources for new promising lead compound for the drug development.

Keywords : Anxiety, medicinal plants, GABA, 5HT, neurotransmission

Unani concept of *Multazima Baad Sinne Ya's*– A Review

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ABSTRACT

The World Health Organization has defined menopause as the permanent cessation of menstruation resulting from loss of ovarian follicular activity (World Health Organization, 1996). The average age of women experiencing their final menstrual period (FMP) is 51.5 years.²⁰ Menopause has a wide starting range, but can usually be expected in the age range of 42-58. Symptoms include hot flushes, night sweats, dizziness, rapid heartbeat, pins and needles in hands and feet, tiredness, irritability, headaches, depression, nervous tension, and insomnia. According to the Unani System of Medicine, "*sinne ya's*" (Menopause) means period of *Zamane naummidee* (hopeless period). Menopause is a combined state of weakness of *Tabiyat* (nature) and *Quwat-e-Dafia* (expulsive power) of the uterus that causes deposition of the waste substance in the body, as the age advances almost all *Qua* (powers) decline. This decline also affects the *Quwat-e-Dafia* of the uterus. Since PMS is Saudawi condition therefore Mainly *Munzij* and *Mushil e sauda* drugs are used such as *Aftimoon* (*Cuscuta reflexa*), *Bisfaij* (*Polypodium vulgare*), *Halaila Siyah* (*Terminalia chebula*), *Ustukhudoos* (*Levendula steochas*), *Shahm hanzal* (*Citrullus colocynthis*). *Majoon Najah*, *Majoon Lana*, *Itrifal Zamani* are the compound drugs used.

Keywords : PMS, Hot Flushes, *Multazima Baad Sinne Ya's*, *Saudawai*, *Munzij* and *Mushil e Sauda*.

Medicinal plants and Vitamins for the management of *Diabetes mellitus*

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ABSTRACT

Background: *Diabetes mellitus* (DM) is a serious chronic metabolic disease that is correlated with hyperglycemia and several other complications. With its ever-increasing prevalence, a prudent and novel approach can be the use of medicinal plants, vitamins and essential elements.

Aim: The objective of this review is to accentuate the biomedical significance of some of the most potent medicinal plants and vitamins with hypoglycaemic properties to prevent and/or treat DM.

Methods: Systematic literature searches were conducted on peer-reviewed publications in five databases including Science Direct, PubMed Central, MEDLINE, Google Scholar, and trusted governmental agencies (World Health Organization, Food and Drug Administration, and Centre for Disease Control and Prevention).

Results: Numerous scientific investigations disclosed that the phytochemicals present in medicinal plants (*Allium sativum*, *Momordica charantia*, *Hibiscus sabdariffa* L., and *Zingiber officinale*) possess anti-hypoglycaemic activities and show promise for the prevention and/or control of DM. It was also observed that the intake of vitamins C, D, E, or their combination improves the health of diabetes patients. This effect can be ascribed to the existence of coumarins, flavonoids, polyphenols, terpenoids, and other bioactive compounds in the latter.

Conclusion: The medicinal plants and the vitamins manifest an economical prospective for the prevention and treatment of DM patients, especially those in the developing countries who cannot afford the high cost of modern medicines and apprehension drives should be organised for the same.

Keywords : *Diabetes mellitus*, medicinal plants, antidiabetic, Vitamins C, D and E

Ayurvedic management of Oral Leukoplakia: A case report

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ABSTRACT

Introduction : Oral leukoplakia (OL) is a premalignant lesion described as “a predominant white lesion of the oral mucosa which cannot be defined as any other known lesion”. OL located on the floor of the mouth, soft palate and tongue are considered as high-risk lesions, while, in other areas, they may be considered as of low malignancy risk.

Patient information: A 68 years old male patient had complaints of white lesion on left lateral surface of tongue, along with mild burning sensation since 2- months. He had similar lesion on the right lateral side of the tongue and was diagnosed with Oral Leukoplakia.

Treatment history: He had taken allopathic medicine for 4 to 5 times, but it was inversely relapsed, and later converted into cancerous lesion which was managed surgically.

Treatment given: The patient came to us and want ayurvedic management so he was treated with *Curcuma longa* extract curcuminoids, Amrit kalasha, Chandraprabhavati orally, Pratisharana with Tankana Bhashma and Irimedadi taila and Gandusha Panchvalakala kwatha churana for a period of 2-months and advised for taking salads having antioxidant properties like Carrot and Tomato

Results: After 2- months of therapy, white lesion disappear and no burning sensation was experienced by patient. Thus, this patient was successfully treated with above therapy with no recurrence or any complications till date.

Conclusion: Ayurvedic management can provide significant results in Oral leukoplakia by giving medicine orally, locally and with some dietary advises.

Keywords: Ayurveda, Oral leukoplakia, Curcuminoids, Pratisharana, Amrit kalasha, Chandraprabha vati

Effect of Unani Polyherbal formulation on *Sala-e-Reham*

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ABSTRACT

Background: Approximately 15-25 million women in India have affected from fibroid uterus. Histologically it is composed of smooth muscle and fibrous connective tissue of varying proportional. Originally it consisted of only muscle element but later on fibrous tissues intermingle with the muscle bundle. It arises from the single smooth muscle cell of myometrium.

Case presentation: A married female of 42 years of age presented to Gynae & Obs. OPD of A & U Tibbia College & Hospital, with chief complaints of pain in lower abdomen, heaviness in lower abdomen. She got treatment from some other hospitals for 2-3 months and had no significant result. After that she advised to undergo surgical procedure, she refused for that. After that she came to A & U Tibbia College & Hospital. At that time research study on Uterine Fibroid was conducted in the department. She was treated with a unani polyherbal formulation for 3 months. And the size of the fibroid resolved completely.

Discussion: The purpose of the case study was to determine the benefits of Unani drugs which treat the target disease as well as their ailments unlike allopathic drugs, it is evidenced by this report. Unani medicines can play a key role in improving the overall health of the patient and day to day activities which are interrupted due to Uterine fibroid. Further, research is needed in this field.

Keywords : *Sala-e-Reham*, Unani polyherbal formulation, heaviness

Clinical study on the efficacy of Unani drug (*Javitri*) in the management of Dyslipidemia

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ABSTRACT

Background: In the Unani system of medicine, a large number of single as well as compound formulations are known to possess hypolipidaemic, antioxidant, and cardioprotective properties, which are effective in the treatment of dyslipidemia. This study aimed to evaluate the efficacy and safety of *Javetri* (*Myristica fragrans* Houtt.) in dyslipidemia on scientific parameters.

Methods: Randomized, double-blinded, placebo-controlled clinical study conducted at OPD/IPD of Majeedia Unani Hospital, Jamia Hamdard, New Delhi. The assessment of efficacy was done with the changes in the level of total cholesterol, LDL, VLDL, serum triglyceride and HDL. The data were recorded and subjected to statistical analysis after the completion of the study.

Results: The difference in percentage change in serum triglyceride, total cholesterol, LDL, VLDL, and HDL from baseline to 12 weeks between the two groups were recorded. The values were positive and reflected that the percentage change was higher in Group I. However, the decrease in the level of these parameters was observed in both groups but a significant change was seen in Group I with a higher degree of change in the percentage. There was no change in the level of HDL in both the groups. Above all, the drug did not raise any safety or tolerability issues in either of the groups.

Conclusion: The study showed a significant decrease in the level of total cholesterol, serum triglycerides, LDL and VLDL in comparison to the placebo, without demonstrating any adverse effect. Hence, *Javetri* is a considerably safe and promising drug in the treatment of Dyslipidemia.

Keywords: Dyslipidemia, *Javetri*, *Myristica fragrans* Houtt., Unani Medicine,

A Comprehensive Literature Review of In Silico Studies on Herbal Analgesic Agents

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ABSTRACT

Background: Analgesics are prescribed to treat pain by interfering with the central nervous system (CNS) or peripheral pain pathways, with little or no effect on consciousness. According to Ayurvedic classics, Ayurveda medicines work through *Rasa, Guna, Veeya, Vipaka* and *Prabhava*. Their mechanistic understanding is limited. Through computer analysis, the predictive mechanism of an ayurveda medicine can be understood, which may aid in the understanding of Ayurveda to the conventional scientific world. The aim of the current study is to identify, compile and analyze the available in silico research articles pertaining to herbs to identify the potential leads for pain management.

Methods: The keywords were identified using MeSH terms related to the following keywords "pain relievers" and "in-silico". An extensive literature search was conducted in PUBMED, and Google Scholar to identify research articles related to the topic. Data extracted from the selected articles were collected, analyzed, and mapped accordingly.

Results and discussion: A total of 70 studies were identified on screening the available literature. Among them, 39 articles were found on single herbal drug. Moreover, fourteen articles on single phytoconstituent of herb, 16 articles on extract of herbs as well as one article on ayurvedic formulations were identified. Methods used for phytochemical analysis are TLC, GCMS, and others. The target enzyme is COX2 and COX1. Software used for the study are Autodock Vina, MOE docking suit, Pymol, chemsketch, structure was derived PDB, ADME/T analysis by Schrödinger-Maestro, and OSIRIS Data warrior. Apart, result of these studies will be presented during the scientific session.

Development of a novel AYUSH-based synergistic combination against paratuberculosis: A major disease liability of the dairy industry

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ABSTRACT

Paratuberculosis, caused by *Mycobacterium avium* subspecies paratuberculosis (MAP), remains a significant challenge for the dairy industry worldwide, leading to substantial economic losses and public health concerns. Despite considerable efforts, effective control strategies for paratuberculosis are still elusive. In the presentation, the development of a novel AYUSH-based synergistic combination as a potential solution to combat this issue will be discussed. Drawing from the principles of Ayurveda, Yoga, Unani, Siddha, and Homeopathy (AYUSH), this approach integrates traditional knowledge with modern scientific advancements to address the multifaceted nature of paratuberculosis. Our research encompasses a comprehensive investigation into the synergistic effects of extracts of *Ocimum sanctum* and *Solanum xanthocarpum* in combating MAP infection. Through in vitro studies, we elucidated the antimycobacterial properties of individual extracts and their combined efficacy in inhibiting MAP growth. Furthermore, in vivo, experiments involving animal models provide valuable insights into the therapeutic potential and safety profile of the AYUSH-based combination. Additionally, we explored the immunomodulatory effects of the developed combination, aiming to strengthen the host's innate defense mechanisms against MAP infection. Overall, our findings highlight the promising potential of the AYUSH-based synergistic combination as a safe, effective, and sustainable intervention strategy against paratuberculosis in the dairy industry for combating MAP-related autoimmune disorders in human beings. By bridging the gap between traditional wisdom and modern science, this research paves the way for innovative approaches to tackle paratuberculosis infection.

Keywords: Paratuberculosis, Synergy, AYUSH, immunomodulatory

Unveiling Solanesol's Neuroprotection in a Tramadol-Induced Parkinson's Zebrafish Model: Behavioral and Molecular Insights

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ABSTRACT

Background: Parkinson's disease (PD) is characterized by dopaminergic neuron loss in the substantia nigra pars compacta (SNc) and subsequent dopamine depletion in the striatum. Solanesol, a terpene alcohol found in solanaceous plants, shows potential neuroprotective effects.

Aims/Objectives: This study aimed to investigate the neuroprotective potential of solanesol in a zebrafish model of PD induced by chronic tramadol administration.

Methods: Zebrafish were treated with tramadol (50 mg/kg) intraperitoneally for 21 days, followed by solanesol administration (25, 50, and 100 mg/kg) for 12 days. Behavioral analyses, including open field and novel diving tank were conducted weekly. On day 22, animal were sacrificed and biochemical analyses of whole-brain homogenates assessed lipid peroxidation, antioxidant enzyme activity, neuroinflammatory markers, and neurotransmitter levels.

Results: Chronic tramadol treatment induced motor deficits, reduced antioxidant enzyme levels, elevated proinflammatory cytokines, and neurotransmitter imbalances in zebrafish. However, solanesol administration attenuated these effects, indicating neuroprotective potential against tramadol-induced PD-like symptoms.

Conclusion: Solanesol demonstrates promise as a neuroprotective agent in mitigating degenerative changes associated with PD in the zebrafish model. Further research is warranted to explore its therapeutic potential in PD management.

Keywords: Parkinson's disease, Solanesol, Zebrafish model, Neuroprotective, Tramadol-induced, Behavioral analysis

Harnessing Platelet-Rich Plasma (PRP) for Aesthetic Enhancement: Current Trends and Future Directions

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ABSTRACT

Platelet-rich plasma (PRP) has emerged as a versatile tool in aesthetic medicine, offering innovative solutions for enhancing various aspects of skin health and appearance. PRP is a revolutionary therapy that utilizes the patient's own blood to promote healing and rejuvenation in various medical and aesthetic treatments. PRP contains a concentrated cocktail of growth factors and bioactive proteins that stimulate tissue regeneration and rejuvenation. In aesthetic practice, PRP is commonly employed in skin revitalization, scar revision, wound healing, hair restoration, and other cosmetic procedures. PRP is increasingly favoured for facial skin rejuvenation, commonly administered through dermal injections and topically applied during microneedling procedures, owing to its ability to promote collagen production and enhance skin texture and tone. The present review delves into the scientific rationale behind PRP therapy, highlighting its ability to promote collagen synthesis, improve skin texture, and restore youthful vitality. Current research advancements and emerging applications of PRP in aesthetic medicine are also explored, offering insights into the future directions of this rapidly evolving field. Overall, harnessing PRP for aesthetic enhancement represents a promising paradigm shift towards safer, more natural and personalized approaches to aesthetic rejuvenation.

Keywords: Platelet-rich plasma, skin rejuvenation, wound healing, cosmetic procedure.

POSTER PRESENTATIONS

Pharmacological target and the biological mechanism of gallic acid for anticataract effect: A network analysis

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ABSTRACT

Background: This study aimed to identify the pharmacological targets and mechanisms of action of the traditional Indian plant, *Saraca asoca* bioactive, gallic acid, in the treatment of cataracts using bioinformatics tools i.e., network pharmacology.

Methods: Targets of cataracts were obtained by using DisGeNET gene discovery web-based database. The herbal ingredients target (HIT), the SuperPred, and the Swiss Target Prediction database were used for compound target prediction i.e., targets of gallic acid. Pathophysiological and therapeutic targets were imported to the STRING database, and the Cytoscape network integration software was used to construct component-target and disease-target interaction networks as a part of protein-protein interaction (PPI). Core targets were identified by network topological parameters and were further tested to identify the biological process and the signaling pathways by using the functional enrichment analysis tool, FunRich.

Results: Key targets genes for gallic acid in the treatment of patients with cataracts were identified, including indoleamine-2,3-dioxygenase-1 (IDO1), serum albumin (ALB), estrogen receptor (ESR1), prostaglandin G/H synthase-2 (PTGS2), epidermal growth factor receptor (EGFR), plasminogen activator inhibitor-1 (SERPINE1), aromatase (CYP19A1), neutrophil elastase (ELANE), and catechol-O-methyltransferase (COMT), apoptosis regulator (BCL2), carbonic anhydrase-4 (CA4), tyrosine-protein kinase receptor UFO (AXL), tyrosinase (TYR), kallikrein-7 (KLK7), and serine/threonine-protein kinase (NEK2). The signaling pathways of core targets mainly involved signalling events mediated by BMP receptors, integrins, proteoglycan syndecan, glypican, TRAIL, S1P (sphingosine-1-phosphate), LKB1, endothelins, VEGF, VEGFR, estrogen receptors, INF- γ , IL-5, mTOR, biological oxidation, kynurenines formation, TGF- β , etc.

Conclusion: Pharmacological network analysis was used to identify the gene targets and mechanisms of gallic acid for the treatment of patients with cataracts.

Keywords: Gallic acid, Network pharmacology, Cataract, *Saraca asoca*, Protein-Protein Interactions

Pharmacognostical and Phytochemical Evaluation of Renowned Polyherbal Formulation, *Sharbat Ahmad Shahi*: A Comprehensive Approach with Modern Techniques

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ABSTRACT

An increase in awareness about the advantages of traditional medicines has led to the commercialization of the formulations used for the treatments. To obtain an effective drug with proven efficacy, it is necessary to ascertain standards through contemporary scientific and technical procedures which would certainly enhance the reputation and acceptance of Unani medicines. Quality control of Unani polyherbal formulations is the need of the day for better acceptance of Unani medicine. *Sharbat Ahmad Shahi* (SAS) is an Unani polyherbal formulation containing ten ingredients, widely used in the treatment of psychiatric disorders. The present study was taken up to scientifically evaluate the various physicochemical parameters to standardize the formulation. In the present research work an attempt has been made to ascertain various physicochemical and phytochemical parameters of SAS, TLC, and HPTLC, which may be useful for its quality control and standardization. Various parameters such as organoleptic characters, extractive values for the extract, TLC, and HPTLC fingerprinting were carried out for evaluation of SAS. A preliminary phytochemical, physicochemical, and chromatographic profile of the formulation was established. Qualitative chemical tests indicated the presence of alkaloids, glycosides, and phenolics. TLC and HPTLC fingerprinting studies show the presence of various phytochemicals present in the drug. The findings of the present work can be used as a reference for the preparation and standardization of SAS.

Keywords: Polyherbal Formulation, Physicochemical Parameters, Phytochemical Parameters, Standardization

Formulation and Evaluation of *Aripiprazole* Loaded Solid Dispersion

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ABSTRACT

The technical path for enhancement of solubility and dissolution rate of Biopharmaceutics Classification System Class II and Class IV drugs. These drugs have low solubility issues in body and class IV drugs also have low permeability issues. The solubility issues can be resolve by various ways but solid dispersion served pharmaceutical companies at commercialization level from a long time. In this research frame structure, the main target was to enhance the solubility rate of low soluble drugs by using four methods with different carriers in different ratios. Aripiprazole, atypical antipsychotic drug belong to BCS class IV was considered as model drug and various carriers such as mannitol, oxalic acid, PVP, succinic acid, PEG 6000, PEG 4000 and various others in five different ratios such as 1:1, 1:2, 1:3, 1:4 and 1:5 followed by used solvent evaporation method, Co-precipitation method, Kneading Method and Melt solvent evaporation method. The formulations were subjected to various evaluation parameters such as % yield, % drug content and in-vitro drug release. The best formulation was selected on the basis of % cumulative drug release and used for the preparation of effervescent tablets by used direct compression method. The prepared tablets subjected for evaluation parameters and results were recorded. The accomplishment obtained from this project are look forward to contribute in formulation development of poor soluble drug via solid dispersion in various terms such as identification of suitable drug candidate, safe drug loading and suitable method followed by suitable carrier in proper ratio.

Keywords: Aripiprazole, Biopharmaceutics Classification System, Drug Loading, Antipsychotic Drug, Drug Release

Different Models Used For Studying Hepatic Cancer

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ABSTRACT

Hepatocellular carcinoma (HCC) is a common and complex type of liver cancer with a poor prognosis and limited treatment options, posing a significant global health challenge. Despite progress in understanding its causes and treatment strategies, many aspects of HCC remain unknown. Experimental models, including in vivo and in vitro models like 2D and 3D cultures, are crucial for gaining insights into the disease and testing potential therapies. This review examines the various preclinical models used to study HCC initiation, progression, and treatment effectiveness, discussing their strengths and limitations. Additionally, it explores the emerging role of computational studies, such as in silico models and artificial intelligence, as promising tools for liver cancer research.

Keywords: Hepatic cancer, Preclinical Experimental Models, Mouse Model, Non Mouse Model

Antioxidant and In-vitro Anticancer Properties of Traditional Unani Plants *Syzygium cumini* and *Cuscuta reflexa*

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ABSTRACT

Background: Cancer is a leading cause of death in India and around the world. Conventional cancer treatment has resulted in life-threatening side effects. The researchers are currently investigating natural therapy options. The goal of the current study was to evaluate and contrast the effects of various extracts of *Syzygium cumini*, *Cuscuta reflexa*, a drug used in the Unani system of medicine, on human liver cancer cell lines (HepG2), specifically their cytotoxic and antioxidant capabilities.

Objective: The goal is to investigate the antioxidant, anticancer, and hepatoprotective properties of various extracts of *Syzygium cumini*, *Cuscuta reflexa* In-vitro.

Methods: Cytotoxic effect was assessed using MTT assay kit and free radical scavenging activity was done by using DPPH assay. Methanol extracts of *Syzygium cumini*, *Cuscuta reflexa* drugs were used at different concentrations.

Results: *Syzygium cumini*, *Cuscuta reflexa* extracts were shown good antioxidant and cytotoxic activity. Among all extracts, maximum cytotoxic effect was observed in methanol extract at the concentration of 1,000 µg/ml against HepG2 cell line. The maximum antioxidant activity was observed in the methanol extract at the concentration of 5,00 µg/ml and comparison to ascorbic acid.

Conclusion: The current study demonstrates the anticancer and antioxidant properties of selected herbs and suggests that this medicine could be employed as a potential cancer treatment after a thorough preclinical study.

Keywords: Antioxidant, Hepatoprotective, HepG2, DPPH Assay, MTT Assay

Implications of *Asbabe Sitta Zaruria* To Boost *Quwate Hazm*

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ABSTRACT

Unani system of medicine is a traditional and most ancient practiced form of medicine. Restoration of the core body's temperature equilibrium and maintenance of the health status via *Tabiat* (Physis) are the main concerns of this system. The effects of environmental variations and surroundings are described by the name of *Asbabe Sitta Zaruria* (six essentials) which are *Hawa* (environmental factors), *Makool wa Mashroob* (food and beverages) *Harkat wa Sukoon-e-Badani* (movement and rest of body), *Harkat wa Sukoon-e-Nafsani* (psychological factors), *Naum wa Yaqza* (sleep and wakefulness), *Istifragh wa Ehtebas* (retention and evacuation) and these essentials affects digestion and metabolism in many ways. Breathing in clean air and having a balanced diet is essential for good digestion and metabolism. Unani scholars advise not to overeat and avoid taking water immediately after meals. An unhealthy diet and lifestyle are risk factors for various chronic diseases like diabetes, HTN, Cardiovascular disorders, obesity, etc. Physical exercise and rest both play a crucial role in the digestive process. Balance in psychic movement and rest is very important as psychological disorders such as anxiety, depression, etc exhibit adverse impacts on digestion, metabolism, and health e.g. IBS, Gastritis, etc. Adequate sleep enhances digestion while lack of sleep leads to obesity, CVS disorders, and psychological diseases. To sustain normal digestive and metabolic processes *Istafragh* and *Ehtebas* should be balanced. *Istafragh* means the elimination of unnecessary substances from the body e.g urea, creatinine, through normal routes where *Ehtebas* is the retention of essentials substances for e.g fluid, salts, nutrients. Moderation of these six essential factors of life maintains and enhances digestion and metabolism.

Keywords: Metabolism, *Quwate Hazm*, *Asbabe Sitta Zaruria*

Combinatorial Approach for Delivery of Kinase inhibitor with a Therapeutic Oil-Loaded Lipidic Nanocarrier for Breast Cancer Management

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ABSTRACT

Breast cancer is one of the most debilitating diseases among women with the highest incidence rate among all cancers. There are many lacunas associated with the conventional chemotherapy available for treatment which include high first-pass metabolism, efflux of drug by P-glycoproteins, low oral bioavailability, limited solubility, and restricted permeability. Recent advancements in the field of nanotechnology have led to the development of novel nanocarriers that exhibit better therapeutic efficacy. These nanocarriers improve the uptake, and delivery of drugs and also help in ameliorating the pharmacokinetic profile of the actives protecting them from biodegradation and rapid excretion from the body. Many phytoconstituents on the other hand have been extensively reported to have anti-cancer, anti-tumorigenic and apoptotic efficacy. These have been widely researched for their anti-cancer potential among in-vitro cell lines and pre-clinical animal models. The objective of the current study is to deliver the chemotherapeutic drug along with a phytoconstituent oil-loaded nanostructured lipid carrier. The studies include in-silico modeling for the combination to study the inhibitory effect through docking score, optimization of the lipidic nanocarrier formulation using Design of Experiment (DoE), and in-vitro release study in buffers at different pH of the optimized formulation. The hypothesis of the current study is to improve the oral bioavailability of the drug and attain synergistic efficacy.

Keywords: Breast Cancer, Lipidic Nanocarrier, Combinational Approach

Development of Model for Screening the Antiestrogenic and Antiosteoporotic Activity of *Asparagus racemosus* L (*Shatavari* - A Traditional Ayurvedic Drug)

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ABSTRACT

Background: Polycystic ovary syndrome (PCOS) is an endocrinological disorder that can cause infertility or subfertility besides other cardio-metabolic dysfunctions. *Asparagus racemosus* (*Shatavari* - A traditional Ayurvedic drug) contains several steroidal saponins that are considered useful in PCOS. Some studies suggested that root extract binds directly to estrogen receptors without enhancing endogenous estrogen levels to prevent osteoporosis.

Objective: The goal of this research was to develop and validate an experimental model that represents a condition where prolonged PCOS leads to Osteoporosis (OP).

Methods: Female rats were divided into four groups of 18 rats each. Control group received 0.5% aqueous solution of carboxymethyl cellulose (CMC) once daily orally. Three groups were administered letrozole (LTZ 0.1, 0.5 and 1 mg/kg/day p.o. in 0.5 % CMC) for 10 weeks. Throughout the study, estrus cycle was observed. Serum biochemical parameters and histology of ovaries and bone were recorded on 3, 6 and 10 weeks. Animals were checked for the induction of osteoporosis 3 weeks after stopping LTZ administration.

Results: Ovaries from the study groups showed the appearance of subcapsular ovarian cysts after 6 weeks of LTZ in Groups 3 and 4. Serum estradiol and progesterone levels were reduced in a dose-dependent manner compared to control. Testosterone, LH and FSH levels got elevated with LTZ administration. After the withdrawal of LTZ, decomposition of femur bones was revealed in Micro-CT scans of Group 3 and 4 animals indicating the induction of osteoporosis. The model was validated using auto-recovery and reversibility studies.

Conclusion: A method for induction of PCOS in rats that ultimately resulted in OP was developed and validated.

Keywords: PCOS, Osteoporosis, Letrozole, Estrogen, *Asparagus racemosus*

Morphoanatomical and Histochemical Characterization of *Artemisia absinthium* L. (*Afsanteen* - A Traditional Unani Drug)

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ABSTRACT

Background: Herbal plants are nature's offering to humankind for a prosperous and healthy life. One such plant genus is *Artemisia* that comprise of over 500 species. Even though its origin is from around northwest Asia, it is being used and mentioned in several herbal medical texts around the world. Each species has its own traditional and medicinal use such as analgesic, anti-microbial, anti-diabetic, anti-malarial, anti-cancer, anti-depressant, etc. *Artemisia absinthium* L. (*Afsanteen*) distributed mainly in Himalyan regions in India is used against fever, helminths, epilepsy, haemorrhoids, jaundice, hepatitis, indigestion etc. Metabolites responsible for its therapeutic activities include volatile oils (thujone, 1,8-cineole, β -pinene), bitter sesquiterpene lactones (absinthin, anabsinthin, artabsin, anabsin), santonin-related lactones, flavonoids, azulenes, lignans, etc. As per the Unani literature, it acts as a stimulant and anthelmintic.

Aim: To identify the morphological and differentiating microscopic features of *Artemisia absinthium* L. (*Afsanteen*).

Methods: Meagre literature is available on its differentiating microscopy, phytochemistry and pharmacology. Thus, this study was initiated to develop morphoanatomical and histochemical parameters for its identification. These parameters for *Afsanteen* will result in assuring its correct identity and purity in herbal formulations.

Result: Descriptive morphology, photographs of microscopical sections and histochemical analysis of the aerial parts of the crude drug were compiled.

Conclusion: As the part of pharmacological screening, *Afsanteen* has been explored extensively on its anti-malarial action in the past but it lacks scientific research in its other traditional medical uses such as anti-diabetic, anti-convulsant effects. Current project aims at exploring the anti-diabetic compounds from aerial parts of *A. absinthium* (*Afsanteen*).

Keywords: *Afsanteen*, *Artemisia absinthium*, Anti-diabetic, Sesquiterpene Lactones

Exploring the Therapeutic Potential of *Kishneez* (*Coriander sativum* Linn.): A Comprehensive Review

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ABSTRACT

Plants have been one of the inaugural sources of medicines since the beginning of human civilization. Now days there are an increasing demand for plant based medicines which pave way for the prevention of chronic diseases. One such plant with great potential is *Coriander*. *Kishneez* is derived from the dried ripe fruit of *Coriander sativum*, and the entire plant, particularly the unripe fruit, emits a potent and unpleasant scent upon rubbing. This plant is cultivated extensively across India and finds historical In the Unani medicinal tradition, *Kishneez* is recommended for addressing conditions like *Sahr*, *Suda*, *Dawar*, *Zoaf-e-Qalab*, *Zoaf-e-Meda*, *Nafakh-e-Shikam*, *Zofa-e-Dimagh*, *Khafqan*, *Zaghtuddam Qawi*, *Tabkheer*, *Humuzat-e-Medi*, and more. The fruit's (seed and pericarp) widespread use in the coriander plant is primarily attributed to its essential oil and fatty oil content. The diverse bioactives present in different parts of this herb contribute to varied pharmacological activities. This review aims to advocate for the health benefits of *Kishneez* and raise awareness about the therapeutic potential of this herbal plant. I mentions in documents such as the Eberus papyrus, as well as in the writings of Cato and Pliny.

Keywords: *Kishneez*, plants, dried ripe, medicinal uses, unani

Evaluation of Antidepressant-like Effect of *Citrus medica* Fruit Rind in Animal Model

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ABSTRACT

Introduction: Depression is a major mental disorder which affects a person's mood, physical health and behavior. It may range from a very mild condition to severe depression and is characterized by a persistent depressed mood or loss of interest and/or pleasure in nearly all activities. Depression afflicts about 10-25% of women and 5-12% of men. Therefore, researches are continuously going on for the development of effective and safe drugs to combat the depressive disorders. *Citrus medica* Linn., commonly known as Turanj has been prescribed by the Unani physicians for the various ailments viz. *Malankholia*, *Saudawi Amraz*, *Zofe-Qalb*, *Khafqan* etc.

Objective: The actions of *Turanj* mentioned in literature indicates its use as anti-depressant drug but no systematic scientific study has been carried out so far. Hence, study has been designed to evaluate its anti-depressant effect.

Methods: The doses of Post *Turanj* hydroalcoholic extract (low and high doses) are 117.8mg/kg, and 195.7mg/kg, respectively given for a period of 14 days. Statistical comparison was done by one-way ANOVA followed by Tukey's multiple comparison tests.

Observations: The obtained results showed that the hydroalcoholic extract has a protective role in combating depression.

Conclusion: These findings suggested that the test drug possesses antioxidant activity which might be the cause of its anti-depressant potential.

Keywords: Depression, Unani, Formulation, FST, TST, Antioxidant

Exploring the Therapeutic Potential of the Chicoric Acid-Rich Fraction from *Cichorium intybus* in Beta Cell Regeneration

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ABSTRACT

Background: *Diabetes mellitus* (DM) poses a significant global health challenge as the most prevalent endocrine condition, contributing substantially to morbidity and mortality. Both type 1 and type 2 diabetes exhibit a diminished functional beta-cell mass, leading to absolute or relative insulin insufficiency. While the reduction in beta-cell mass in type 1 diabetes is well understood due to autoimmune destruction. Type 2 diabetes involves prolonged insulin resistance and impaired beta-cell function.

Objectives: The present study systematically investigates beta cell regeneration, identifying potential targets. The potential efficacy of Phytochemicals present in *Cichorium intybus* seeds were further evaluated through docking study in beta cell regeneration.

Methods: In the present review and computational studies were employed to determine the potential effect of chicoric acid-rich fraction used as β cell regeneration. It is important to note that multiple gene targets were selected for docking study. A three-dimensional (3D) structure of chicoric acid was obtained from PDB databank. Drug binding interaction studies was used to investigate the protein-ligand interaction and the interaction of the binding sites. The Discovery Studio was used to predict potential dock conformations of 2D ligand-receptor interactions.

Results: In the molecular docking process, log files were generated for the compounds. In the log files, the docked poses and affinity (kcal/mol) were obtained for discrete compounds evaluated. The analysis of docking score and the interaction analysis of chicoric acid compounds against NFATs, PAX1, PAX4, MafA, Ngn3, Fox1, Nkx2.2. Dual-specificity tyrosine phosphorylation-regulated kinase 1A (DYRK1A), RANKL, GSK3, TGF beta gene family which confirms that chicoric acid is a potential phytochemical for β cell regeneration in *Diabetes mellitus*.

Conclusion: The present review and docking study confirmed that *Cichorium intybus* has the potential as a remedy for the management of *Diabetes mellitus*.

Keywords: *Cichorium intybus*, *Diabetes Mellitus*, Docking study.

Herbal Nanogel for *Rheumatoid arthritis* Management – Preliminary Screening

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ABSTRACT

Introduction: Rheumatoid arthritis (RA) is a chronic autoimmune disorder characterized by inflammation of the joints. It leads to pain, stiffness, and swelling, often resulting in decreased mobility and impaired quality of life. NSAIDs, DMARDs, biologics, and corticosteroids used for the treatment of RA have limitations such as delayed efficacy, poor bioavailability, and systemic side effects. Hence use of herbal drugs along with this treatment are used to get synergistic efficacy in RA. Further, nanoemulsion gel reduces systemic side effects, improves bioavailability, and enables targeted therapy, which improves RA treatment efficacy while mitigating adverse effects of conventional medications.

Aim: Screening of oils, surfactants and cosurfactants for dual drug loaded nanoemulsion gel for RA.

Methodology: Various herbal oils were screened for development of nanoemulsion. The criterion for selecting the oil was its ability to dissolve the drug effectively. Screening of surfactants was done based on the miscibility/emulsification with selected oil. Further pseudoternary phase diagrams were constructed to determine the ratio surfactants and cosurfactants to get a stable nanoemulsion.

Results: The oil with maximum drug solubility, and surfactant with better miscibility were selected for the preparation of nanoemulsion gel.

Conclusion: Screening of excipients helps in the selection of oil, surfactant and cosurfactant resulting in formulation of nanoemulsion with better stability and drug loading as the selection criteria is based on miscibility and solubility.

Keywords: Nanoemulsion gel; pseudoternary phase diagram; Rheumatoid Arthritis; herbal drugs

Dietotherapy in Unani Medicine: A Fundamental Treatment Approach

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ABSTRACT

The term "diet" originates from the Latin "dieta," meaning a lifestyle in Greek. Initially, in prehistoric times, diet was primarily seen as a way to satisfy hunger. However, with advancements in medical science and preventive medicine, people have come to understand the crucial role of diet in maintaining health and recovering from illnesses. Good nutrition significantly influences both the physical and mental well-being of individuals. Essential nutrients such as carbohydrates, lipids, proteins, vitamins, and minerals are obtained from a variety of sources including vegetables, animals, and minerals. Numerous Unani physicians, including *Hippocrates*, *Galen*, *Rhazes*, *Ibn Zohar*, and *Ibn Sina*, have authored numerous books on dietetics. In Unani medicine, "*makool va mashroob*" (food and drink) is considered crucial among the six essential requirements for preserving life. Diets are categorized based on their nutritional value and chyme formation, including classifications such as light and soft diet, highly nutritious attenuated diet, less nutritious attenuated diet, and diets promoting good chyme formation. Dietotherapy is widely embraced due to its accessibility, affordability, and minimal adverse effects on patients. In today's context, various lifestyle-related disorders such as hypertension, diabetes, dyslipidemia, as well as conditions like anemia, malnutrition, and vitamin deficiencies, can be effectively managed through carefully chosen diets either independently or in conjunction with medication. This mode of treatment is widely prescribed by Unani physicians in various disorders successfully.

Keywords: *Ilaj bil Ghiza*, Dietotherapy, Unani medicine

Drug Phospholipid Complexation Embedded SNEDDS Technology: Dual Delivery System Approach for Permeability Modulation

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ABSTRACT

Self nano emulsifying drug delivery system (SNEDDS) possesses high fraction of surfactant/ co-surfactant mix offers an effective methodology to modify the bioavailability as well as poor permeability of Biopharmaceutics Classification System (BCS) Class III drug. It encompasses solubilization of drug via different approaches such as micellization, nanonization and interfacial activity. Development of drug phospholipid complexation (DPC) of BCS class III drug is critical aspect whereby hydrophilic into lipophilic transformation via phospholipid interaction took place. SNEDDS loaded DPC provides a collective approach combining dual drug delivery principles whereby DPC is embedded into the lipophilic core of dilutable SNEDDS. DPC can be characterized using FTIR, DSC, XRD, and conductivity methods. SNEDDS formulation of BCS III drug demonstrates self-nano emulsification tendencies, yields fully dilutable nanoemulsion loaded with BCS class III drug as DPC embedded into oil phase of nano-dispersion. Assessment of drug permeability from DPC loaded SNEDDS can be investigated using gut-sac method or cell lines studies. Assessment of the drug's permeability reveals possible mechanisms involved in the transit process across the biological system at the enterocyte level viz. suppression of the CYP system, the p- glycoprotein system, or the gut wall enzymes. Pharmacokinetic assessment provides quantification of drug reached into systemic circulation through different pathways viz plasma to the lymphatic system. For BCS class III drug, the DPC-based SNEDDS approach could provide a rationale for intestine permeability modulation and bioavailability enhancement.

Keywords: Drug phospholipid complex, SNEDDS, BCS Class III, Bioavailability, Permeability modulation

The Gut Health Revolution: Herbs and Dietary Phytochemicals in Balancing Gut Microbiota for Optimal Human Health

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ABSTRACT

The gut microbiota is a varied population of microorganisms that live in the human gastrointestinal system. Emerging research emphasizes the importance of this microbial ecology in general health and its influence on a variety of disorders. The review explores the synergy between herbal treatment and traditional medicine, emphasizing their cultural significance and therapeutic benefits. It delves into the intricate relationship between herbal remedies, traditional healing practices, and their sustained usage over centuries. The review highlights the pivotal role of the gut microbiota in herbal medicine, elucidating how treatments influence the gastrointestinal microorganisms, impacting overall health. Dietary phytochemicals are underscored for their significance in herbal medicine and nutritional well-being, along with the interdependence of plant extracts and botanicals. The investigation explores the molecular connections between phytoconstituents and gut microbiota, aiming to deepen the understanding of herbal medicine's tailored approach to specific health challenges. The summary concludes by emphasizing herbal treatments' unique ability to regulate gut flora, contributing to overall gastrointestinal well-being. In closing, the review provides a concise overview, serving as a valuable resource for integrative medicine research, with recommendations for future exploration of herbal medicine's potential in healthcare.

Keywords: Phytochemicals, Gut Microbiota, Healthcare, Medicinal plants, Herbal medicine

Histo Image Interpretation for the Diagnosis Of Diseases via Machine Learning Algorithms

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ABSTRACT

In Recent Years, Several digital histo image analysis methods have been employed to aid the diagnosis process with additional information about the biochemical makeup of cells and tissue constituents . Generally computerized histopathology image take as it's input a three Channel colour image capture by digital imaging equipment and attempts to emulate the manual analysis And provide additional quantitative information to aid the diagnosis but like in case of frozen section histogram urgent diagnosis is necessity so we were introducing an application which gives the analysis of digital histo pathological image using machine learning algorithm within few seconds.

Keywords: Histopathology , Diagnosis, Machine learning

Combination Effect of Drug A and Drug B Against Hepatic Cancer Cells

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ABSTRACT

Hepatic cancer is one of the most commonly diagnosed malignancies, which begins in the liver to become cancer. Drug A are naturally occurring sesquiterpenes that exhibit various pharmacological activities and Drug B, classified as an alkylating agent, is a potent drug with anticancer and immunosuppressant properties. Although several studies have illustrated the effectiveness of these sesquiterpenes as anti-cancerous agents individually, the combinatorial impact of these compounds has not been explored yet. In the present study, the combined effect of drug A and drug B in hepatic cancer cell lines (HepG2) was assessed by MTT assay. The MTT assay was used to evaluate the combination effect on cell proliferation. These findings demonstrated that combination treatment could be a potential novel chemotherapeutic alternative in hepatic cancer.

Keywords: Hepatic cancer, sesquiterpenes, drug A, drug B

Pharmacognostic and Phytochemical Evaluation of *Rumex Acetosa*

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ABSTRACT

The extract of plant *Rumex acetosa* also known as *common sorrel* or *garden sorrel*, is widely used to treat gastritis and inflammation of the stomach. It possess numerous biological activities employed in respiratory and nervous disorders, along with anti-ulcerogenic, anti-inflammatory, anti-proliferative and anti-viral. It is widely spread across eastern Asia and used in the treatment of different ailments. It contains biologically active chemical combination of anthraquinones, flavonoids, carbohydrates and many more valuable phytoconstituents. Leaves are utilized to study the parameters such as ash values, extractive values, moisture content, and foreign matter. Pre-treatment with *R. acetosa* extracts reversed negative effects, such as inflammation, edema, hemorrhaging and loss of epithelial cells. Hyperin is an important flavonoid found in different parts of the plant which exhibit several pharmacological activities like antioxidants, anti-inflammatory, anticancer, antiviral, antibacterial, antiparasitic, cardioprotective, hepatoprotective, and antispasmodic.

Keywords: *Rumex. acetosa*, biological activities, inflammation, Hyperin

Insulin Plant: A Promising Therapeutic Approach for Management of Diabetes and its Complications

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ABSTRACT

Member of *Costaceae* family, *Costus igneus* , better known by their common name, *Spiral flag*, is a recently introduced plant to India from South and Central America. It's lovely plant with spiral-arranged leaves that grows upright and spreading to a height of around two feet. It's perennial plant. It is typically grown as an ornamental plant in southern India. Its nutritional supplements made from its leaves are used to treat *Diabetes mellitus*. Numerous studies have been conducted recently to assess this plant's potential as an anti-diabetic agent. Furthermore, it has demonstrated range of pharmacological properties, like antihyperlipidemic activity, antidiuretics, antioxidants, antimicrobials, and anticancer activity. Furthermore, number of phytochemical studies demonstrate the existence of proteins, carbohydrates, triterpenoids, alkaloids, tannins, saponins, flavonoids, steroids. Essential component that yields leaves is notable reduction in *Diabetes mellitus*. It lowers fasting as well as postprandial blood glucose levels. However, the precise mode of action behind the anti-diabetic effect is still unknown. In addition to its antidiabetic properties, insulin plants also lessen the complications that come with diabetes: they control liver and kidney function, lower glycosylated haemoglobin levels, balance lipid profiles, raise body weight and insulin levels, and exhibit a significant improvement in histopathological analysis. In Conclusion, further research is required to completely understand the mechanisms of action, efficacy, and safety of the insulin plant in human subjects, even if it shows promise as potential therapeutic method for controlling diabetes and its consequences. It's important to speak with a healthcare professional before implementing any complementary or alternative therapies into your diabetes treatment strategy.

Keywords: Insulin plant, *Costus igneus*, antidiabetic, phytoconstituents

***Portulaca oleracea* (Khurfa): A Review on Phytochemistry, Pharmacology, pharmacology & Ethnomedicinal Uses**

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ABSTRACT

Portulaca oleracea L. an important unani herb which is used in traditional as well as in modern medicine for various ailments. It belongs to the portulacaceae family. It is commonly known as *Purslane* in English and *Khurfa* in Unani. It is distributed all over the world and easily grows in diverse soil & climatic conditions. It is a small, smooth succulent, prostrate annual herb. The whole plant especially seed, leaves and stem are used . *Khurfa* has several phytochemical constituents. It is a rich source of potassium, magnesium, Omega -3 fatty acids, ascorbic acid, Glutathione, Beta carotene, proteins and minerals. It has been reported to possess potent pharmacological actions such as Hepatoprotective, Neuroprotective, Antiinflammatory, Antimicrobial, Antidiabetic, Antioxidant, anticancer, antihypertensive , diuretic action. This review provides an update on the phytochemical and nutritional composition of *Khurfa*. Hence more scientific studies should be conducted in future to explore the use of *Khurfa* as a medicinal herb.

Keywords: *Portulaca oleracea*, Omega-3 fatty acids, Phytoconstituent, Pharmacological actions

Sickle Cell Anemia in India: A Comprehensive Overview and Awareness Programme

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ABSTRACT

With more than 20 million assessed cases, India endures the worst part of sickle cell frailty (SCA) all around the world. This acquired blood problem appears through ongoing iron deficiency, incapacitating torment emergencies, and organ harm, representing a huge general wellbeing challenge. While equivalent weights exist in locales like sub-Saharan Africa and the Americas, India's remarkable socio-segment scene presents particular difficulties. A framework is provided by existing government initiatives like newborn screening and dedicated centers, but their reach is limited by factors like a lack of awareness and limited resources. We battle that successfully handling this emergency requires a cooperative methodology. Medical services experts should work close by scientists to upgrade demonstrative, therapy, and the executives techniques. For raising awareness, promoting early diagnosis, and fostering behavioral change, it is essential to engage community leaders, particularly in tribal populations with a high prevalence. By fashioning these collaborations, India can saddle turning into a worldwide forerunner in battling SCA, preparing for further developed wellbeing results and personal satisfaction for millions potential.

Keywords: Sickle Cell Paleness, India, General Wellbeing, Government Drives.

Role of Biomarkers in Hepatoprotective Assessment of Traditional used Medicinal Herbal Drugs

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ABSTRACT

Traditional medicinal herbal drugs have been widely utilized for centuries to manage various health conditions, including liver disorders. The hepatoprotective potential of these herbal remedies is of significant interest, and the role of biomarkers in assessing their efficacy is crucial. This abstract explores the importance of biomarkers in evaluating the hepatoprotective effects of traditional used medicinal herbs. Hepatoprotective assessment involves the identification and validation of biomarkers that reflect the functional and structural integrity of the liver. These biomarkers play a pivotal role in elucidating the impact of herbal interventions on hepatocellular health of patients. Traditional herbal drugs are often rich in bioactive compounds. Understanding their influence on specific biomarkers helps to establish their hepatoprotective mechanisms. Several biomarkers: *alanine transaminase* (ALT), *aspartate transaminase* (AST), and *alkaline phosphatase* (ALP) liver enzymes are employed to assess hepatoprotective effects. Elevated levels of these enzymes indicate liver damage, and a reduction in their levels by post-herbal intervention suggests hepatoprotection. Additionally, the respective level of biomarkers (bilirubin, albumin, and prothrombin time) also contributes to predict valuable information regarding liver's synthetic and detoxification functions. Histopathological examination of liver tissues is another essential aspect of hepatoprotective assessment. Biomarkers associated with inflammation, oxidative stress, and apoptosis provide insights into the cellular adaptation induced by medicinal herbal drugs. Monitoring the expression of cytokines (tumor necrosis factor-alpha and interleukins) further aids in understanding the immunomodulatory effects of herbal interventions. In Conclusion, biomarkers play a central role in evaluating the hepatoprotective potential of traditional medicinal herbal drugs. The impact of herbal drugs on specific biomarkers contributes to the development of evidence-based strategies for managing liver disorders and underscores the importance of integrating traditional medicines into modern healthcare practices.

Keywords: Alanine transaminase (ALT), Aspartate transaminase (AST), Alkaline phosphatase (ALP), Hepatoprotective, Herbs

Role of Herbal Nanomedicine in the Management of Breast Cancer

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ABSTRACT

Introduction: Breast cancer is the second largest cause of cancer deaths globally and mostly affects women. Traditional therapies include chemotherapy, radiation, surgery, targeted therapy, hormonal, and immunotherapy are effective yet hazardous and have off-target consequences. Herbal medications are potential alternatives. Ginseng, garlic, black cohosh, turmeric, green tea, echinacea, burdock, flaxseed, and black cumin fight breast cancer.

Aim: This work focuses on the use of herbal drug formulations for the treatment and management of breast cancer.

Methods: Herbal therapies are natural, biodegradable, and have less negative effects than conventional treatments. They struggle with bioavailability and absorption. Researchers use herbal nanomedicine to treat these issues. Herbal nanomedicine overcomes the drawbacks of traditional herbal medicines by merging nanotechnology with herbal medicine.

Results: Nanotechnology makes herbal medications bioavailable and absorbable by forming nanoparticles. Herbal nanomedicine may treat breast cancer for various reasons. It enhances herbal ingredient transport to the target region, boosting therapeutic effectiveness. It also lowers systemic toxicity and off-target effects, making therapy safer. Several herbal nanomedicine formulations have shown encouraging results in preclinical studies. Such as, Garlic-extracted nanoparticles inhibited breast cancer in animal studies. Nanocarriers with turmeric extract had higher bioavailability and effectiveness than standard turmeric formulations.

Conclusion: Herbal nanomedicine addresses these issues by enhancing herbal chemical distribution and efficacy while reducing negative effects. Further study and development are needed to maximize herbal nanomedicine's breast cancer therapy potential.

Keywords: Breast cancer; herbal medicine, nanomedicine

PEGylated Edible Marine Oil-Based Nanoemulsion System: Potential of Antioxidant Activity and Skin Cancer Inhibition

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ABSTRACT

This study focuses on development and evaluation of PEGylated edible marine oil-based nano emulsion assessed for antioxidant and anti-skin cancer activities. Nano emulsion composed of polyethylene glycol (PEG), edible marine oil, as identified from phase behavior exploration using ternary plot, possessed droplet size range 150-230nm with zeta potential -1.2 to -1.7 meV. Antioxidant activity of the PEGylated nanoemulsion was assessed using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical method, while the anti-skin cancer potential was evaluated through in vitro studies using skin cancer cell lines. Results revealed that the PEGylated edible marine oil-based nano emulsion had more antioxidant over oil emulsion, attributed to the synergistic effects of nanosizing and bioactive constituents present in marine oil. Additionally, Nanoemulsion produced significant anti-skin cancer effects, as evidenced by their ability to induce apoptosis and inhibit proliferation in skin cancer cells. Mechanistic investigations suggested that the observed anti-skin cancer activity may be associated with enhanced cellular uptake of marine edible oil and its bioavailability facilitated by the nanoemulsion formulation. This research highlights nanoemulsion of edible marine oil as promising vehicle in delivering therapeutics with antioxidant and anti-skin cancer properties, offering new avenues for the development of effective strategies for skin cancer prevention and treatment.

Keywords: PEG stabilized nanoemulsion, Edible Marine Oil, Phase diagram, Antioxidant, Anti Cancer

Pure Extracts from *Celery*, *Centella* & *Sesame* Shows Potential Nootropic Effect in Managing Alzheimer's Disease

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ABSTRACT

Alzheimer's disease (AD) has no well-established treatments, and disease-regressing interventions are in their infancy. But nutraceuticals might be promising molecules to prevent and de-escalate AD conditions without any side effects. As the cell culture and *C. elegans* models are widely appreciated in research, we investigated the nootropic effect of extracts from *Celery*, *Centella* & *Sesame* and how it could be used in AD, major dementia. We found no cytotoxic effect by the three compounds at 25ug/ml concentration on N2a cell line and dentate gyrus neural stem cell isolated from BALB/c. Similarly, the compounds treated N2 worms showed equal growth pattern and food consumption at the same concentration compared to control N2 worms on Food sensing assay. Additionally, we performed a food associative short-term memory test by butanone chemotaxis assay. The results show that, while all three compounds have a better memory retention capacity at 1 hour post conditioning than WT, only Sesame extract has shown an increased memory retention capacity at 1 hour post conditioning in the nmr-1 KO model (CGC code: VM487). Further, in the ongoing study, we are elucidating the molecular mechanism in the cell culture model. The compound would be tested for the protective effect against apoptosis as we induce AD using scopolamine and Okadaic acid in the cell culture model-the investigation extending to the *C. elegans* model to quantify the amyloid-beta deposition in the strain CL2355. Altogether, using the *C. elegans* model, we demonstrated the nootropic effects of Celery, Centella & Sesame extracts by short-term memory assay. The preliminary data also suggest these extracts could help dementia in the management of *Alzheimer's disease*. Our future perspective aims to elucidate the potential molecular mechanism underlying the effect of these compounds. At the end of this study, we assume the finding would strongly recommend the usage of nutraceuticals in the management of *Alzheimer's Disease*.

Keywords: *Alzheimer's Disease*, Nutraceuticals, Nootropic effect, Cell culture models, *C. elegans* model effect

Anti-Inflammatory Coumarin-Piperazine Derivatives

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ABSTRACT

Coumarins, which are compounds derived from various plants and seeds like *Coumarouna odorata* Aube (formerly known as *Diptryx odorata*), possess a range of pharmacological properties, including anticoagulant, antimicrobial, anti-inflammatory, and anticancer activities, anti-alzheimer activities. Current applications of some of these structures include treatment of cardiovascular diseases, antibiotics, and anticancer agents. There is a lack of research focusing on derivatives originating from carbon 8 of the benzopyranone (coumarin) heterocycle. It is previously reported that few of these structures exhibited carbonic anhydrase (CA) inhibition and CA enzymes are closely associated to inflammation. Hence, this project seeks to address this gap by synthesizing different coumarin derivatives at positions C-5, 6, and 7 with simultaneous substitution at C-8 of the benzopyran ring using 1-(4-nitrophenyl)-piperazine. The aim is to capitalize on the promising potential of these compounds for therapeutic applications. The study found that electron-donating groups at various positions in addition to nitrogen-rich components manipulates the anti-inflammatory properties of coumarin derivatives. Novel derivatives were designed and tested for anti-inflammatory effects using computational methods like molecular docking and servers such as Swiss ADME and pkcsm, with indomethacin as a standard drug. The synthesized compounds will be analyzed using techniques like FT-IR and ¹H-NMR. Additionally, the anti-inflammatory potential of these derivatives will be assessed using a rat paw oedema model induced by carrageenin. The results, including synthetic findings, characterization, and in vivo studies, will be further detailed in research paper.

Keywords: anti-inflammatory activity, coumarin, piperazine, molecular docking, indomethacin

Natural Oil Based Nanogel For *Atopic dermatitis* Management – Formulation and Optimization

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ABSTRACT

Background: *Atopic dermatitis* (AD), a chronic and inflammatory skin condition marked by intense pruritus and eczematous lesions, in approximately 40% of cases, eczema endures into adulthood, affecting work productivity and social functioning. Presently, there are restricted therapeutic options available for addressing AD. Treatments rejuvenating skin barrier, with anti-inflammatory or immune response mitigation properties, can be topically administered to manage AD. Formulating a drug-loaded nanoemulsion gel using natural oils offers enhanced permeation and targeted action, improving treatment efficacy and countering conventional treatment side effects.

Aim: The formulation and optimization of a nanoemulsion gel system loaded with drugs for treating AD.

Methods: Screening of natural oils was performed for formulating a nanoemulsion. The criteria for oil selection include its synergistic activity in treating AD and its effective drug solubility. Further pseudoternary phase diagrams were constructed to determine the ratio of Smix for stable nanoemulsion. After that design of expert (DoE) software was used for making optimized formulation.

Results: Based on pseudoternary diagram 5:1 ratio of Smix was selected. 13 runs were generated by CCRD, out of which 4 were axial, 4 were factorial and 5 were central runs. The CCRD suggested quadratic models for all the dependent variables. Optimized batch was selected by applying the constraints of minimum droplet size, PDI, and maximum transmittance.

Conclusion: DoE helped in making a stable formulation with minimum droplet size, PDI and maximum transmittance. Further in vitro and in vivo studies are required to determine the pharmacodynamic potential of the developed formation.

Keywords: Atopic dermatitis, DoE, Nanoemulsion gel, Natural oil

Beyond Drug Efflux: The Complex World of ABC Transporters in Breast Cancer

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ABSTRACT

Breast cancer remains a formidable health challenge, and treatment resistance poses a significant obstacle to successful therapy. The key players in this resistance are ATP-binding cassette (ABC) transporters, molecular pumps that efficiently expel chemotherapeutic drugs from cancer cells. Notably, ABCB1 (P-glycoprotein), ABCC1 (MRP1), and ABCG2 (BCRP) are frequently overexpressed in breast cancer cells, acting as efflux pumps that actively extrude various chemotherapeutic agents, reducing their intracellular concentration and efficacy—a phenomenon known as multidrug resistance (MDR). This significantly compromises treatment outcomes and patient survival. Recent evidence suggests that ABC transporters play a multifaceted role in breast cancer, extending beyond drug efflux. Implicated in cancer stem cell maintenance, invasion, metastasis, and influencing immune response and tumor microenvironment dynamics, these transporters contribute to disease progression. Given the pivotal role of ABC transporters in breast cancer resistance, targeting their activity has emerged as a promising therapeutic strategy. Notably, various plant extracts and natural compounds such as curcumin, quercetin, resveratrol, and berberine have demonstrated the ability to inhibit ABC transporter function. The potential of plant extracts as ABC transporter inhibitors is encouraging, and further research is crucial. This article highlights specific mechanisms of action and optimizing delivery for maximum efficacy of anticancer drugs targeting ABC transporters. In Conclusion, exploring combinations of plant extracts with conventional therapies or other MDR reversal agents holds promise for improved treatment outcomes. ABC transporter inhibitors warrant further investigation, paving the way for the development of novel and effective therapeutic strategies to combat breast cancer and improve patient outcomes.

Keywords: Plant extracts, breast cancer, multidrug resistance, and ABC transporters

Novel Drug Delivery Approach Using Natural Oils for Treatment of Improved Antifungal Activity

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ABSTRACT

Background: The most prevalent fungal infectious illnesses impact a significant percentage of the global human population (20-25%) and manifest as superficial cutaneous infections caused by *Candida* species, *Malassezia* species, dermatophytes, and non-dermatophyte. Fungal infections may be treated with oral or topical antifungal medications. In comparison to systemic administration, topical treatments have less negative side effects and are more effective at reaching their intended targets. However, skin penetration and efficient drug concentration in various skin layers are crucial to the success of topical antifungal therapy.

Aim: Designing an effective approach for the treatment of antifungal infection using drug-loaded nanoemulsion gel.

Methodology: A range of natural oils underwent screening to assess their suitability for nanoemulsion development. The oil was chosen based on its efficacy in dissolving the medication. The surfactants were screened based on their ability to mix or emulsify with the chosen oil. Further pseudoternary phase diagrams were constructed to determine the ratio of surfactants and cosurfactants and then design of expert was performed with the help of dependable and independent variable to achieve optimised formulation.

Results: The pseudoternary diagram was used to get the 4:1 ratio of Smix. CCRD produced 13 runs: 5 central runs, 4 factorial runs, and 4 axial runs. For each dependent variable, the CCRD recommended a quadratic model. Applying the constraints of minimal droplet size, PDI, and maximum transmittance allowed for the optimization of batch selection.

Conclusion: Screening of excipients helped in the selection of oil, surfactant and cosurfactant resulting in formulation of nanoemulsion with better stability and drug loading. we were able to create a stable formulation with optimal minimum droplet size, PDI, and transmittance with the help of DoE

Keywords: Nanoemulsion gel, antifungal infection, pseudoternary phase diagram, Qbd, DoE

Antiplasmodial Activity of *Banafshah* (*Viola odorata*. Linn)

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ABSTRACT

In 2007, Moon *et al* tested the crude petroleum ether extract of fifteen species of *Viola* (*Viola tokubuchiana*, *Viola japonica*, *Viola dissecta*, *Viola acuminata*, *Viola verecunda*, *Viola albida*, *Viola keiskei*, *Viola grypoceras*, *Viola mandshurica*, *Viola lactiflora*, *Viola takeshimana*, *Viola variegata*, *Viola websteri*, *Viola hondoensis* and *Viola ibukiana*) found in southern Korea, for its antiplasmodial action (Moon *et al.*, 2007) epi-oleanolic acid, isolated from the petroleum ether extract was proved a significant antiplasmodial with IC₅₀ value 0.18 µg/ml (Moon *et al.*, 2007). Lee *et al* has also reported the crude petroleum ether extract of *Viola websteri* for its antiplasmodial potential against *Plasmodium falciparum* (Lee *et al.*, 2009). Two isolated compounds (6-(8'Z-pentadecenyl)-salicylic acid and 6-(8'Z, 11'Z, 14'Zheptadecatrienyl)-salicylic acid) isolated from petroleum ether extract of *Viola websteri* showed good antiplasmodial potential against chloroquine-sensitive *P. falciparum* strain (Lee *et al.*, 2009). The essential oils of *Viola odorata* in combination with essential oils of other plants have been reported with significant repellent activity against various mosquito *Aedes aegypti*, *Anopheles stephensi* and *Culex quinquefasciatus* (Amer and Mehlhorn, 2006). In some of combinations 100 % activity was observed against all the test species. The crude methanolic extract and its various solvent fractions of *Viola betonicifolia* have been reported with significant larvicidal activity against the larvae of *Aedes aegypti* (Muhammad and Saeed, 2011).

Keywords: Antiplasmodial, *Banafshah*, Essential oil

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Scholarly Review of *Solanum nigrum* and its Anti -Inflammatory Potential

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ABSTRACT

Solanum nigrum is a rich source of plants, belongs to the family of *Solanaceae*. It contains steroid saponins, Steroidal alkaloids, flavanoid, coumarinm lignin, organic acids, volatile oils, and the polysaccharides due to that it has many properties like hepatoprotective, anti tumor, Cystostatic, and anti-convulsant anti ulcergumic and anti convulsant and anti inflammatory properties. This review explains the anti inflammatory properties of the *Solanum nigrum*.

Keywords: hepatoprotective, anti-tumor, anti-inflammatory

Bacterial Histone Mimic Protein as Therapeutic Agent for Neurodegenerative Diseases

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ABSTRACT

Neurodegenerative diseases (NDs) are result of progressive deterioration of the neurons in the CNS causing many disease conditions like Alzheimer's disease, Parkinson's disease, Huntington's disease etc. current treatment strategies are limited to only symptomatic relief. We report a histone-mimic, cell-permeable, thermophilic bacterial protein Bst-HU derived from *Geobacillus stearothermophilus* which localizes to host cytoplasm and imparts neuroprotective, neurodifferentiative and neuritogenic effects in mouse neuronal cell line can be translated to effective neuroprotective agent for neurodegenerative diseases. Current treatment strategies for NDs involve non pharmacological interventions like exercise dancing etc and pharmacological treatments like dopamine replacement therapy, and levodopa, in Parkinsons disease. Acetylcholinesterase inhibitors like Rivastigmine, Donepezil in Alzheimer's disease. All these treatment strategies are not very successful in long run. There is an urgent need to develop disease-altering therapeutic molecules which can have neuroprotective and neurotrophic cellular mechanisms to tackle the NDs. Bst-HU naturally crossed the host cell membrane and accumulated in a time-dependent manner in the cytoplasm of neuronal cells, Bst-HU stimulated qualitative and quantitative increase in neurite outgrowth, Bst-HU treatment imparted significant protection against host cell damaging agents like glutamate, CoCl₂ and 6-OHDA, Enhanced expression of neurotrophin (GDNF), genes involved in neuronal growth and maturation (NeuN) in BstHU-treated cells.

Keywords: Neurodegenerative diseases, Neuroprotection, Bacterial protein

Concept of Diet, Health, and Nutrition in Unani System of Medicine: A Review

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ABSTRACT

The word "diet" comes from the Greek word "diaita," meaning "a way of life." Maintaining a proper diet is essential for the survival and well-being of present and future generations. A well-balanced diet includes all the necessary nutrients and is fundamental to good health, disease prevention, and nutrition. According to the Unani text *Makzanul Hikmat*, food is responsible for the body's growth, provides energy for movement, and maintains the body's calories. "*Makool*" and "*Mashroob*" (food and drinks) are vital factors among the six necessary prerequisites for the maintenance of life in the Unani system of medicine. "Dietotherapy" (*ilaj-bil-ghiza*) is a unique non-medicinal therapy where treatment is done by regulating dietary habits. This paper aims to explain the concept of diet and health specifically in the Unani system of medicine. To gather all the information about the concept of diet and health according to ancient Unani physicians, a manual literature survey of classical Unani texts was conducted. The ancient Unani physicians understood the significance of food and its role in maintaining a healthy life. They described it in detail under six essential prerequisites for life. Dietotherapy is crucial in preventing and treating various body ailments. Modifying the diet can also reduce the treatment duration and improve drug tolerance. Good nutrition is crucial for maintaining physical and mental health. It requires a well-balanced diet that includes all essential nutrients. An appropriate diet can effectively manage lifestyle disorders and conditions like anemia, malnutrition, and vitamin deficiency.

Keywords: Diet (*ghiza*), *Ilaj-bil-ghiza*, Nutrition, Health, Unani medicine

Computational Approach for Identification of Targets, Polymers, for Preparation of Double-Coated Nanoparticles for Brain Delivery

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ABSTRACT

Background: Double-coated nanoparticles are a novel method of drug delivery systems which can be used to target drugs to specific parts of the body. These particles have size in nanometres scale and can be coated with materials to enhance their properties. Some common materials used for coating are polymers and surfactants. They provide stability to the formulations, prevents aggregation, improve bioavailability, and allow controlled release of the drugs. The particles have 2 distinct layers, that cover the drug core. The first coating is designed to improve bioavailability, protect the drug from enzymatic degradation, etc. The second coating enhances the targeting to specific cells, overcoming resistance to drugs and modifying physicochemical properties.

Objectives: To identify disease-specific (protein) targets, present in the brain and determine polymeric materials to target them.

Methods: STRING/STITCH databases were used to prepare a network of protein targets and protein-protein interactions, present in the brain cells. A confidence score of 0.8 was set as benchmark, with maximum 40 proteins. Tissue compartment values were analysed for important genes. Significant values were associated with polymers for effective targeting. In-silico docking may be carried out to check the binding affinities.

Results: Oligodendrocytes had an interaction score 0.919 with GFAP protein (tissue score 4.9999). Astrocytes had an interaction score 0.999 with HLA proteins (tissue score 4.98). GFAP and Astrocytes are closely related but play different roles in the brain. Potential astrocytic targets include potassium ion channels and glutamate receptors.

Conclusion: Ligand-bound natural polymers like chitosan can be effectively used for targeting brain specific cells like astrocytes. Synthetic polymers like Polyethyleneimine have shown promising results in GFAP biomarker determination. Polysorbate 80 is a promising surfactant for brain targeting.

Keywords: Brain-targeting, Nanoparticles, Computational studies, Polymers

Role of *Asbab-e-Sitta Zarooriyah* in Lifestyle Disorders : An overview

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ABSTRACT

The Unani system of medicine is the oldest and most traditional medical practice in the world. It proposes a special fusion of *Asbab-e-Sitta Zarooriyah*, six crucial elements that can aid in the prevention of various lifestyle illnesses. In higher society, lifestyle disorder (LSD) is a prevalent issue. It impacts both sexes. LSD is more prevalent in older age groups. Lifestyle disorders such as diabetes mellitus, hypertension, and obesity are becoming more common and are linked to cardiovascular diseases. Cardiovascular diseases (CVDs) account for over 30% of all deaths globally, making them the leading cause of death. Non-communicable diseases (NCDs) account for 53% and 44% of all deaths and disability-adjusted life years (DALYs), respectively. These include malignancies, cardiovascular illnesses, and type 2 diabetes mellitus. The six essential factors, or *Asbab-e-Sitta Zarooriya*, are the effective causes that either directly or indirectly contribute to the maintenance or improvement of current health. By implementing dietary, behavioral, and environmental adjustments, lifestyle diseases can be avoided. Unani medicine's all-encompassing strategy is ideally suited to discuss the two primary foundations of lifestyle diseases that are treatment and prevention. It accepts the importance of the physical as well as mental dimensions of the individual person. Unani system of medicine exert a major influence on preventing the onset and development of several diseases of lifestyle by making modifications in *Asbab-e-Sitta Zarooriyah*.

Keywords: *Asbab-e-Sitta Zarooriyah*, Lifestyle Disorders

Herbal Based Novel Approach For Treatment Of Rheumatoid Arthritis

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ABSTRACT

Introduction: The prevalence of autoimmune diseases in rheumatoid arthritis surpasses that of any other chronic progressive condition in adults. The pain, stiffness, and swelling it causes might make it difficult to move around and lower one's quality of life. Delays in effectiveness, low bioavailability, and systemic adverse effects are some of the limitations of NSAIDs, DMARDs, biologics, and corticosteroids that are used to treat *Rheumatoid arthritis*. This medication is used in conjunction with natural treatments to achieve synergistic effectiveness in RA. Additionally, specific therapy is made possible by nanoemulsion gel, which decreases systemic side effects, increases bioavailability, and enhances the efficacy of RA treatments.

Aim: The aim of the current work is to describe the various studies performed for rheumatoid arthritis for its different pharmacological activities which include such as stability and bioavailability studies.

Methodology: Various research article on herbal medicine based treatment of RA were compiled Using terms such as "bioavailability enhancement" and "solubility enhancement," of herbal drug for the treatment of RA were gathered from various sources such as Google Scholar, Science Direct, and Pub Med.

Results: various researches were found to have used herbal medication for treatment of RA such as Quercetin , Naringenin, Curcumin, Berberine and various other. Their nanoformulation have been reported to show enhanced bioavailability leading to better efficacy in treatment of RA.

Conclusion: Hence, with novel drug delivery approaches we can overcome poor solubility and bioavailability problem which eventually can result to better use of herbal drug in the treatment of rheumatoid arthritis.

Keywords: Nanoemulsion gel, Rheumatoid Arthritis, herbal drugs

Capsaicin: A Review of its Clinical Aspects

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ABSTRACT

Capsaicin (trans-8-methyl-N-vanillyl-6-nonenamide) is a naturally occurring alkaloid, a bioactive phytochemical abundant in red and chilli peppers, responsible for its hot pungent taste. It is a fat-soluble, odorless substance that is quickly absorbed via the skin. Interest in capsaicin has grown, as a result of its expanding potential uses. Due to its antimicrobial activity, it has a promising application in food packaging, food preservation, marine environment and dental therapy. Several biological effects of capsaicin have been studied during the past few decades. These include: cardio protective influence, antilithogenic effect, anti-inflammatory, thermogenic influence, and beneficial effects on gastrointestinal system. Capsaicin also play a impoprtant role in the treatment of metabolic disorders, like weight loss, pressure lowing and insulin reduction effects. Furthermore, it has been shown that capsaicin is beneficial in avoiding human cancers, including breast, colon, stomach, and lung cancers. Prior studies have indicated that capsaicin may be beneficial for both pain management and cognitive impairment.

Keywords: Capsaicin, antimicrobial, Dental therapy, Anti inflammatory

Betulin: Therapeutic, Potential and Recent Advances in Drug Delivery

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ABSTRACT

Betulin is a natural compound such as bioflavonoids and pentacyclic triterpenoids have found applications in health care system. Due to their wide pharmacological activities high safety margins and lower cost. Traditionally it is used as antiobesity agent that called *Medohara* in Ayurvedic term, used as poisonous antidote *Visahara* and as antiulcer agent *Vranaropana*. However current research has shown its multi spectrum biological benefits for the treatment of various chronic diseases such as anticancer, antibacterial, antimalarial, anti-inflammatory antioxidant, diabetes, hypertension and hypercholesterolemia. Its use as advantageous over the other phytoconstituents. As it is a non-toxic and non-oxidizable moiety. This review focus on various studies performed on betulin explaining its broad spectrum biological activities. In addition, this review will also focus on challenges associated with drug and various approached to enhance the oral bioavailability of betulin. Betulin is a highly potent compound due to its strong antioxidant and free radical scavenging properties. In the near future enhancing its bioavailability using novel drug delivery technology having minimum side effects will bring this promising natural compound to the forefront of therapy for the treatment of various chronic human disorder.

Keywords: Betulin, Antioxidant, Bioavailability, Novel drug

TLC-MS Bioautography-Based Identification of α -amylase and DPPH Inhibitory Compounds from *Gymnema sylvestre* R.Br. and In-silico Analysis of its Identified Phytochemicals as Potential Agonists of PPAR γ

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ABSTRACT

Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels, resulting from insufficient insulin action or insulin resistance. It can impair various metabolic pathways in cellular metabolism, leading to significant consequences over time. In Ayurveda, leaves of *Gymnema sylvestre* (GS) have been traditionally used to treat diabetes. This study is aimed to explore the mechanism of action driven by its chemical constituents in potentially treating diabetes. Metabolite profiling of the methanolic extract from *Gymnema sylvestre* leaves (MLGS) was conducted using ultra-performance liquid chromatography-mass spectroscopy (UP-LCMS) and thin-layer chromatography (TLC). Molecular Docking and MD simulations were performed to assess the interaction between selective phytoconstituents and the antidiabetic target, peroxisome proliferator-activated receptor (PPAR γ). MLGS exhibited significant 2, 2-diphenyl-1-picrylhydrazyl (DPPH) antioxidant activity. MLGS also exhibited significant inhibition of α -amylase and α -glucosidase. Using TLC-MS-bioautography two antioxidant metabolites and three α -amylase inhibitory metabolites were identified, and rutin was identified in both α -amylase and antioxidant prominent bands. Identified phytoconstituents namely rutin and lupeol exhibited favorable docking interactions with PPAR γ . MD simulations results indicate that rutin forms a stable protein-ligand complex with very minimal structural changes and could potentially exhibit agonistic activity with PPAR γ , thus suggesting the potential of rutin as a druggable compound to treat diabetes.

Keywords: *Diabetes melitus*, *Gymnema sylvestre*, PPAR γ agonist, Molecular docking

Demystifying the Role of TWEAK/Fn14 Receptor in the Regulation of Autism Spectrum Disorder

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ABSTRACT

Background: Autism Spectrum Disorder (ASD) is the emerging neurological manifestation often recognized as developmental disorder in the children population of the age group of 1-3 years. It includes the persistent challenges in communication, poor brain development and poor behavioral changes. Therefore, the neoteric pharmacological approach is targeted to put forth the therapeutic regimen in the current study in order to manage this ailment.

Aim: The study is aimed to examine the potential neuroprotective properties of aurintricarboxylic acid (ATA) by modulating TWEAK/Fn14 signalling levels in an experimentally induced model of ASD in adult rats.

Methods: In this study, propionic acid (PPA) was administered for the first 11 days by i.c.v. route in volume of 4.0 microliter in rats by stereotaxic apparatus, resulting in autism-like behavioral, neurochemical, neuro-inflammatory, and morphological changes. After that ATA (TWEAK /Fn14 inhibitor) was administered at a dose of 5 mg/kg and 10 mg/kg. The prolonged treatment was provided to restore the neurochemical deficits in the autistic rats.

Result: Chronic PPA administration activates the TWEAK-Fn14 signalling and decreases the expression of CREB (10 mg/kg, i.p.) in autistic rat brains, which was found to be reversed by giving ATA. ATA also restored the gross and histopathological alterations in PPA-treated rat brains. Moreover the treatment also helped in improving locomotion and neuromuscular coordination.

Conclusion: Our results indicate the neuroprotective effects of ATA by restoring the histopathological changes in the PPA treated rats and also prevent autism-related behavioral and neurochemical alterations by exhibiting marked pharmacological effects.

Keywords: neuroprotective; TWEAK/Fn14; Autism Spectrum Disorder; neuroinflammation

Neuroprotective Effects of Aurintricarboxylic Acid Against Chronic Unpredictable Stress-Induced Neurobehavioral Dysfunction, Oxidative, and Inflammatory Stress in Mice

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ABSTRACT

Background: Chronic unpredictable stress (CUS) is a significant risk factor for neurobehavioral alterations such as anxiety, depression, and memory impairment. Therefore, interaction between TNF-like weak inducer of apoptosis (TWEAK, Tnfsf12) and its receptor fibroblast growth factor-inducible 14 (Fn14) is implicated in regulating oxidative stress and neuroinflammation, liable for pathological changes in CUS.

Objective: The current study aimed to investigate the potential neuroprotective effects of aurintricarboxylic acid (ATA), selective TWEAK-Fn14 inhibitor, against CUS-induced changes in mice.

Methods: Mice were subjected to CUS and then treated with ATA (15 & 30 mg/kg; i.p.) or donepezil (1 mg/kg, p.o) as positive control. Behavioural changes were assessed, including anxiety, depression, spatial learning and memory. Cortisol, acetylcholinesterase and neurotransmitter levels in brain tissue were measured. Anti-inflammatory and antioxidant properties were evaluated by assessing GSH, TBARs, SOD etc.

Result: Treatment with ATA and donepezil significantly improved behavioural changes induced by CUS, with dose-dependent effects. ATA and donepezil decreased cortisol levels in serum and acetylcholinesterase levels in brain tissue while increasing norepinephrine and serotonin levels in the brain. Both treatments exhibited anti-inflammatory and antioxidant properties, as evidenced by decreased TBARs, increased activity of GSH and SOD, and decreased expression of apoptotic factors. Histopathological analysis confirmed the prevention of stress-induced cellular or neuronal damage in the hippocampal region.

Conclusion: The study concludes that ATA possesses neuroprotective potential against CUS-induced neurobehavioral alterations in mice. Targeting the TWEAK-Fn14 pathway with ATA may represent a promising therapeutic strategy for managing neurobehavioral pathologies associated with chronic stress.

Keywords: Chronic unpredictable stress, neurobehavioral alterations, anxiety, neuroinflammation, TWEAK-Fn 14

Decoding the Molecular Landscape of Monkeypox: Unraveling Pathogenesis and Crafting Molecular Countermeasures

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ABSTRACT

The global surge of monkeypox virus (MPXV) has spurred intensive efforts to comprehend its molecular intricacies, as genomic sequencing exposes two distinct lineages - the West African, driving the current outbreak, and the Congo Basin. The persistent mutations underscore the necessity for ongoing genomic surveillance. Understanding MPXV transmission is crucial for containment. Investigations into potential airborne transmission and the role of asymptomatic carriers complement the primary mode of direct contact. Researchers delve into viral genes, such as B14R, impacting immune response modulation, unraveling the pathogenic mechanisms. The interactions of these genes and their encoded proteins, such as IL-1 β binding protein, with host cells, notably macrophages and dendritic cells, unveil potential therapeutic targets. This molecular comprehension propels countermeasure development. Structural analysis of viral proteins, like D7L facilitating viral entry, and COP-A36R crucial for actin tail formation, informs the creation of antiviral drugs like tecovirimat and brincidofovir. Recognizing the immediate need for effective vaccines, innovative approaches such as plant-based vaccines are gaining traction, promising a scalable and rapid response for human immunization. Simultaneously, the evaluation of existing smallpox vaccines targeting envelope proteins like H3L and L1R are responsible for viral attachment to host cells and provide viral growth, plaque formation and virion morphogenesis respectively.. Beyond immediate threats, researchers explore animal reservoirs and zoonotic transmission, investigating genes like BR-203 linked to virulence differences. Understanding how pre-existing immunity from smallpox vaccination, influenced by genes like HLA, affects MPXV susceptibility is crucial for comprehensive outbreak control. The future demands ongoing molecular characterization, monitoring evolution through genes like P24 essential for DNA replication, and informed public health decisions. Unraveling transmission dynamics, refining diagnostics, and developing next-gen therapeutics and vaccines, including innovative approaches like plant-based vaccines, targeting genes like CrmB implicated in immune evasion, are pivotal steps. Besides a search for plant metabolites, cutting-edge vaccine technologies can effectively help combat this re-emerging threat and mitigate its global impact.

Keywords: Monkeypox virus, Zoonotic disease, Plant-based vaccine, Antiviral compounds

Recent Advances in *Zard Chob* (*Turmeric/ Curcuma longa*) as a Nutraceutical: A Comprehensive Review

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ABSTRACT

Background: *Turmeric*, known as *Zard Chob* in Persian, has been traditionally used for its medicinal properties *Muhallile waram* (Anti-inflammatory), *Musakkin* (Analgesic), *Daf-e-Taaffun* (Antiseptic), *Daf-e-Humma* (Antipyretic), *Munaqqi-e-fuzlat* (cleanser of morbid matter), *Musaffi-e-Dam* (Blood Purifier), *Muaqawwi-e-Kabid* (Hepatoprotective) *Mudammil-e-Qurooh* (Wound Healer), *Jaali* (detergent) and *Kasir Riyah* (carminative) properties besides its use as cosmetic.. Recent research has expanded our understanding of its potential as a nutraceutical, highlighting its diverse health benefits.

Objective: This review aims to summarize recent advancements in the research on turmeric, focusing on its role as a nutraceutical and its potential applications in promoting human health.

Methods: A comprehensive search of electronic databases was conducted to identify relevant studies published in peer-reviewed journals. Studies were included if they explored the pharmacological properties, bioactive compounds, and health benefits of turmeric. Unani classical books were also explored for relevant literature.

Results: The review covers various aspects of turmeric, including its phytochemical composition, antioxidant, anti-inflammatory, antimicrobial, anticancer, and neuroprotective properties. Additionally, its potential role in managing chronic diseases such as cardiovascular disorders, diabetes, and neurodegenerative diseases is discussed. Besides curcumin, recent research has expanded to other compounds like turmerones and polysaccharides, exploring their synergistic actions.

Conclusion: Turmeric exhibits promising nutraceutical properties, making it a valuable candidate for promoting human health and preventing chronic diseases. Further research is warranted to fully elucidate its mechanisms of action and optimize its therapeutic applications.

Keywords: *Zard chob*, Turmeric, Unani Medicine, Nutraceutical

Design and development of novel combinatorial drug-loaded nano-formulation for the treatment of Ischemic Stroke

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ABSTRACT

Ischemic stroke (IS) is a severe neurological disease caused by the narrowing or occlusion of cerebral blood vessels and is known for its high morbidity, disability, and mortality rates. Due to the low bioavailability and stability of many drugs, conventional therapy fails to meet the desired therapeutic efficacy. Nanomedicine provides new opportunities for the development of novel neuroprotective strategies for the diagnosis and treatment of IS. So here, we develop a combined nano-formulation of synthetic and herbal drugs loaded transferrin (TF)-functionalized nanostructured lipid carriers (NLC) to enhance their bioavailability and targeted delivery to the ischemic brain regions. The NLCs were successfully formulated and optimized using Central Composite Design (CCD), which showed an average particle size of 120 nm and a Zeta potential value of -2.72 mV. In addition, in-vitro cytotoxicity of the synthetic and herbal drug-loaded TF-functionalized NLCs will be analyzed in cell line studies, including combinational drug index and cell update. Last, in vivo studies will be conducted, which include pharmacokinetics and brain distribution studies, determination of biochemical estimation, and histopathological studies. In the end, transferrin-functionalized nanostructured lipid carriers hold great potential for targeted drug delivery to ischemic stroke sites. This targeted approach may enhance therapeutic efficacy while reducing potential side effects associated with systemic drug administration.

Keywords: Ischemic stroke, Nanostructured lipid carriers, Targeted delivery

Unani Medicine, Herbal Potency, and the Healing Power of *Zanjabeel*: A Comprehensive Exploration

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ABSTRACT

The Unani (*Greco-Arab*) medical system, dating back to ancient times, has been employed for the holistic treatment of various diseases. Unlike modern medicine, which tends to focus on specific diseases and their underlying causes, the Unani system adopts a comprehensive approach that addresses the physical, mental, spiritual, and social well-being of individuals. The development of potent therapeutic agents is significantly influenced by the crucial role played by medicinal plants. Ginger, also known as *Zanjabeel*, is a popular herbal remedy with extensive usage in traditional medicine and is recognized for its dual role as both a culinary spice and a medicinal agent. Ginger, appreciated globally for 2500-3000 years, belongs to the *Zingiberaceae* family and is renowned for its diverse medicinal properties. With active compounds like 6-gingerol and 6-shogaol, ginger enhances enzyme activity and promotes circulation, making it a versatile herb with remarkable Phyto therapeutic and medicinal benefits. Extensive research conducted over the past two decades has focused on unravelling the bioactive components and therapeutic potential of ginger, particularly ginger. The recent studies on ginger have delved into its chemical composition and explored potential health benefits, include analgesic, anti-inflammatory, antibacterial, and antioxidant properties. This article seeks to provide a comprehensive review of *Zanjabeel* (*Zingiber officinale* Roscoe) by examining aspects such as its description, botanical identification, chemical constituents, and therapeutic potential across various diseases.

Keywords: *Zanjabeel*, Anti-inflammatory, phytotherapeutic, antioxidant, unani medicine

Functional Foods For Prevention Of Osteoporosis

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ABSTRACT

Background: Functional foods or nutraceuticals are the foods that contain bioactive substances that have proven medical benefits on health. The term ‘functional foods’ was coined in 1980s, to the foods (fortified dairy products, citrus fruits, herbal compounds, vitamins, minerals etc.) that could improve health and carry disease preventing capacity in addition to their nutritive advantage. The consumption of functional foods differs according to age and sometimes gender of the consumer. Osteoporosis is an age-related debilitating condition that significantly affects physical and mental health and also carry the risk of fractures. Functional foods may present as potential therapy to elderly for prevention of osteoporosis.

Objective: To identify the functional foods and their potential to prevent the osteoporosis and also aid in its therapy.

Method: The electronic databases like PubMed, Google Scholar, Embase, Cochrane was thoroughly searched for clinical studies to achieve the objective.

Result: Calcium-rich foods like milk & dairy; protein-rich foods like fish, eggs, tofu & chicken; Vitamin D- fortified foods; antioxidant foods like nuts, citrus fruits, spinach); foods containing phytoestrogens like flaxseeds, soybeans, berries; along with pre- & pro-biotics rich foods like banana, garlic, yoghurt may help to prevent the osteoporosis. Foods fortified with minerals like magnesium and boron were also found to improve bone health.

Conclusion: Functional foods create an environment for new products that assure remedies for health problems. They may play a crucial role in future for development of novel therapies regarding osteoporosis.

Keywords: Functional foods, Nutraceuticals, Osteoporosis

Unveiling the Role of MiR-29a in Breast Cancer and Exploring Prevention Strategies with Bioactive Compounds

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ABSTRACT

Background: Breast cancer (BC) remains a major global health concern, compelling continued research into its underlying mechanisms and potential prevention strategies. MicroRNA-29a (miR-29a) has emerged as a significant regulator in BC pathogenesis, exerting diverse effects on tumor initiation, progression, and metastasis. Natural products have gained attention as promising agents for cancer prevention due to their diverse bioactive constituents and favourable safety profiles.

Objective: Our aim is to elucidate the intricate involvement of miR-29a in BC and explore the potential of bioactive compounds as preventive agents in targeting this miRNA.

Methodology: A combination of in vitro and in vivo experiments is used to investigate the functional repercussions of miR-29a dysregulation in breast cancer. Experimental techniques include qPCR to measure miR-29a expression levels, cell proliferation assays to evaluate tumor growth kinetics, apoptosis assays to assess sensitivity to cell death, and invasion assays to quantify metastatic potential. Additionally, bioinformatics analyses can be performed to identify miR-29a target genes and signaling pathways involved in BC pathogenesis.

Results: The low levels of miR-29a is observed in BC and have several mechanisms, including overexpression of oncogenes (MYC, MCL-1, DNMT3A), inhibition of tumor suppressors genes (PTEN, CDC42), resistance to apoptosis and activation of PI3K/Akt, Wnt/ β -catenin, TGF- β signaling pathways. The interaction between miR-29a and bioactive compounds may present an innovative approach for BC prevention strategies.

Conclusion: Hence, bioactive compounds would be a potential agent in restoring miR-29a expression to normal levels in ER α + BC. Additionally, bioactive compounds may synergize with conventional therapeutics to enhance treatment efficacy and reduce adverse effects.

Keywords: Breast cancer, miRNA-29a, Natural product

An Overview Of Hammam In Unani Medicine

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ABSTRACT

Background: The term "*hammam*" originates from the Arabic root "*hamm*," which means "heat-producing" or "spreader of warmth. According to Ibne Sina, the word "*hammam*" originates Arabic *Alhamim*, implying the intensity of summer heat. Since *Hammam*, *Riyazat*, and *Dalk* are included in *Asbab-e-Ghair Zarooriyah*, it is implied that they are not necessary for life to exist.

Objective: The definition, application, and history of the *hammam* in the Unani medical system are all covered in this research study.

Methods: Our goal was to gather as much knowledge as we could about hammam, therefore we performed a thorough literature study of relevant textbooks and publications. We also manually searched and looked up published our expertise and available data.

Results: In order to help readers better understand the therapeutic benefits of *hammams*, we have created this review article to the best of article.

Conclusion: The article focuses on the fundamental concepts of the Unani medical system's *hammam*.

Keywords: Keywords : *hammam*, *asbab e ghair zarooriyah*, *Riyazat*, *Dalak*

Garlic: A Spice with Golden Medicinal and Therapeutic Properties

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ABSTRACT

Background: Garlic (*Allium sativum*) is a member of *Liliaceae* family. Garlic is a perennial bulb, thought to be indigenous to Central Asia, and West of Himalayas. It is highly considered throughout the world for both of its medicinal and dietary value. Its leaves, flowers, cloves have been used in traditional medicine for a long time to cure various diseases in human being. Garlic was an important medicine to Egyptians who used garlic to treat diarrhea. It was also used by Greek physicians Hippocrates and Galen who used garlic to treat intestinal and extra-intestinal disease. *Allicin* is one of the most naturally arising compounds. The chemical constituents of garlic have also been used for treatment of hypertension, cardiovascular diseases, diabetes and hyperlipidemia.

Objective: Aim of this paper is to study the therapeutic and medicinal properties of Garlic.

Methods: To obtain important information scientific knowledge about uses of garlic systematic literature searches were conducted using PubMed, ResearchGate, Web of Science, Scopus.

Conclusion: The garlic has a therapeutic and functional value and is used to cure a variety of diseases in human. More clinical studies are needed to back up the claims of garlic in the treatment and prevention of various diseases.

Keywords: Garlic, *Allium sativum*, Spice, Medicine, Disorders

Development, Optimization and Characterization of Dual drug loaded Dermal Nanogel for the Management of Skin Cancer

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ABSTRACT

Background: Skin cancer is one the serious illness of skin and it can be defined as abnormal growth of skin cells that most often develops on the skin when exposed to sun. Skin cancer is mainly divided into melanoma and non-melanoma skin cancer. It is estimated that 2–3 million cases of NMSC and 132,000 new cases of MSC occur worldwide each year.

Objectives: The main aim of this study, develop and evaluate dual drug delivery system of 5-FU and ALZ nano-gel for the management of skin cancer by UV induction in mice.

Methods: In this study, the dual drug loaded NLC was developed and optimized using design of experiment and various characterization techniques including vesicle size, zeta potential, entrapment efficiency and TEM. Further, the optimized dual drug loaded formulation was also evaluated FT-IR and DSC, CLSM and in-vitro drug release.

Results: The optimized formulation had measuring vesicles size of 210.1 ± 8.42 nm, PDI of 0.21 ± 3.76 , zeta potential -19.95 ± 6.38 mV and entrapment efficiency of $91.3 \pm 6.92\%$. The TEM imaging revealed spherical shape vesicles. The DSC revealed no significant peak of drug was observed as they are converted in amorphous form and in FT-IR there was no significant interaction was observed. Confocal microscopy showed rhodamine solution penetrated $20\mu\text{m}$ rat skin while rhodamine-nano-lipid carrier formulation was penetrated $55\mu\text{m}$ of rat skin. Studies on drug release in vitro revealed final optimized formulation had cumulative drug release $76.49 \pm 1.56\%$ that was much higher than hydro-alcoholic solution 5-FU + ALZ $50.82 \pm 2.56\%$.

Conclusion: The nanostructured lipid carrier system, which possesses advantageous attributes, demonstrates potential in enhancing therapeutic approaches of skin cancer.

Keywords: Skin Cancer, Box-Behnken design, 5-Flourouracil, Alizarin, Nanostructured lipid carrier

Measles and Rubella Vaccination Coverage: A Review

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ABSTRACT

India has made significant strides in immunization, striving to achieve comprehensive coverage for a birth cohort of 27 million children through the Universal Immunization Programme. Immunization is still a very powerful public health tool, especially when it comes to protect young children (under five) against avoidable, life-threatening diseases. Despite reaching high vaccination coverage levels for individual vaccines, the overall immunization coverage in India has stagnated at around 65% (RSOC 2013-14) in recent years. This slow progress contributes to a persistent high burden of morbidity and mortality in children due to vaccine-preventable diseases (VPDs). The objective is to gather the information about the coverage of measles and rubella vaccination in children. In order to improve service utilization, focus should be on efficiently distributing campaign messaging for the upcoming nationwide vaccination programs. Raising public knowledge about the rubella virus and how to prevent it is a key component in explaining why the measles and rubella vaccine is preferable to the conventional measles vaccination. Measles surveillance data should be continued to be used to identify any areas with children missed by vaccination, identify and rectify the programmatic errors thereby contributing to the measles and rubella elimination and control effort.

Keywords: Measles, rubella, Vaccination, immunization

Exploring Phytochemical and Pharmacological Properties of Methanolic Silk Extract from *Resha-e-Makka*: In Vitro and In Vivo Evaluation

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ABSTRACT

Background: *Resha-e-Makka* (*Zea mays*), ranked as the world's third leading cereal grain, holds significant traditional importance in the Unani system of Medicine due to its various pharmacological properties. Nonetheless, there's a lack of scientific validation and documentation regarding the phytochemical screening of *Z. mays* silk and its nephroprotective potential.

Objectives: This study aims to assess the initial phytochemical, antioxidant, HPTLC, and LC-MS analyses, as well as the in vivo nephroprotective activity of methanolic silk extract from *Z. mays*.

Methods: Antioxidant activity was evaluated through in vitro assays, while chemical fingerprinting was conducted using HPTLC and LC-MS. Furthermore, in vivo experiments on Wistar rats were conducted to assess nephroprotective potential.

Results: *Z. mays* demonstrates significant antioxidant potential and is enriched with high phenolic and flavonoid content. Moreover, HPTLC and LC-MS analyses reveal numerous compounds belonging to different classes of polyphenols. In vivo studies on Wistar rats induced with nephrotoxicity by chemicals show nephroprotective activity through antioxidant, anti-inflammatory, and anti-apoptotic mechanisms.

Conclusion: In summary, the results indicate that the methanolic silk extract of *Z. mays* possesses high antioxidant effects in vitro and contains potent polyphenolic compounds that may prevent various diseases and could potentially be utilized in food and pharmaceutical products. Additionally, the extract shows nephroprotective potential through antioxidant, anti-inflammatory, and anti-apoptotic effects.

Keywords: *Zea mays*, nephroprotection, metabolite profiling

Insilico Approach for the Discovery of Novel Indole-Based Compounds for the Treatment of Alzheimer's Disease

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ABSTRACT

Alzheimer's disease (AD) is a neurodegenerative disease, and is the leading cause of death in developing countries, trailing only cerebral accident, cancer, and cardiovascular disease. Approximately 35 million people worldwide suffer with AD, and by 2050 this number is expected to rise up to 107 million. Herein, we proposed indole-based hetero-cyclic conjugates as a cholinesterase inhibitor. Molecular docking studies demonstrate that these compounds binds significantly within the active site of recombinant human acetylcholinesterase (PDB ID 4EY7). Moreover, these compounds also interact with active sites of human butyrylcholinesterase (PDB ID 4TPK). The ADMET analysis indicated that these compounds possess noticeable ADME properties. The MD simulation studies show significant binding interactions between the protein-ligand complex and various amino acids, and maintaining stability over the course of 100 ns.

Keywords: Alzheimer's disease, Insilico studies, ADME analysis, Acetylcholinesterase

LC-MS Based Phytochemical Profiling and Network Pharmacology Based Evaluation of Therapeutics Application of *Bixa orellana* Flower

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ABSTRACT

Bixa Orellana, also known as the *Lipstick Tree* or *Achiote*, is a perennial shrub native to Central America known for its vibrant flowers and significant contributions to culinary, cosmetic, and medicinal applications. The plant's fruits are globular capsules with red-brown seed pods covered in soft spines. The seeds are used to make annatto, a natural orange-red condiment, which is used in traditional dishes in Central and South America, Mexico, and the Caribbean. Annatto and its extracts are also used as an industrial food coloring to add yellow or orange color to various products. The plant has medicinal applications, treating conditions such as poisoning, bleeding diseases, excess thirst, vomiting, and worm infestation. The plant's cultural significance stems from its use of red body paint and lipstick as a cosmetic.

Keywords: Annatto extract, Bixin, Norbixin, Tocopherols, Tocotrienols, Body colors

Sinecatechins effectiveness for treating external genital warts

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ABSTRACT

Background: Sinecatechins, derived from green tea leaves, is a standardized extract comprising various catechin compounds. It's formulated as a 15% ointment and has gained approval for treating *Condylomata Acuminata* (CA), commonly known as genital warts. These warts are caused by specific strains of the human papillomavirus (HPV), primarily types 6 and 11.

Objective: To provide a current overview of sinecatechins' application in treating *Condylomata Acuminata* (CA) and to elucidate potential mechanisms underlying its mode of action.

Method: For the selection of significant information for the study, the materials were assembled from literature search using several databases such as Google Scholar, PubMed, Springer, and Science Direct database.

Result: The rate at which wart lesions disappear after sinecatechins treatment is comparable to that of other topical medications such as imiquimod and podophyllotoxin. However, sinecatechins stand out in reducing the occurrence of wart reappearance following treatment. While the exact molecular mechanisms responsible for its clinical effectiveness remain to be fully understood, several properties likely contribute to the regression of genital warts: stimulating cellular immune responses, triggering cell cycle arrest and programmed cell death, and suppressing the expression of HPV genes.

Conclusion: Sinecatechins emerges as a safe and efficacious choice for treating CA. Given the diverse molecular actions of catechins, this product holds promise for addressing additional viral and tumor-related lesions in future.

Keywords: Sinecatechins , genital warts, *Human Papilloma Virus*

Antidiabetic effect of flaxseed (*Linum usitatissimum*) in prediabetic and type 2 diabetic patients

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ABSTRACT

Background: *Diabetes mellitus* (DM) is a metabolic syndrome. Prediabetes and type 2 diabetes mellitus (T2DM) are marked by elevated blood sugar levels and insulin resistance, there are limited studies suggesting potential advantages of incorporating flaxseed into the diet to improve various metabolic factors.

Objective: To provide a systematic review to evaluate how flaxseed supplementation influences glycemic control parameters and insulin resistance in individuals with prediabetes and type 2 diabetes mellitus (T2DM).

Method: For the selection of significant information for the study, the materials were assembled from literature search using several databases such as Google Scholar, PubMed, Springer, and Science Direct database.

Result: Managing diabetes mellitus typically involves medication; however, numerous studies have demonstrated that consuming specific foods can lower glucose levels in diabetic individuals. Seeds such as and flax seeds have been identified as beneficial in reducing glucose levels and can serve as potential treatments for type 2 diabetes. The active compounds present in this seed, such as secoisolariciresinol diglucoside in flax seeds, play a role in improving insulin resistance or insulin production. Various studies have shown that consuming different amounts of this seed extract, both in animal models and humans, leads to improved glycemic control, indicating the anti-diabetic properties of this seed.

Conclusion: Supplementation with flaxseed appears to enhance glycemic control metrics and reduce insulin resistance in individuals with prediabetes and T2DM. Nevertheless, additional research is necessary to provide more conclusive evidence regarding optimal dosages, supplementation methods, and potential synergistic effects when combined with dietary interventions.

Keywords: secoisolariciresinol diglucoside, Diabetes Mellitus, flax seeds

Recent Insight into Antiepileptic and Antimicrobial Potential of Triazine

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ABSTRACT

Nowadays, an abundance of organic chemists is interested in heterocyclic compounds with Triazine scaffolds because of their potent biological activity. Triazine ring has been found to possess antiepileptic, antimicrobial, act as selective GABAA α 3-subtype agonists, utilized in *Aza-Diels–Alder* reactions to create pyridazine derivatives. The purpose of the article is to draw attention to these specific ring diversities with triazine moieties containing drugs and patent number.

Keywords: Triazine, antimicrobial, activity, docking, epilepsy. inhibitor

Evaluation of Invitro Antioxidant Activity and Phytochemical Screening of *Ageratum conyzoides* L.

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ABSTRACT

Ageratum conyzoides L. is an annual herb belonging to the family *Asteraceae* with a long history of traditional medicinal uses in different countries in the world, especially in the tropical and subtropical regions. A broad range of chemical compounds including alkaloids, flavonoids, chromenes, benzofurans and terpenoids have been isolated from this plant. Extracts and metabolites from this plant have been found to possess various pharmacological activities such as analgesic, anti-inflammatory, antiasthmatic, antispasmodic and haemostatic effects, stomach ailments, gynaecological diseases, leprosy and other skin diseases. In the present study estimation of total phenolic and flavonoid content in *Ageratum conyzoides* L. was carried out by UV-spectrophotometric method. Phytochemical screening and antioxidant activity of different extracts was also performed. The findings of phytochemical screening revealed the presence of different secondary metabolites in different extract. In present study it was found that the methanolic extract of *Ageratum conyzoides* L possesses higher concentration of flavonoid contents (93.89 mg/gm) as compared to ethanolic extract (51.68 mg/gm) and chloroform extract (37.68 mg/gm). While total phenolic contents found to be significantly high in ethanolic extract (280 mg/gm) compared to methanolic extract (238 mg/gm) and chloroform extract (230 mg/gm). However the findings of antioxidant activity of *Ageratum conyzoides* L.(IC₅₀ values 48.062 µg/ml) was observed in methanol extract which is higher than that of ascorbic acid. It can be concluded that the data generated in the study can be used for the phytochemical analysis of the formulation or the product contain in *Ageratum conyzoides* L.

Keywords: *Ageratum conyzoides* L., Total Flavonoid content, Total phenolic content and Antioxidant

Study On Effectiveness Of A Behavior Change Communication Aid On Behavior Of Adolescents Residing In A Selected Juvenile Aid Center Of New Delhi

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ABSTRACT

Introduction: Anger in adolescents is common problem these days. Review of literature reveals negative and damaging outcomes of unmanaged anger and presses the need to learn more on proper ways of managing anger for adolescents. This study aims to know the effectiveness of behavior change communication aid on behavior of adolescents.

Method: In the present study, inmates of two juvenile aid centers were selected and their behavior was assessed by a behavior checklist. A behavior change communication aid was developed and given to the experimental group. The assessment was done of both the groups after four weeks of the therapy.

Study Site: Prayas Juvenile Aid center, NGO and Observation home for boys, situated in Jahangirpuri and Feroz Shah Kotla Area, New Delhi

Sample size Selection: All inmates of the Juvenile Aid center and observation home for boys at Jahangirpuri and Feroz Shah Kotla during study duration

Result and Conclusion: The outcome of the behavior change communication aid was assessed by behavior checklist. The results showed improvement in all the participants.

Keywords: Anger, Adolescents, Behavior change communication, behavior

Management of Shara muzmin (Chronic Urticaria) in Unani System of Medicine: A Comprehensive Review

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ABSTRACT

Shara (Urticaria) is a disorder of skin characterized by transient edema of skin or, mucous membrane and an area of erythema with itching which affects 0.5-1% of the population and interferes with subjective well-being and daily life with hypersensitivity reactions involving pathology. In Unani System of Medicine, Shara is supposed to develop due to an imbalance in the *Akhlat* (humours) i.e. *Dam*, *Balgham*, *Safra*, *Sauda* either quantitatively or qualitatively. Herbal remedies have been used for centuries to treat Urticaria and the main line of treatment includes the use of *Mubarridat* (coolants), *Musaffiyat* (Blood purifiers), *Musakkinat* (anti-allergic drugs) and *Istifragh* (Evacuation) of morbid humours through various regimes.

The purpose is to review the literary evidence of pharmacological effectiveness of various herbs in Urticaria and analyse the historical understanding of the disease. Systemic electronic databases such as Pub Med, google Scholar, science Direct and classical Unani books from H.S.Z.H Government Unani Medical College Library. A thorough analysis from the literary sources reveals that the disease was prevalent since time immemorial. Many renowned Unani physicians described the causes, pathology, features and management of *Urticaria* as Shara with many effective formulations in their manuscripts. From this review it is concluded that physicians in ancient time were also aware about this disease and they tried to reveal the facts about this disease. Further, there is a need and scope to validate these experiences of Unani Physicians through clinical trials.

Keywords: *Shara* , *Urticaria* , *Mubarridat* , *Musakkinat* , *Musaffiyat* , *Istifragh*

An Overview of Barley Water (*Ma-Ulsha'eer*) And its Uses in Unani Perspective

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ABSTRACT

Barley (*Hordeum vulgare* L.) is world's fourth most important cereal after wheat, rice and maize, readily available with reasonable cost, and has the highest amount of dietary fibre. There are two varieties of Barley grains available in the market pearled and hulled barley, both obtained from *Hordium vulgare* Linn, which belongs to Poaceae family. Barley Water (*Ma-ul-sha'eer*) is mentioned in *Ilaj-bil-ghiza* (Dietotherapy) segment of classical Unani literature as one of the best *Ghizae Dawae* (Diet cum drug). Barley water (*Ma-ul-Sha'eer*) is a drink made by cooking barley grains with water, then straining to remove the grains. *Buqrat* (Hippocrates) specified ten pharmacological actions of barley water that it is Barid in *Mizaj*, causes *Nuzj* in *Akhlat*, gets rid of *Akhlat-e-Muharriqa*, and gets rid of morbid material, also extremely permeable, digestible, and tasty; it moderately gives nourishment, quenches thirst, it doesn't produce agitation in *Akhlat-e-Fasida*, and doesn't cause flatulence. According to *Buqrat* (Hippocrates), barley water is most appropriate diet in diseases of hot temperament. Barley water (*Ma-ul-Sha'eer*) therapeutic uses mentioned in Unani system of medicine are: *Ziabetus*, *Sudaa'e har*, *Sil wa Diq*, *Humma*, *Qulanj*, *Nafkh-e-Shikam*, *Zo'f-e-Meda*, and *Hiddate Dam*. In addition, barley water is very useful to treat DM type 2, urocystitis, urethritis, fever, pleurisy, pulmonary ulcer, dry cough, and chronic cough. The present brief overview highlights the pharmacological actions and uses of barley water (*Ma-ul-sha'eer*) mentioned in Unani system of medicine literature.

Keywords: *Ilaj-bil-ghiza*, Barley, *Ma-ul-Sha'eer*, Hippocrates.

An Overview of The Significance of Nutraceuticals and Dietary Supplements in Unani System of Medicine

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ABSTRACT

Nutrition plays a significant part in diet, which has been altered to maximize health advantages through the use of nutraceuticals and functional foods. Foods that have more therapeutic value than nutritional value are known as nutraceuticals. The ancient Unani physicians placed great emphasis on nutrition as a means of maintaining good health and managing illnesses. Food and drink or *makool va mashroob*, is one of the six fundamental prerequisites (*Asbab-e- Sitta-e-Zarooriya*) that have been established for the advancement of good health and the avoidance of illness. Food is one of the important prerequisites (*Asbab*) among them, A unique form of non-pharmacological therapy called *Ilaj Bil Ghiza* modifies eating patterns to treat patients. The significance of diets and beverages for health issues has been recognized by the Unani medical system since Hippocrates' time (460–370 BC). Hippocrates, the Father of Unani Medicine, states that, “Let food be thy medicine and medicine be thy food”. Various foods that are referred to as *Ghidhā' Dawā'ī* and *Dawa' Ghidhā'ī* in the Unani medical system add both nutritional value and therapeutic effect. Currently, a number of lifestyle ailments, including cancer, dyslipidemia, CAD etc, are brought on by bad dietary habits. Therefore, our study of food, nutrition, and healthcare must center on health promotion in order to be realistic within these life principles of change and balance. In addition to ensuring optimal nutrition, maintaining good health, and preventing disease all depend on a well-balanced diet that includes sufficient amounts of all the components. The aim of this review is to emphasize the Unani concept of *Ghiza* (Diet) with special reference to its nutraceuticals and functional perspective in importance of *Ilaj bil ghiza* (dietotherapy) and its preventive and therapeutic approach in various disorders.

Keywords: Nutraceutical, Diet, *Ilaj- bil -ghiza*, *Asbab-e-Sitta-e-Zaroriayah*

Stapled Analogue of Temporin-L as Potential Antibacterial Agents against Methicillin Resistant *S. aureus*

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ABSTRACT

Antimicrobial resistance (AMR) is a serious global concern and a huge burden on the healthcare system. Antimicrobial peptides (AMPs) are considered as a solution of AMR due to their membrane-active and intracellular mode of action and therefore resistance development against AMPs is less frequent. One such AMPs, temporin-L (TL) is a 13-mer peptide reported as a potent and broad-spectrum antibacterial agent with significant immunomodulatory activity. However, TL is toxic to human erythrocytes at antibacterial concentrations and therefore various analogs were synthesized with potent antimicrobial activity and lower hemolytic activity. In this work, we have selected a non-toxic engineered analogue of TL and performed hydrocarbon stapling of amino acid residues at i to $i+4$ positions at different positions. The synthesized peptide was tested against the gram-positive and gram-negative bacteria including and MIC was observed in the range of 1.5- 25 $\mu\text{g/mL}$. All analogues were found equal or better antibacterial as compared to parent peptide. Interestingly one analogue eTL [5-9] was found to be non-cytotoxic and stable in presence of the human serum. Mode of action studies revealed membrane depolarizing mode of action of live MRSA. Further in vivo studies of antimicrobial and anti-endotoxin activities in mice model revealed potential activity of the stapled peptide analogue. Overall, the reports on stapled analogue of the AMPs can be an important strategy for the development of new antibacterial therapeutics and a solution against AMR.

Keywords: Antimicrobial resistance, antimicrobial peptides, solid phase peptide synthesis Temporin L, Hydrocarbon Stapling, Grubbs Catalyst

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A Review On Therapeutic Potential Of *Kuchla* (*Strychnos Nux Vomica*)

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ABSTRACT

Nux-vomica, or *strychnos nux-vomica* L., is another name for the poison nut. It belongs to the family Loganiaceae. It has long been used to treat a wide range of illnesses, including as headaches, mental disorders, and digestive problems. Main constituent of *kuchla* are *strychnine* and *brucine* which are responsible for its medicinal properties. *Nux-vomica* is a promising herb because many of its traditional medicinal benefits have been backed by scientific research in recent years. This review's objective is to look into the poison nut's (*Strychnos nux-vomica* L.) potential medical uses. To locate papers on clinical research, a comprehensive computerized literature search was carried out. Therefore, more scientific studies should be carried out to explore the potential of *Nux vomica*.

Keywords: nux-vomica therapeutic potential

A Unani approach for treatment and management of Breast cancer

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ABSTRACT

Background: Among women, breast cancer ranks high in terms of mortality, thus finding better ways to fight this disease is an urgent matter. When tested against cancer, natural plant compounds have shown encouraging outcomes. They are less toxic when used, safe, and have less recurring resistances than hormone targeted anti-cancer medicines, according to reports.

Aim: The aim of the current work was to analyse various Unani medications used for the treatment of breast cancer.

Methods: All works published in English before June 2024 were searched using a literature search. We used PubMed, Embase, Web of Science, and Cochrane Library, among other electronic databases, to carry out our search. Breast cancer, Unani medications, biologically active components against cancer, clinical trials, chemotherapeutic medications, and many more terms were part of the search approach.

Results: The literature presents evidence that several plants that are used in unani, including ginseng, garlic, black cohosh, turmeric, green tea, Echinacea, arctium, flaxseed, black cumin, and Linum usitatissimum, have chemo-preventative and chemotherapeutic effects fro breast cancer.

Conclusions: The anti-cancer effects of various herbs and unani formulations were shown by modulating important intracellular pathways and inhibiting cell proliferation, angiogenesis, and death. To prove their health advantages, however, more human cohort research and clinical trials are needed.

Keywords: Breast Cancer, Unani medication, Anti-cancer, Herbal

Development of Monograph, Chemoprofiling and Network Pharmacology Studies of a Nephroprotective Formulation " *Majoon - e - falasifa*

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ABSTRACT

Majoon-e- Falasifa is a semi solid polyherbal formulation of the Unani system of medicine and is conventionally used in the management of kidney dysfunctions. In the present study the nephroprotective potential of the formulation has been determined using in vitro and in silico approach. To develop monograph, chemoprofiling, and establish network pharmacology of *Majoon-e-Falasifa*. Ethylacetate extract was prepared using ultrasonication method. The prepared extract was subjected to determination of total phenolic (Folin ciocalteu method) and flavonoid content (Aluminium chloride method). Further qualitative and quantitative estimation was carried out by developing a TLC fingerprint profile and quantification of the active biomarkers. High-throughput bioautographic determination was carried out for identification of antioxidant compounds using DPPH. In silico network pharmacology was carried out to determine the nephroprotective potential at molecular level. Complete monograph of the nephroprotective formulation *Majoon-e-Falasifa* was developed as per USP. Total phenolic and flavonoid content of the prepared extract was determined and was calculated per milligram gallic acid and rutin respectively. TLC profile was developed and quantification of active biomarkers was done. High-throughput autographic determination revealed antioxidant compounds of the extract. In silico studies reflected nephroprotective effect of the plant at molecular level and network was established. The conducted study scientifically validates the traditional knowledge of nephroprotective potential of the aforementioned plant/formulation and can be explored further at preclinical and clinical levels.

Keywords: *Majoon-e-Falasifa*, Chemoprofiling, Network Pharmacology, DPPH

Unveiling the Pharmaceutical Potential of Onion (*Allium cepa* L.)

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ABSTRACT

Onion, belonging to family *Amaryllidaceae*, is a widely used vegetable crop consumed in different forms since ages. It is consumed raw in salads, can be cooked, or fried. Onions are rich in bioactive compounds, possessing antioxidant, anti-inflammatory, anti-microbial and anti-cancer properties. It is one of the rich sources of flavonoids such as quercetin, anthocyanin, etc. which help in lowering blood pressure and improve cardiovascular health and organosulfur compounds like allyl sulfides which suppress tumor proliferation. Onion has hypolipidemic effect which helps to regulate lipid metabolism. The antioxidant properties of onion could be utilized to reduce cancer risk by scavenging free radicals. Onion can also be used to manage diabetes as it enhances the insulin secretion thereby regulating the glucose level, lowering the glycemic index paving its way towards managing obesity. Dietary fibers present in onion support a healthy digestive system and promote the growth of beneficial gut bacteria. Additionally, the anti-cancer potential of onion includes apoptosis induction and inhibit angiogenesis, reducing tumor formation. Moreover, nitrate accumulation in onion can be reduced by organosulfur compounds present in onion, as nitrate when reduced to nitrite combines with amines and form nitrosamines which can cause brain cancer. So, this study primarily focuses on Allicin, a sulfur containing compound, found in onion which provides an array of biological properties such as, anti-microbial properties and may be a key player in reducing nitrate accumulation in onion. The bioactive constituents of this pharmacopeial plant have great prospectus in pharmaceutical, nutraceutical and cosmetic industries, creating a gateway to natural remedies.

Keywords: organosulfur compounds, antioxidant, quercetin, N-nitroso compounds pharmaceutical,

Evaluation of Invitro Antioxidant Activity and Phytochemical Screening of *Ageratum conyzoides* L.

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ABSTRACT

Ageratum conyzoides L. is an annual herb belonging to the family asteraceae with a long history of traditional medicinal uses in different countries in the world, especially in the tropical and subtropical regions. A broad range of chemical compounds including alkaloids, flavonoids, chromenes, benzofurans and terpenoids have been isolated from this plant. Extracts and metabolites from this plant have been found to possess various pharmacological activities such as analgesic, anti-inflammatory, antiasthmatic, antispasmodic and haemostatic effects, stomach ailments, gynaecological diseases, leprosy and other skin diseases. In the present study estimation of total phenolic and flavonoid content in *Ageratum conyzoides* L. was carried out by UV-spectrophotometric method. Phytochemical screening and antioxidant activity of different extracts was also performed. The findings of phytochemical screening revealed the presence of different secondary metabolites in different extract. In present study it was found that the methanolic extract of *Ageratum conyzoides* L possesses higher concentration of flavonoid contents (93.89 mg/gm) as compared to ethanolic extract (51.68 mg/gm) and chloroform extract (37.68 mg/gm). While total phenolic contents found to be significantly high in ethanolic extract (280 mg/gm) compared to methanolic extract (238 mg/gm) and chloroform extract (230 mg/gm). However the findings of antioxidant activity of *Ageratum conyzoides* L. (IC₅₀ values 48.062 µg/ml) was observed in methanol extract which is higher than that of ascorbic acid. It can be concluded that the data generated in the study can be used. for the phytochemical analysis of the formulation or the product contain in *Ageratum conyzoides* L.

Keywords: *Ageratum conyzoides* L., Total Flavonoid content, Total phenolic content and Antioxidant

Fenugreek: An Exploration of its Nutraceutical Properties and Consumption in Diverse Food Products

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ABSTRACT

In the Unani tradition, fenugreek emerges as a versatile botanical agent renowned for its multifaceted therapeutic properties. This abstract illuminates fenugreek's profound efficacy in treating a myriad of ailments, drawing upon the rich heritage of Unani medicine. Through a meticulous exploration of its pharmacological actions, fenugreek is revealed to be a potent remedy for digestive disorders, respiratory ailments, and reproductive health concerns, aligning with the holistic approach of Unani healing practices. Furthermore, this delves into fenugreek's integral role in Unani cuisine, where it transcends its medicinal applications to become a staple ingredient in diverse culinary preparations. From aromatic spices to hearty stews, fenugreek's distinctive flavor profile enhances the sensory experience of traditional Unani dishes while simultaneously offering nutritional benefits aligned with Unani dietary principles. By bridging the realms of medicine and gastronomy, this study underscores fenugreek's significance in the Unani tradition, positioning it as a cornerstone of holistic health and culinary excellence. Through an interdisciplinary lens, the abstract advocates for the continued exploration and integration of fenugreek within both therapeutic and culinary contexts, celebrating its enduring legacy in Unani culture.

Keywords: Fenugreek, Unani, Food, medicine

Design, Synthesis and Characterization of Semisynthetic Derivative of Betulin for Anti-leishmanial Activity

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ABSTRACT

Background: Betulin is a pentacyclic triterpene natural compound (isolated from the bark of *Betula utilis* D. Don, Betulaceae) belonging to the lupane series, systematic name 3β , and 28-dihydroxy-20 (29)-lupen and have the chemical formula $C_{30}H_{50}O_2$ and a weight of 442.728 g.mol. Betulin has three available sites for simple chemical modification, namely the secondary hydroxyl group at position C-3, the primary hydroxyl group at position C-28 and the isopropenyl side chain at position C-19. Betulin and its derivatives have wide spectrum of biological activities such as anticancer, antiviral, anti-inflammatory, antibacterial and hepatoprotective properties.

Aim: The aim of the present study was to design, synthesis and characterized the semisynthetic derivative of Betulin for Anti-leishmanial activity.

Method: The designed molecule was synthesized by stirring betulin with acid in DCC in dry DCM for 8-7hours at room temperature. The reaction mixture was filtered and washed with DCM and it was evaporated under reduced pressure and purified by column chromatography.

Result: The synthesized derivatives were characterized using various spectroscopic techniques, including NMR, IR, and MS.

Conclusion: The synthesized betulin derivative was attached on C3 hydroxyl group and it was characterized by spectroscopic techniques. The synthesized derivative will undergo the invitro studies to confirms its Antileishmanial activity.

Keywords: Betula utilis, Betulin, synthesis, characterization, Antileishmanial

In- Silico study of Thymol (*Thymus vulgaris*) Derivatives: Physicochemical, Toxicological and Molecular Docking Studies

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ABSTRACT

Background: Thymol is a constituent of thyme oil extracted from *Thymus vulgaris* Linn.(Lamiaceae). It is a naturally occurring phenol monoterpene derivative of cymene and isomer of carvacrol. Thymol is biosynthesized by the hydroxylation of p-cymene, and have traditional uses, such as antibacterial, antifungal, anti-inflammatory, antioxidant, antimutagenic, larvicidal, analgesic, anti-microbial, acaricidal, anticonvulsant, antiepileptogenic, wound healing, antihemolytic, antileishmanial and radioprotective properties. It is also an active ingredient in food flavorings, topical ointments, various soaps, toothpastes, shampoos, deodorants and mouthwashes. Due to its potent antimicrobial properties, thymol is frequently used in dentistry for the treatment of oral cavity infections.

Objective: This study is aimed to predict the antimicrobial activity of the designed thymol based semisynthetic derivatives by in- silico study.

Methods: Computational investigation was performed to evaluate the physicochemical properties of derivatives which were calculated by the Molinspiration online property calculator toolkit. Toxicological studies were evaluated by SwissADME software. Using the docking software, the molecules were docked to the specified target *C. neoformans* (PDB ID 3sfy), to identify and understand the binding mode of Thymol and its derivatives intermolecular interaction with the target site. Co-crystal ligand is used as the standard.

Result: The computational study showed that the docking score of derivatives (- 7.89) were more than that of standard(-5.28).

Conclusion: The in- silico study has predicted to be successful in Physicochemical, Toxicological and Molecular Docking studies of the derivatized compounds.

Keywords: *Thymus vulgaris*, Traditional uses, Physicochemical properties, Antimicrobial, Molecular docking

Clinical Trial Guidelines For Herbal Drugs in India: Current Status And Challenges

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ABSTRACT

Background: Herbal medicines are defined as medicines that contain plant materials or combinations thereof as active ingredients. Herbal medicines have a long history of use and better patient tolerance, making them an important part of public healthcare. However, there are challenges in conducting clinical trials of herbal drugs, including the lack of scientific evidence to evaluate their safety and efficacy, and the difficulty in ensuring batch-to-batch uniformity and creating control groups with identical characteristics.

Aim: The study aims to provide a deep insight into the important challenges and major regulatory guidelines for the clinical trial of herbal drugs and botanicals in India. The objective is to understand the specific challenges associated with conducting clinical trials for herbal drugs and to explore the potential solutions and methodologies to overcome these challenges.

Methods: The study involves a comprehensive review of the existing and current regulatory framework, guidelines, and challenges related to the clinical trial of herbal drugs in India. It also includes an analysis of the quality control requirements and the assessment of safety and efficacy for different herbal formulations.

Results: The study highlights the need for relevant and appropriate requirements to be established for the assessment of safety and efficacy for different herbal formulations. It also emphasizes the importance of applying the most recent methodologies and guidelines for clinical trials to overcome the challenges associated with conducting trials for herbal drugs.

Conclusion: The study provides insights into the regulatory challenges and guidelines for the clinical trial of herbal drugs in India. It underscores the need for stringent bylaws and regulations, as well as the importance of integrating traditional medicine into national healthcare systems. The study also emphasizes the significance of addressing the challenges related to the quality control and standardization of herbal medicines to ensure their safety and efficacy.

Keywords: Regulatory guidelines, Herbal Drugs, Plant materials, Clinical trials.

Evaluation of GLP-1 Receptor Agonist and Phytoconstituents for Ameliorating Cognitive Impairment in Alzheimer's Disease: Insight from Wistar Albino Rat Model

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ABSTRACT

The progressive cognitive decline associated with Alzheimer's disease (AD) and the lack of effective therapeutic interventions makes AD a serious threat to global public health. In the last few years, studies underscored the intricate interplay between insulin resistance in the development of AD. In this context, we aimed to evaluate the potential therapeutic effects of GLP-1 receptor agonists and phytoconstituents in mitigating cognitive impairment associated with AD, particularly in the context of insulin resistance. Insulin resistance leads to the build-up of tau and amyloid beta (A β) proteins in the brain, as well as the production of AGEs and oxidative stress, all of which play a major role in the degeneration of neurons and cognitive decline. Using a Wistar albino rat model, we investigated the impact of GLP-1 receptor agonists and phytoconstituents on various parameters indicative of AD pathology, including levels of malondialdehyde (MDA), amyloid beta, and insulin-like growth factor 1 (IGF-1), along with advanced end glycation products and oxidative stress, was assessed as contributory factors for cognitive impairment. Preliminary findings suggest that the combined administration of GLP-1 receptor agonists and phytoconstituents significantly mitigates cognitive impairment associated with AD. This effect was evidenced by alterations in MDA levels, amyloid beta deposition, and modulation of IGF-1 expression. Our study highlights the potential significance of this combination therapy in managing cognitive decline in AD, particularly in the context of diabetic insulin resistance. These results offer promising insights into the development of novel therapeutic strategies for delaying the onset and progression of AD in individuals with concomitant insulin resistance.

Keywords: Alzheimer's disease, Insulin sensitivity, GLP-1 Receptor and Phytoconstituents

A Review on Efficacy of *Sharbate-Toot-Siyah* in the Management of *Waram-E-Lawzatayn*

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ABSTRACT

Waram-e-lawzatayn (Tonsillitis) being very common clinical condition affecting mostly the school going children. Research indicates that 15-30% of sore throat in children and 5-10% in adults are bacterial tonsillitis. According to Unani system of medicine *Waram-e-lawzatayn* (Tonsillitis) refers to warm-e-haar which involves the *halqum* (Throat) *lawzatayn* (Tonsils) in view of four types of *khilt* (Humour) are involve in the inflammation of Tonsils viz *Waram-e-lawzatayn Damvi* (Sanguineous) *Waram-e-lawzatayn Balghami* (phelgamtaic) *Waram-e-lawzatayn Safrawi* (Bilious) and *Saudawi* (melancholic), and the signs and symptoms are accordingly. In Unani medicine *Waram-e-lawzatayn* (tonsillitis) is diagnosed on the basis of signs and symptoms along with evaluation of *Mizaj* (Temperament), *Nabz*, *Baul wa Baraz* and bedside examination. Physicians of Unani system of Medicine used a large number of single as well compound drugs to treat chronic tonsillitis. And one of them is *Sharbate toot siyah* which is a very potent Unani formulation that has traditionally been used for the treatment of *Waram-e-lawzatayn*. It has been described to possess medicinal properties like antimicrobial activity, Antioxidant, Antihyperglycemic and highly nutritious values. Studies carried out have to show positive results in treating *Waram-e-lawzatayn*.

Keywords: *Waram-e-lawzatayn*, *Sharbat-e-Toot Siyah*, Tonsillitis, Unani Medicine.

Evaluation of The Effect of Hydroxytyrosol in Rodent Model of Osteoporosis via NLRP3 Signaling Modulation

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ABSTRACT

Background: Osteoporosis, a prevalent skeletal disease characterized by decreased bone mass and increased fracture risk, significantly impacts postmenopausal women due to estrogen deficiency. The NLRP3 inflammasome, a key inflammatory pathway, contributes to bone loss by promoting osteoclastogenesis. Hydroxytyrosol, a natural antioxidant found in olive oil, exhibits anti-inflammatory properties. This study will investigate the potential of hydroxytyrosol to alleviate osteoporosis via NLRP3 modulation in an ovariectomized rat model.

Methods: Female Wistar rats will be divided into five groups: sham-operated control, ovariectomized control, ovariectomized treated with hydroxytyrosol having low dose, ovariectomized treated with hydroxytyrosol having high dose and ovariectomized treated with hydroxytyrosol+Alendronate. After 8 weeks, bone mineral density (BMD) will be assessed. Bone tissue will be analyzed for NLRP3, IL-1 β , and osteoclast markers (TRAP, RANKL). Serum biomarkers including BALP, osteocalcin, and IL-1 β will be measured.

Expected Results: We hypothesize that ovariectomy will induce osteoporosis, characterized by decreased BMD and elevated inflammatory markers. Hydroxytyrosol treatment is expected to: Ameliorate bone loss as evidenced by increased BMD. Suppress NLRP3 inflammasome activation by downregulating NLRP3, and IL-1 β expression in bone tissue. Reduce osteoclast activity as indicated by decreased TRAP and RANKL levels. Improve bone formation markers like BALP and osteocalcin.

Conclusions: This study aims to elucidate the protective role of hydroxytyrosol in ovariectomy-induced osteoporosis through NLRP3 inflammasome modulation. If successful, hydroxytyrosol could emerge as a promising therapeutic strategy for preventing or managing postmenopausal osteoporosis.

Keywords: Osteoporosis, NLRP3, Hydroxytyrosol, Ovariectomy

Design, Synthesis, and Biological Evaluation of Morpholine Containing Cyanopyrimidine Derivatives as Anticancer Agents

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ABSTRACT

Background: Cancer is a disease that causes pathophysiological changes in the cell division process its own. A class of disorders known as cancer involves the formation of abnormal cells that can move around and spread to other sections of the body. In contrast, benign tumors do not spread. Among the possible signs and symptoms of cancer are a lump, irregular bleeding, extended cough, inexplicable weight loss, and bowel changes motions. Although these signs can point to cancer, they could possibly have other reasons. Humans are affected by more than 100 different types of cancer.

Objective: Rational design and in-silico evaluation of morpholine-cyanopyrimidine derivatives as novel Anti-cancer's agents

Methodology: In-silico studies- All the computational studies were performed using Maestro (version 12.5) of Schrodinger Drug Discovery Suite 2021. Protein Preparation, Ligand Preparation, Ligand Docking. Wet lab synthesis morpholine-cyanopyrimidine derivatives and their spectral characterization.

Results: After checking the synthetic accessibilities of the molecules, the top hits will be synthesized in laboratory scale. The synthesized molecules will be characterized using IR, and NMR.

Conclusion: Surgery, radiation therapy, and chemotherapy are the current methods for treating cancer. Over the past 10 years, an improved understanding of the microenvironment of tumors has made it simpler for us to create novel cancer treatments. When compared to the surrounding normal tissue, the noncellular and cellular compartments that make up cancer tissue are significantly different.

Keywords: Anti-cancer, LSD1 Receptor, Morpholine derivatives, and Docking

Assessing A Natural Bicyclic Sesquiterpene's Efficacy Against Ferroptosis In Type 2 Diabetic Osteoporosis

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ABSTRACT

Background: Type 2 *Diabetes mellitus* (T2DM) exacerbates osteoporosis, with ferroptosis emerging as a potential mechanism. A natural bicyclic sesquiterpene which is also a dietary cannabinoid, exhibits anti-oxidative and anti-inflammatory properties, possibly targeting the NRF2/HO-1 pathway. This study investigates its efficacy against ferroptosis in T2DM-induced osteoporosis via NRF2/HO-1 activation.

Aim: Assessing a natural bicyclic sesquiterpene's efficacy against ferroptosis in Type 2 diabetic osteoporosis.

Methods: Wistar albino rats will be divided into four groups: control, T2DM, T2DM+drug, and T2DM+ drug+ std. drug. T2DM will be induced by high fat diet + streptozotocin. All groups except control will receive high-glucose drinking water. T2DM+drug and T2DM+ drug+ std. drug groups will receive daily drug administration as this is a preventive type of study.

After 12 weeks, bone samples will be analyzed for:

Ferroptosis markers: GPX4 level and lipid peroxidation to assess ferroptosis occurrence.

Bone formation: TRAP activity, RANKL and BALB levels to evaluate osteoclast activity and bone resorption.

Bone mineralization: Osteocalcin levels to assess bone formation.

NRF2/HO-1 pathway activation: Protein and mRNA expression of NRF2 and HO-1.

Expected Outcomes: We hypothesize that:

Elevated glucose levels will induce ferroptosis and bone loss in T2DM rats.

Drug treatment will attenuate ferroptosis and improve bone parameters in T2DM rats.

Drug's protective effect will be associated with NRF2/HO-1 pathway activation.

Drug's efficacy will be compared with standard drugs.

Significance: This study will elucidate the role of ferroptosis in T2DM-related osteoporosis and explore drug's potential as a therapeutic agent by targeting ferroptosis and modulating the NRF2/HO-1 pathway. This might pave the way for developing novel strategies to prevent and manage bone loss in diabetic patients.

Keywords: Ferroptosis; Dietary cannabinoid; Diabetic osteoporosis; natural bicyclic sesquiterpene;

Exploring The Binding Affinities Of Quinoline-Containing Piperidine Derivative As Potential EGFR Inhibitors For Breast Cancer Therapy

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ABSTRACT

Background: Quinoline has gained significant attention as a versatile core template in drug design due to its broad spectrum of bioactivity. Meanwhile, piperidine derivatives have demonstrated therapeutic potential against various cancers, including breast cancer. The epidermal growth factor receptor (EGFR) plays a crucial role in cell proliferation, survival, and metastasis. Dysregulation of EGFR signaling is implicated in breast cancer progression.

Aim: To Analyse and compare the interaction mechanisms of quinoline based piperidine derivatives & standard drug. This study focuses on designing a hybrid compound combining Quinoline and piperidine as EGFR inhibitor for breast cancer treatment.

Methods: A new diverse set of quinoline-containing piperidine derivatives was designed and molecular docking studies were performed to predict their binding modes and affinities to EGFR. Using docking software AutodockTools, the molecular docking studies on EGFR was conducted to target breast cancer ((PDB) ID: 3S7S). Compounds QD1 & QD12 displayed significant interactions with specific residues, including ARG A:115, ALA A:443, THR A:310, CYS A:437, PHE A:430, MET A: 311. The outcomes of the study indicate that QD1 & QD12 display the greatest affinity, having interaction values of -10.5 kcalmol⁻¹ and -10.8 kcalmol⁻¹, respectively.

Results: All designed molecules showed promising interactions between the quinoline-containing piperidine derivatives and EGFR's active site, suggesting their potential as EGFR inhibitors.

Conclusion: The optimistic anticancer activity of the novel quinoline-containing piperidine derivative against breast cancer has been demonstrated through EGFR inhibition. The compound QD1 & QD2 holds great promise as a lead candidate for further, synthesis, biological evaluations and preclinical development for breast cancer therapy.

Keywords: Quinoline , EGFR, Molecular docking, Breast cancer

Design, Synthesis And In-Vitro Evaluation Of Pyrimidine Based Thiosemicarbazone Hybrids as Novel Anti-Cancer Agents

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ABSTRACT

Background: What is Cancer? In simple, cancer is the result of uncontrolled cell proliferation. Cancers are made up of microscopic cells that are unable to stop growing and can originate from any organ or part of the body. Cancer can occasionally be found "incidentally" during a regular radiological diagnostic or laboratory test, or for a completely unrelated reason. Generally speaking, cancer must grow to a size of 1 cm or contain 1 million cells in order to be discovered. It could be called a "mass," "growth," "tumour," "nodule," "lump," or "lesion" at this time. Leukemias and lymphomas, which are cancers of the blood and bone marrow, are examples of exceptions to this general rule. Although they often do not generate a "mass," these tumours will be visible on laboratory tests.

Objective: In-silico evaluation of Cyanopyrimidine based Thiosemicarbazone derivatives as Novel Anti-cancer Agents.

Methodology: In-silico studies- All the computational studies were performed using Maestro (version 12.8) of Schrodinger Drug Discovery Suite 2021. Protein preparation, Ligand preparation, Docking

Result: The designed compounds were docked to the target LSD1, and their docking score was compared with standard Bomedemstat and Phenelzine.

Conclusion: Surgery, radiation therapy, and chemotherapy are the current methods for treating cancer. Over the past 10 years, an improved understanding of the microenvironment of tumors has made it simpler for us to create novel cancer treatments. When compared to the surrounding normal tissue, the noncellular and cellular compartments that make up cancer tissue are significantly different.

Keywords: Anti-Cancer, LSD1, Docking

In Silico Design and Synthesis of benzo[b]thiophene based compound as Dual-Action Inhibitors Targeting Thymidylate Synthase (TS) and VEGFR for Cancer Treatment

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ABSTRACT

Background: The development of effective cancer treatments remains a critical challenge in biomedical research. Thymidylate synthase (TS) and Vascular Endothelial Growth Factor Receptor (VEGFR) have emerged as promising targets for anticancer drug design. In this study, we explore the in silico design and synthesis of benzo[b]thiophene based compounds as dual-action inhibitors targeting both TS and VEGFR for enhanced efficacy in cancer treatment.

Aims/Objectives: The primary aim of this study is to design and synthesize novel benzo[b]thiophene based compounds capable of inhibiting both TS and VEGFR, thereby potentially offering a dual-action mechanism for cancer therapy and reduces the chemotherapeutic resistance. Additionally, we aim to evaluate the structural features of these compounds to optimize their potency and selectivity.

Methods: In this study, we employed computational techniques for the in-silico design of benzo[b]thiophene based compounds targeting TS and VEGFR. Molecular docking simulations were conducted to predict the binding affinities and interactions of these compounds with the active sites of TS and VEGFR. Furthermore, virtual screening and structure-activity relationship (SAR) analysis were utilized to identify lead compounds with desirable pharmacological properties.

Results: Our computational analysis identified several benzo[b]thiophene based compounds exhibiting strong binding affinities to both TS and VEGFR active sites as compare to standard drug. These compounds demonstrated favorable interactions with key amino acid residues critical for enzyme inhibition. Moreover, virtual screening highlighted lead compounds with improved selectivity and drug-like properties, suggesting their potential as dual-action inhibitors for cancer treatment.

Conclusion: In Conclusion, the in-silico design and synthesis of benzo[b]thiophene based compounds represent a promising strategy for developing dual-action inhibitors targeting TS and VEGFR in cancer therapy. The computational insights provided in this study offer valuable guidance for further experimental validation and optimization of these compounds, ultimately contributing to the advancement of more effective treatments for cancer patients.

Keywords: Thiophene Derivatives, VEGFR Receptor, Thymidylate Synthase, Anticancer Agents, Insilico Studies

A Review on Evaluation of Efficacy of Hepatoprotective Herbs and their Formulations

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ABSTRACT

Background: There are more than 1000 drugs which are implicated in drug induced liver injury (DILI) leading to hepatotoxicity. Drug induced hepatotoxicity is the most common reason for failure of drug candidates during preclinical drug development, clinical trials and withdrawal of approved drugs from the market such as Troglitazone, Temafloxacin, Benzarone, Ximelagartan, Clomacron, Nafazodone, Cyclofenil, Pemoline, etc. While the risk of the drug causing significant harm is limited to a small number of patients, discontinuing it results in reduced access for a larger population. For medical practitioners, drug-induced hepatotoxicity represents a legal liability, and for the pharmaceutical industry, it translates to financial setbacks.

Aims/ Objectives: To study about the Unani hepatoprotective agents and their formulations as per the Unani Pharmacopoeia.

Methods: The Unani drugs having hepatoprotective potential were searched in Unani Pharmacopoeia of India Part 1, Volume I to Volume VI, and are used for different ailments of liver such as hepatic obstruction, induration of pain, hepatitis, jaundice, obstructive jaundice and these are used as liver stimulant, liver tonic and hepatoprotective agent.

Results: There are 54 single drugs in Unani Pharmacopoeia of India. The formulations prepared from these single drugs used in liver ailments were also searched on which pre-clinical studies could be performed to establish the efficacy and safety of these drugs and their respective formulations with scientific methods and modern techniques.

Conclusion: More preclinical and clinical trials are needed to establish the efficacy and safety of Unani drugs and their respective formulations in acute and chronic liver diseases.

Keywords: Hepatoprotective agent, Herbal drugs, Hepatotoxicity

Multitargeted Synergy-Based Approaches Against Hepatocellular Carcinoma Drug Development Using Phytopharmaceuticals

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ABSTRACT

Background: Hepatocellular carcinoma, the fifth most prevalent malignant tumour globally, often presents with subtle symptoms, leading to late-stage diagnosis. Therefore, the only option left with most of the patients is chemotherapy. Regrettably, first- and second-line chemotherapeutic agents not only kill cancer cells but also result in severe neurotoxicity, cardiotoxicity, and liver and kidney dysfunction. This poses significant challenges for patients. Plant derived products or phytopharmaceuticals can be considered a “natural model” for combinational approach to treat hepatocellular carcinoma. It is estimated that over 60% of the approved drugs of cancer and new drug developments are from phytopharmaceuticals.

Aims/ Objectives: This review is about the different combinations of phytopharmaceuticals with synthetic drugs in treating hepatocellular carcinoma in vitro or in vivo.

Method: The methodology revolves around the terms phytopharmaceuticals, phytochemical, natural compounds, biomolecules, hepatocellular carcinoma, liver cancer and combination therapy. Different databases such as PubMed, Google Scholar and Cochrane were searched. The list of phytopharmaceuticals claimed to have promising effects in hepatocellular carcinoma was prepared.

Results: There are various phytochemicals claimed to have promising effects in the treatment of hepatocellular carcinoma such as Genistein, umbelliferone β -D-galactopyranoside, apigenin, quercetin, hesperetin, gallic acid, and ellagic acid. Furthermore, there are few phytochemicals tested in clinical trials for hepatocellular carcinoma treatment, which shows hope for the future of phytochemicals as a therapeutic agent.

Conclusion: Combinational therapies using natural extracts with approved synthetic drugs are quite promising. This is due to both the synergic interactions and the reduction of drug resistant phenotype risk.

Keywords: Phytopharmaceuticals, Combination therapy, Hepatocellular carcinoma

Biochemical Responses of *Cocculus hirsutus* (L.) W. Theob. to Coal Smoke Pollution

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ABSTRACT

Cocculus hirsutus (L.) W. Theob is a climbing scandent shrub, belonging to the family Menispermaceae. The plant is a valuable reservoir of bioactive compounds involved in the formulation of numerous therapeutic drugs, possessing pharmacological activities such as anti-microbial, anti-cancerous, anti-diabetic, anti-oxidant, diuretic. According to Unani system of medicine, it is anti-pyretic and useful in tuberculosis. *Cocculus hirsutus* growing in the vicinity of Badarpur Thermal Power Station (highly polluted site) was compared with a plant from less polluted site and the impact of coal smoke on the biochemical responses of the plant was monitored. The coal smoke reduced the chlorophyll content of the plant with variation of 31.75% (chl-a), and 46.51% (chl-b) as compared to the less polluted site. An increase in the protein content was observed in the highly polluted site plant with an increment of 23.24% as compared to the less polluted area. A slight reduction of 9.01% in the case of foliar sugar content was observed at highly polluted site. The proline content in the leaves of the plant procured from the thermal power plant increased by 35.29%. Similarly the concentration of nitrate was also found to be increased in the plant from the highly polluted site with variation of 89.26%. The nitrate reductase content exhibited 35.75% reduction from low to high pollution site. *Cocculus* has shown efficacy in the management of various diseases, viral and microbial infections but still a lot of exploring has to be done in order to find more of its therapeutic uses.

Keywords: *Cocculus hirsutus*, coal smoke, biochemical, polluted

Challenges in Protecting Traditional and Herbal Medications

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ABSTRACT

Objective: Protecting traditional medicine knowledge, addressing regulatory challenges, balancing innovation incentives with cultural heritage, and fostering collaboration for global frameworks.

Methods: Traditional medicine holds significant importance increasingly gaining commercial value. The utilization of medicinal plants has historical roots worldwide, the demand for herbal medicines has surged in recent times, with the global market reaching \$60 billion and annual growth rates ranging between 5% and 15%. This trend is underscored by the proliferation of patent applications related to herbal medicine. Notably, herbal dietary supplements have seen a substantial uptick, particularly during the COVID-19 pandemic, with sales surpassing \$11 billion in 2020 alone, reflecting a 17.3% increase from the previous year. However, challenges persist in the supply chain and planning aspects of the dietary supplement market. Regulatory hurdles, both nationally and internationally, present multifaceted challenges concerning intellectual property rights (IPR) and patents in traditional medicine. These challenges stem from the difficulty in establishing ownership due to the oral transmission of knowledge in indigenous cultures and the misalignment between traditional medicine practices and patentability criteria.

Result: There's a urgent need to strike a balance between incentivizing innovation and safeguarding traditional knowledge.

The lack of standardized mechanisms to protect traditional medicine knowledge globally exacerbates the risk of misappropriation and exploitation by external entities.

Conclusion: Addressing these issues necessitates collaborative efforts among national governments, international organizations, indigenous communities, and other stakeholders. Establishing frameworks that uphold traditional knowledge while fostering innovation and healthcare access is imperative for navigating the regulatory complexities of the global market.

Keywords: Supply chain, COVID-19, Traditional knowledge,Regulatory complexities, global marketRegulatory complexities, global market

Global Cosmetic Regulations: Addressing Challenges and Driving Innovation

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ABSTRACT

The cosmetic industry is constantly evolving, with new products and ingredients being developed to meet the ever-changing demands of consumers. However, with this growth comes the need for regulatory compliance to ensure the safety and efficacy of these products. The prime motive of any regulatory compliance is to provide quality products which are safe and effective for human use. The same notion of quality, safety and efficacy along with some prime regulatory requirements like nomenclature & labelling, comprises the cosmetic legislation to regulate these products in the market. The industry grapples with a primary challenge stemming from the disparities among global regulatory authorities. These disparities lead to varying safety assessments and testing requirements, complicating the company's efforts to ensure full compliance with regulations. To address this, firms must stay updated on regulatory developments and collaborate closely with authorities. Such proactive measures are essential to ensuring that the products offered by these companies align meticulously with the entirety of regulatory requirements. Another challenge is the need for constant innovation to meet consumer demands. This requires companies to invest in research and development to create new products and ingredients, as well as to improve existing ones. However, this innovation must be balanced with the need for safety and regulatory compliance. To overcome these challenges, companies should prioritize regulatory compliance, invest in research and development for safe products, and collaborate closely with regulatory authorities. This ensures meeting consumer demands while maintaining product safety and efficacy.

Keywords: Cosmetic regulations, Regulatory compliance, Safety assessments, Global market, Innovation

Intellectual Property Rights and Traditional Medicine in India

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ABSTRACT

Background: The coexistence of Intellectual Property Rights (IPR) and traditional medicine, particularly in the context of Ayurveda, has become a subject of significant importance. The traditional knowledge associated with Ayurveda, which has been practiced for centuries in India, is facing challenges in terms of IPR protection and patents. The need to preserve, protect, and promote this traditional knowledge has become increasingly vital for its creators and the global intellectual community.

Aims: This study aims to examine the current status of intellectual property protection for traditional medicine in India. It seeks to understand the challenges and opportunities in the intersection of IPR and traditional medicine, and the implications for practitioners of traditional knowledge.

Method: The study will involve a comprehensive review of the existing literature, legal provisions, and international perspectives on the protection of traditional medicine under the intellectual property framework. It will also analyze the implications of the current patent law in India on the protection of Ayurvedic medicines and traditional knowledge.

Result: The current provisions of Patent Law of India are perceived as obstructive for obtaining patents on Ayurvedic medicines. The study will present an in-depth analysis of the challenges and opportunities in protecting traditional medicine under the existing intellectual property regime.

Conclusion: In Conclusion, the study will provide clear insights into the complexities and implications of the current intellectual property framework on traditional medicine in India, particularly Ayurveda. It will also offer recommendations for the preservation, protection, and promotion of traditional knowledge in the face of evolving intellectual property laws and global trade dynamics.

Keywords: IPR, Patent Law, Traditional Medicine, Ayurveda

An Important Neuroprotective Drug -*Brahmi* (*Centella asiatica*)

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ABSTRACT

Background: The main applications for *Centella asiatica* are in Unani medicine for memory enhancement, nervous system diseases, and topical skin disease treatments. Significant chemical components thought to be responsible for these pharmacological effects are saponins and triterpenoids. In addition, it is used to treat fever, amenorrhea, diarrhea, reliving anxiety, and cognitive impacts. The herb is suggested for the treatment of a number of skin problems, including eczema, psoriasis, leprosy, lupus, varicose ulcers, diarrhea, fever, amenorrhea, and illnesses of the female genitourinary system. It is also suggested for reducing anxiety and enhancing cognitive function. Thus, it is possible to propose that *C. asiatica* is a wanted phytopharmaceutical that has evolved from traditional medicine and has a neuroprotective impact.

Aim: To investigate the efficacy and safety profile of *C. Asiatica* aiming to advance our understanding of its mechanism of action, therapeutic potential, and potential side effects, ultimately contributing to the development of a novel therapeutic option for patients in need.

Conclusion: The traditional applications and therapeutic qualities of *C. asiatica* in the treatment of many medical diseases are widely recognized. Its active ingredients show potential in treating a variety of illnesses, including epilepsy, aging-related issues, neurological diseases, and skin conditions.

Keywords: *Centella Asiatica*, Memory Enhancer, Active Ingredients

A Review of the Concept of Diabetes in the Unani System of Medicine

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ABSTRACT

Diabetes is a prevalent non-communicable disease worldwide and is considered a significant public health concern. Its prevalence rate varies from country to country. According to the latest report by the International Diabetes Federation (IDF), the global prevalence of T2DM in adults in 2021 was 536.6 million people (10.5%), and it is projected to increase to 783.2 million people (12.2%) by 2045. In India, the 2019-2020 National Family Health Survey (NFHS-5) reported a diabetes mellitus prevalence rate of 17.9% in men and 16.3% among women. The World Health Organization (WHO) has projected India to have the fastest-growing population of diabetes patients. Diabetes is a silent killer that claims one person's life every ten seconds, and it kills 3.2 million people every year worldwide. In the Unani system of medicine, diabetes is referred to as *Ziabetus* and has been treated by Unani physicians since ancient times. They have described several Unani drugs, both single and compound, for managing diabetes. According to ancient Unani literature, diseases result from poor management of the six governing factors (*asbab-e-sitta zarooriya*) beyond the ability of *physis* or *Tabiat* to maintain and restore homeostasis. The Unani approach to preventing and treating lifestyle diseases aims to avoid the accumulation of toxins/*ghair tab'yi madda* that results from the imbalance of *asbab-e-sitta zarooriya*. As per the Unani concept, diabetes mostly occurs due to stress, anxiety, tension (*Infaalat-e-Nafsania*), overeating, excessive use of alcohol, and a sedentary lifestyle. To prevent diabetes, it is important to avoid a sedentary lifestyle, stress, anxiety, and cold/humid environments.

Keywords: *Ziabetus Tabiyat chair tabyi madda*

Chitosan as a Polymer for the Delivery of Phytopharmaceuticals

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ABSTRACT

Background: Chitosan; derived from chitin is a naturally occurring polymer which is biodegradable, biocompatible, non-toxic, pH dependent and can be used as a carrier for drug delivery. Phytopharmaceutical drug can be defined as pure and standard form of atleast four plant based compounds in the form of extract or a part, for use of human beings or animals for diagnosis, treatment, mitigation or prevention of any disease or disorder but cannot be given parenterally. Several challenges faced in the delivery of phytoconstituent can be insolubility, hydrophobicity, low bioavailability, high toxicity, preformulation, delivery, interaction, stability and other problems.

Objective: To study chitosan as a polymer for the delivery of phytopharmaceuticals.

Methods: Various databases were used as sources like pubmed, science direct, etc. to study the effect of chitosan as a polymer. In a study, L-Histidine conjugated chitosan was used as a carrier for polyphenolic drugs. In other study, Gingerol loaded phytosome complex with chitosan(GLPC) was used for Respiratory infection. In another study, formulation of Onion peel containing quercetin loaded with chitosan cellulose hydrogel with green zinc oxide were used.

Results: Formulation with L-Histidine conjugated chitosan showed synergistic effect, enhanced stability and anti-microbial activity against Staphylococcus aureus. In another study, GLPC showed better entrapment efficiency, % drug loading and in vitro release property. In the formulation of Onion peel containing quercetin loaded with chitosan cellulose hydrogel with green zinc oxide showed synergistic effect and anticancer properties.

Conclusion: Chitosan has anti-oxidant, anti-microbial and anti-cancer properties and can also show synergistic effect when used with phytopharmaceuticals as a carrier.

Keywords: Chitosan, phytopharmaceuticals, anti-cancer, anti-microbial

Safety and Toxicological Considerations in Unani Herbal Formulations

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ABSTRACT

Ensuring the safety and toxicological considerations of Unani herbal formulations is paramount, given its reliance on herbal remedies deeply rooted in ancient wisdom. The first step involves rigorous verification of botanical identity and purity to prevent the inclusion of adulterants or contaminants that could pose health risks. This necessitates strict adherence to quality control measures from cultivation to storage. Toxicological studies are imperative to identify adverse effects and potential interactions associated with Unani herbal formulations. These studies assess the safety profile of individual herbs and their combinations, considering toxicity levels, dose-dependent effects, and the potential for cumulative toxicity over prolonged use. Recognizing the variability in individual responses among patients is crucial due to the diverse range of herbs and formulations in Unani medicine. Factors such as age, underlying health conditions, and concurrent medication use influence safety and efficacy, emphasizing the need for personalized risk assessment and monitoring. Regulatory oversight is a pivotal aspect in ensuring safety and quality. Robust frameworks for product registration, labeling, and post-marketing surveillance are essential to safeguard public health and foster consumer confidence. In Conclusion, a comprehensive approach encompassing quality control, toxicological assessment, personalized risk evaluation, and regulatory oversight is crucial for Unani herbal formulations. Diligent attention to these aspects helps mitigate potential risks, enhancing the therapeutic benefits of Unani herbal medicine while upholding the highest standards of safety and efficacy.

Keywords: Unani, herbal formulation, toxicity, safety, cultivation

***Ilaj- bil- ghiza* (Dietotherapy) in the Context of Unani Medicine**

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ABSTRACT

The term "Diet" (*Ghiza*), derived from the Latin word "dieta," signifies a way of living in Greek. Unani physicians, including renowned figures such as Hippocrates, Galen, Rhazes, and *Ibn Sina*, have extensively documented their knowledge of dietetics in various texts. In Unani medicine, there are four types of measures employed for therapeutic purposes: *Ilaj-bit-Tadbeer* (regimental therapy), *Ilaj-bil-Giza* (dietotherapy), *Ilaj-bil-Dawa* (pharmacotherapy), and *Ilaj-bil-Yad* (surgery). Among these, *Ilaj-bil-Giza* plays a crucial role, focusing on the selection and modification of diet for the maintenance of health. Unani physicians classified diets based on their nutritional value and chyme, distinguishing between light and soft diets, attenuated highly nutritious diets, attenuated less nutritious diets, and good chyme forming diets. Additionally, modified diets, such as barley water, mutton soup, whey, honey water, nabeez, vinegar, etc., are recommended either alone or as adjuvants for treating various ailments. Selective diets are advised according to specific diseases, recognizing that different conditions may require tailored nutritional approaches. Modified diets are recognized as principal therapeutic agents, particularly in metabolic and chronic diseases. They serve both as preventive measures and therapeutic aids, emphasizing the role of diet in the overall well-being of an individual. In Conclusion, the Unani system of medicine places significant importance on dietotherapy as a key component of holistic healthcare. The wisdom of ancient Unani physicians provides valuable insights into the selection, modification, and therapeutic use of diets for maintaining health and managing various diseases.

Keywords: *Ilaj-bil-Giza*, Dietotherapy, Unani Medicine, Diet, *Ghiza*

Evaluation of latex of ficus racemosa for mouth ulcers based on an ethanobotanical study

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ABSTRACT

Background: The tree of *Ficus racemosa* belongs to the family of Moraceae and is also known by the common name “Gular”. This plant is medicinally important because different parts of this plant are used for the treatment of a variety of diseases. It possesses various therapeutic activities such as anti-inflammatory, wound healing, hepatoprotective, antidiarrheal Anti-ulcer etc. The latex of the bark of the plant is milky white in color and contains several metabolites. Oral ulcer is a common problem that is treated by topically available OTC medicines usually anti-inflammatory or antibacterial agents. However, there are no reports available till date on the use of latex from the bark of a *Ficus racemosa* for the treatment of mouth ulcer. The only available information is traditional claims which suggest its usefulness in ulcer. Therefore, a questionnaire based survey was conducted to verify and validate traditional claims.

Objective: To confirm the traditional claim of latex of ficus racemosa for mouth ulcers based on an ethanobotanical study.

Methodology: A survey was done wherein 40 people from different areas voluntarily participated. A questionnaire was prepared which had 16 questions related to mouth ulcer and the use of different treatment agents. The participants answered the questions and the data was collected and analysed.

Result and Conclusion: From the data it was found that approximately 90% of the participants agreed that the latex of *Ficus racemosa* can be used for mouth ulcers.

Keywords: *Ficus racemosa*, mouth ulcers, ethanobotanical study

Nano drug delivery systems for herbal drug for the treatment of Alzheimer's

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ABSTRACT

Background: Alzheimer's disease (AD) is a chronic neurodegenerative disorder and is the most common cause of progressive dementia in aging. AD arises via multiple pathological or neurotoxic pathways, herbal medicines have the potential to be developed into optimum pharmaceuticals and nutraceuticals for AD because of their multi-function, multi-target characteristics. The popularity of herbal medicines is also increasing due to their perceived effectiveness, safety and affordability. various Indian herbal medicines such as *Centella asiatica*, *Bacopa monnieri*, *Curcuma longa*, *Clitoria ternatea*, *Withania somnifera*, *Celastrus paniculatus*, In recent years, with the advancement of nanotechnology, researchers have found that drugs loaded into nanoparticles can be transported across the BBB to the diseased site, increasing the concentration of drugs in the nervous system, which has great prospects in improving drug utilization. In this article, we review the recent progress in the use of nanomaterials in AD treatment.

Objectives: To identify various herbal drugs for the treatment of Alzheimer's disease.

Methods: A literature review was done to identify the various phytoconstituents that are found in the which are effective for the treatment of Alzheimer's disease. Various formulations that are already present in the market were researched on Diverse nanostructures such as polymer nanoparticles, lipid nanoparticles, nanoliposomes, nano-micelles, and carbon nanotubes (CNTs)..

Results: polipoprotein E3 mediated poly(butyl) cyanoacrylate Increase of Cur bioavailability and photostability Se-PLGA nanospheres creates AD Reduction of amyloid- β aggregation .PLGA-based NPs AD.Increase of Cur bioavailability and efficacy Nanoliposomes shows AD at High affinity for A β 1–42 fibrils.

Conclusion: In sum, plant-mediated nano systems can improve the pharmacokinetic profile and bioavailability of phyto-therapeutic compounds to the CNS, increase the brain penetration of these drugs, and enhance the disaggregation or prevent the aggregates formation in the brain.

Keywords: Herbal drugs, nanoparticles, Alzheimer's, polymers, herbal medicines

Concept of Dalak in Unani Medicine

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ABSTRACT

Background: Regimental therapy is a specialized strategy that makes use of physical techniques to improve the body's constitution by boosting the body's defense mechanisms and eliminating waste. This strategy is occasionally called "detoxification methods." *Ilaj-bil-Tadbeer* (regional treatment), *Ilaj-bil-Giza* (dietotherapy), *Ilaj-bil-Dawa* (pharmacotherapy), and *Ilaj-bil-Yad* (surgery) under the Unani system are significant Tibb techniques for addressing ailments and maintaining health. Ancient Unani physicians employed routine therapies for centuries as a means of treatment and prevention. These included exercises like *Riyazat*, massages or frictions like Dalak, fumes, Takmeed, Nutool, medicated water pouring, *Zimaad/Tila*, medicated paste/liniments, *Tareeq*, sweating, *Idrar-e-baul*, diuresis, baths in Hammam, Ishaal, purgation, Qai, cupping, Hijama (Cupping), Fasd (Venesection/Bloodletting), *Taleeq* (Leeching), and *Kai* (Cauterization) are examples of routine therapies. The most frequently used and well-liked form of Ilaj Bil Tadbeer among these techniques is *Dalak* (massage), which has the ability to be employed for both preventive and therapeutic purposes. Ibn Rusd states that the main aim of massage therapy is the elimination of waste and toxins from the body. This argument discusses Dalak's efficacy in treating musculoskeletal and neurological disorders. In order to understand how Dalak functions, its historical context is studied, and elements like timing, duration, types, and significance are investigated. While shedding light on recent study discoveries that shed light on the variety of diseases for which massage treatment is effective, the discussion also highlights the ideal duration and timing of massage therapy.

Objectives: While shedding light on recent study discoveries that shed light on the variety of diseases for which massage treatment is effective, the discussion also highlights the ideal duration and timing of massage therapy.

Keywords: Dalak, massage, Therapeutic Effect, *Ilaj Bil Tadbeer*, Unani medicine

Phytochemical-Based Nanocarriers: An Innovative Therapeutic Approach for Breast Cancer

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ABSTRACT

Background: According to the National Cancer Institute, cancer is a disease in which some of the body's cells grow unconditionally and spread to other parts of the body. According to a data given by World Health Organization in 2020, the most common cases of cancer worldwide were of breast cancer (2.26 million cases). Breast cancer is a disease in which abnormal breast cells grow out of control and form tumors. Nanotechnology is used in the design, characterization, and applications of materials, structures, and devices, for the diagnosis, and treatment of diseases.

Objective: The abstract emphasizes the wide variety of phytochemicals-based nanocarriers for the treatment of breast cancer.

Methods: A systemic search of relevant databases such as PubMed, ScienceDirect, etc. was conducted to identify studies investigating phytochemical-mediated nanocarriers for the treatment of breast cancer.

Results: The conventional approaches to treating breast cancer included chemotherapy, radiation, immunotherapy, surgery, and combination of these treatments. Despite scientific and technical advancements, the existing treatments and diagnostic systems appear to have several flaws. It has been discovered that a variety of plants their phytoconstituents show promising anticancer capabilities against breast cancer in both in vitro and in vivo. The limitations of the traditional breast cancer treatment approach are outweighed by phytochemical-mediated nanocarriers. Phytochemicals have been a helpful tool for ages and their efficacy was increased by creating a complex fusion of these molecules with nanocarriers.

Conclusion: Combining phytochemical and chemotherapeutic agents with nanotechnology might have far-reaching impacts in the future for breast cancer treatment.

Keywords: Phytochemicals; nanocarriers; therapeutic approach; breast cancer

Synthesis and Biological Evaluation of N-Substituted Benzimidazole Derivatives: Potential Antioxidant and Antimicrobial Agents

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ABSTRACT

This study presents a novel approach for synthesizing N-substituted benzimidazole derivatives with potential antioxidant and antimicrobial properties. Benzimidazole, a bicyclic heterocycle consisting of a benzene ring fused to an imidazole ring, serves as a foundational scaffold in medicinal chemistry. Its unique structure and diverse chemical properties make it a valuable platform for the design and development of pharmaceutical agents targeting various therapeutic areas. Benzimidazole derivatives exhibit a wide range of pharmacological activities, including antimicrobial, antiviral, anticancer, antihypertensive, and anti-inflammatory effects. This versatility arises from the ability to modify substituents on both the benzene and imidazole rings, thereby modulating their physicochemical properties and biological activities. A streamlined synthesis method yielded a series of compounds, among which compound III K exhibited the highest antioxidant activity, surpassing that of the standard Ascorbic acid with an IC₅₀ value of 8.94 µg/mL. Structure-activity relationship (SAR) analyses revealed that electron-releasing groups on the aniline ring enhanced antioxidant activity, while electron-withdrawing groups on the phenyl ring diminished it. In terms of antimicrobial efficacy, most compounds demonstrated activity against both gram-positive (*S. aureus*) and gram-negative (*E. coli*) bacteria. Notably, compounds III A and III G displayed the most potent activity against *S. aureus*, while III A, III D, and III G were most effective against *E. coli*. These findings highlight the potential of N-substituted benzimidazole derivatives as versatile agents with dual antioxidant and antimicrobial properties. Further exploration of structural modifications could lead to the development of potent therapeutic agents for combating microbial infections and oxidative stress-related disorders.

Keywords: Benzimidazole, antimicrobial, antioxidant, DPPH method, synthesis

Unlocking The Power Of Phytoconstituents For Treatment Of Skin Cancer

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ABSTRACT

Background: Skin cancer is one of the most prevalent forms of cancer globally, with increasing incidence rates necessitating the exploration of novel treatment modalities. Phytoconstituents, bioactive compounds derived from plants, have garnered attention for their potential therapeutic effects against various diseases, including cancer. The use of complementary alternative medicine (CAM) with the intervention of phytochemicals and natural products has showed less toxic effects in the treatment.

Aim: Though chemotherapy, radiotherapy, immunotherapy and targeted therapy have significantly improved treatment outcomes, toxic effects and resistance are associated with these therapies. The aim of this review is to find alternate yet less toxic natural constituents that helps in treatment of skin cancer

Methods: A systematic literature search was conducted in electronic databases including PubMed, Science Direct, National library of medicines to search terms encompassed variations of "skin cancer," "phytoconstituents," "herbal drugs," and related keywords.

Result: Several promising phytochemicals have been found in a variety of fresh fruits, vegetables, roots, and herbs, such as epigallocatechin-3-gallate, resveratrol, curcumin, proanthocyanidins, silymarin, apigenin, capsaicin, genistein, indole-3-carbinol, and luteolin; these have been considered as a means to improve cancer chemoprevention and treatment via multiple mechanisms.

Conclusion: Phytoconstituents holds immense potential for a safer approach towards skin cancer treatment. Hence further research is warranted to elucidate their precise mechanisms of action, optimize dosing regimens, and evaluate long-term safety and efficacy.

Keywords: Phytoconstituents; skin cancer; complementary alternative medicine

Targeted Cancer Therapy: Nanoparticle-Based Delivery Systems With Phytoconstituents

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ABSTRACT

Background: The potential of nanoparticle-based delivery systems for targeted drug delivery has attracted a lot of interest in the realm of cancer therapy. The selectivity and effectiveness of these systems are further increased by including phytoconstituents. Natural sources of phytoconstituents have intrinsic anticancer qualities and a particular affinity for tumor microenvironments or cancer cells.

Aim: The objective of this study is to do a thorough analysis of the state of the art in the field of nanoparticle-based delivery systems that use phytoconstituents for cancer therapy.

Methodology: To find pertinent research that has been published in peer-reviewed journals, a thorough literature search was undertaken. A literature search was conducted from different databases like MEDLINE/PubMed and EMBASE for articles published.

Results: The paper emphasizes how phytoconstituents can be used as targeting ligands in nanoparticle-based delivery systems to improve targeted cancer therapy. When compared to traditional chemotherapy, the results of available research are synthesized to demonstrate encouraging outcomes in terms of improved specificity, effectiveness, and less systemic toxicity.

Conclusion: This review concludes by highlighting the importance of phytoconstituent-based nanoparticle delivery systems as targeting ligands in the advancement of targeted cancer therapy.

Keywords: Targeted cancer therapy; Nanoparticle-based Delivery Systems; cancer; Phytoconstituents

Carbon Nanodots as a Remedial Nanovesicles for Drug Delivery

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ABSTRACT

With growing interest, in the industry of carbon nanomaterials, carbon nanodots (CNDs) have massively been explored. It is a potential approach for immense areas of biomedical usage including therapy, imaging, and drug delivery, where CNDs may act as contrast agents, to assess biodistribution and biocompatibility before clinical setting. CNDs offer several advantages over other carbon nanomaterials including better biocompatibility, less toxicity, environment-friendly and many others, also photophysical and chemical properties of CNDs could be altered including their size and shape making them more desirable, furnishing with enhanced biocompatibility and targeting potency for the improvisation of selectivity and sensitivity which may lead to expansion of applications. Besides, carbon nanomaterials could be designed to approach therapeutics innovations and to help or target drugs effectively. This paper addresses carbon nanodots along with its types, properties, different methods of preparation, and treatment of diseases. This review has also highlighted the cutting-edge progress of CNDs in drug delivery as well as its emerging applications.

Keywords: carbon; carbon-based nanomaterials; carbon nanodots; drug delivery; polymer

Hepatoprotective Effects of *Dawa-Ul-Kurkum*, a Unani Polyherbal Preparation and the Possible Mechanisms in Experimental Model of D-Galactosamine Induced Liver Damage in Rats

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ABSTRACT

The hepatoprotective effect of a polyherbal Unani formulation, *Dawa-Ul-Kurkum* was evaluated in the experimental model of D-Galactosamine induced liver damage in rats and its possible mechanisms were investigated. Liver damage was induced in Wistar rats by intraperitoneal administration of D-Galactosamine and the effects of various drug treatments were assessed on morphological, biochemical and histological markers of liver toxicity. In the vehicle treated experimental group, administration of D-Galactosamine induced significant derangements in liver function as evidenced by increased levels of SGOT, SGPT, alkaline phosphatase and bilirubin, and reductions in body weight and increased liver weights as compared to controls. Histopathological examination showed multifocal areas of inflammatory cell infiltrate in hepatic parenchyma and mild haemorrhages, focal necrosis, and mild vasodilation. Pretreatment with *Dawa-Ul-Kurkum* (DK, 250 and 500 mg/kg) showed protective effects against the D-Galactosamine induced biochemical and histopathological derangements of liver function following D-Galactosamine. Similar effects were also seen after the hydroalcoholic extract of DK (HA, 500 and 1000 mg/kg) which showed marked protective effects on biochemical and histopathological parameters. The hepatoprotective effects of DK and HA were comparable to that seen after silymarin therapy. Liver damage induced by D-Galactosamine was associated with elevated levels of MDA and NOx whereas; GSH levels were reduced, as compared to controls. Pretreatments with DK and HA induced differential degrees of attenuations in these oxidative stress parameters. The results validate the hepatoprotective effects of *Dawa-Ul-Kurkum* in D-Galactosamine induced hepatotoxicity and suggest that attenuation of oxidative stress by the polyherbal may be the mechanism of action for such effects.

Keywords: Hepatotoxicity; D-Galactosamine; *Dawa-Ul-Kurkum*; Histopathology

Design, Synthesis, and *In-silico* Study of Piperidine-Cyanopyrimidine Hybrids as Anticancer Agents

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ABSTRACT

Background: Cancer poses a substantial global health threat, with significant mortality and morbidity rates worldwide in nowadays. Despite advancements in detection and treatment, its impact remains profound, necessitating comprehensive strategies for prevention and management. Lysine Specific Demethylase 1 (LSD1) plays a crucial role in epigenetic regulation, modulating gene expression through histone demethylation. Lysine Specific Demethylase 1 (LSD1 or KDM1A) is a key player in epigenetic regulation, demethylating histone H3 lysine 4 residues (H3K4me1/2) to modulate gene expression. It utilizes flavin adenine dinucleotide (FAD) as a coenzyme, undergoing amine oxidation to remove methyl groups.

Methodology and Results : This study explores the design of piperidine-pyrimidine hybrids as potential anti-cancer agents targeting LSD1, employing computational techniques and molecular modeling. Through protein-ligand docking and MM-GBSA calculations, compounds NBAP-BBT, NBAP-IBT, and NAP-BBT exhibited promising interactions with LSD1, indicating their potential as effective anti-cancer therapeutics. Spectral characterization of synthesized compounds will further elucidate their pharmacological properties.

Conclusion: Addressing the cancer burden demands a multifaceted approach integrating prevention, early detection, and innovative therapies. Epigenetic modulators like LSD1 offer promising targets, while piperidine-pyrimidine hybrids represent a novel avenue for drug development. The high docking scores of specific synthesized compounds against LSD1 highlight their potential for further investigation and clinical translation, underscoring the importance of continued research in combating cancer and improving patient outcomes.

Keywords: Anti-cancers, LSD1, piperidine-pyrimidine hybrids etc.

GC-MS Analysis of Aqueous Alcohol Fraction of Strawberry Fruits

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ABSTRACT

Background: Strawberry is one of the most economically important berry fruits consumed for its nutrient content and pleasant flavour. The scientific name of strawberry is *Fragaria ananassa* belonging to Family: *Rosaceae*

Objectives: The present study was carried out to evaluate the possible bioactive components present in the aqueous alcohol fraction of strawberry fruits.

Methods: GC-MS analysis of alcoholic extract of straw berry was done by standard protocol using the equipment mass hunter GC-MS Acquisirton10. 0. 36 8. Scan methods and analysis was done by Lib search.

Results The phytochemical of aqueous methanol fraction of strawberry revealed the presence of flavonoids, tannin, alkaloids, glycosides, and steroids. The GC-MS analysis revealed the presence of hexadecanoic acid, beta- sitosterol, octadecanoic acid, and cyclotrisilioxane.

Conclusion: The phytochemical and GC-MS profiling of aqueous methanol fraction of *Fragaria ananassa* the presence of bioactive compounds with important medicinal properties. Hence, the presence of these phytochemicals could be responsible for the therapeutic effects of the plant.

Keywords : *Fragaria ananassa*, GC-MS, Bioactive, Strawberry

Phytochemical Profiling and GC-MS Analysis of Bioactive Compound of Aqueous Alcohol Fraction of Chyawanaprash

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ABSTRACT

Background: Chyawanaprash avaleha, is one of the most popular herbal medicine of Indian traditional system of health sciences. Chyawanaprash consists with 46 numbers of ingredients, based with stage wise incorporation and first ever appeared in document form in very oldest reference Charaka Samhita. Medicinal plants play an important role since the history to maintain the health and well-being of the humans and with the same different AYUSH system, especially Ayurvedic system of medicine paid a strong attention for the promotion of traditional therapies for treatment of various disorders.

Objectives: The present study was carried out to evaluate the possible bioactive components present in the aqueous alcohol fraction of Chyawanaprash.

Methods: GC-MS analysis of alcoholic extract of Chyawanaprash was done by standard protocol using the equipment mass hunter GC-MS Acquisirton10. 0. 36 8. Scan methods and analysis was done by Lib search.

Results The phytochemical of aqueous methanol fraction of strawberry revealed the presence flavonoids, alkaloids, saponins, antioxidants, piperine, phenolic compounds. The GC-MS analysis revealed the presence of hexadecanoic acid, beta- sitosterol, octadecanoic acid, and eugenol, azulene, oleic acid, piperine, cholesterol and santalyl palmitate.

Conclusion: The phytochemical and GC-MS profiling of aqueous methanol fraction of Chayvanprash the presence of bioactive compounds with important medicinal properties. Hence, the presence of these phytochemicals could be responsible for the therapeutic effects of the plant.

Keywords : Chayvanprash, GC-MS, Bioactive, Strawberry

PAMPs Unveiled: Exploring Features, Applications, Production, Expression, and Challenges of Plant Antimicrobial Peptides"

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ABSTRACT

The imperative pursuit of an extensive range of defence strategies is crucial in mitigating challenges posed by microbial attacks on plants and animals. Among antimicrobial peptides (AMPs), plant antimicrobial peptides (PAMPs) represent a specific subset. Due to their broad-spectrum activity, remarkable structural stability, and diverse mechanisms of action, PAMPs play a significant role in eliciting defence against microbial attacks and preventing drug resistance in pathogens. This review is dedicated to identifying the applications, characteristics, production, expression, and challenges associated with PAMPs, with a focus on their structure–activity relationship. The examination of discovery techniques used to identify these peptides aims to provide insights into their relevance in genomics, transcriptomics, proteomics, and their expression against disease-causing pathogens. An essential objective of this review is to raise awareness regarding the potential therapeutic applications of PAMPs in the medical and pharmaceutical fields, particularly in the sensitive treatment of bacterial and fungal diseases. Additionally, the review underscores their utilisation in preserving crops through available transgenic methods in the agronomical field. Noteworthy is the fact that PAMPs are safe to handle and easily recyclable, with proteases offering a means to convert them into more potent antimicrobial agents—a crucial aspect for fostering sustainable development.

Keywords : Peptides, Antimicrobial, Plant AMP, Drug Modelling

Screening of Databases for Design, Development and Their Evaluation as Novel Anti-Alzheimer's Agents

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ABSTRACT

Senile dementia also known as Alzheimer's disease (AD), is irreversible neurodegenerative illness marked various neuropsychiatric symptoms, dementia, memory loss, behavioral abnormalities, and restrictions in day-to-day functioning. Approximately there are 35 million people suffering from AD and this number is expected to reach 82 million by 2030, and up to 138 million by 2050. Targets for AD interventions include amyloid beta ($A\beta$) peptide, tau protein, apolipoprotein E ϵ 4 (APOE4) effects, lipids and lipoprotein receptors, and neurotransmitter receptors. The US FDA has approved drugs such as aducanumab, lecanemab, and donanemab for the treatment of AD patients with moderate cognitive impairment (MCI) and mild dementia caused by AD. Heterocyclic molecules, including as coumarin and triazole, have been shown to effectively target $A\beta$, Tau protein, AChE, and BuChE enzymes in the brain, database of compounds containing these moieties were designed and screened against three receptor AChE, BuChE and MAOB (PDB ID 6O4W, 4BDS and 4A79) VS workflow on Schrodinger. Docking score and interaction of the compounds were recorded. Compounds N8, N21 and N20 with docking score of -10.254, -9.650 and -9.592 were found to be the most potent compounds against the respective targets AChE, BuChE, MAO-B. The selected compounds will be synthesized and optimized followed by their screening for biological activity (cognitive impairment).

Keywords: Alzheimer's disease (AD), AChE and BuChE enzyme, coumarin, triazole

Plants Natural Products with Hepatoprotective Effects

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ABSTRACT

One of the most vital organs in the body, the liver regulates a wide range of functions, including the metabolism, secretion, storage, and detoxification of both endogenous and foreign chemicals. Owing to these purposes, hepatic disorders are still one of the biggest risks to public health and a global issue. Despite significant advancements in contemporary medicine, no fully effective medications exist that support the regeneration of hepatic cells, give total protection of the organ, or boost hepatic activity. In order to treat liver illnesses, it is therefore vital to find pharmacological alternatives that are both more effective and less hazardous. Numerous scientific studies have revealed that the beneficial effects of certain plants and fruits can be linked to the presence of chemical compounds known as phytochemicals. These compounds have been identified as having fundamental roles in the treatment of human health issues. The goal of the current review was to gather information from studies on a few fruits (grapefruit, cranberries, and grapes) and plants (cactus pear fruit, chamomile, silymarin, and spirulina), which are commonly consumed by people and have been shown to have hepatoprotective properties. Additionally, an analysis was done on a resin (propolis) and a few phytochemicals that were extracted from these fruits, plants, yeasts, and algae and which were tested in various hepatotoxicity models.

Keywords : Hepatoprotection, Alcoholic liver disease Grapefruit, *Vaccinium* spp, Glucans.

Kava Kava: A Boon to Neurological and Related Disorders

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ABSTRACT

Kava kava Scientifically known as *Piper methysticum* is a miraculous ancient herb which has given a contemporary approach to medical science, it is native to pacific island but has demarcated world with its medicinal advent. The roots of the herb were earlier used In a drink for Sedative and tranquillizing effects The effects of kavain, dihydrokavain, methysticin, and dihydromethysticin on TNF (Tumour Necrosis Factor)- synthesis in human acute monocytic leukaemia cells and their reactivity to (lipopolysaccharide) LPS-induced mortality in laboratory mice were studied. Kavain inhibit LPS action. Methysticin decreased TNF- and IL-17A release in an Alzheimer's disease reduce disease symptoms. Flavokavain promotion of splenocyte proliferation boost in T cell Flavokawain A suppress LPS and inhibit pro-inflammatory mediators. and now with these properties' kava kava has found its place in the treatment of various neurological, psychological diseases like anxiety, depression apart from its anxiolytic and antidepressant effects Structure activity relationship proves its analgesic, anti-inflammatory, anthelmintic and anti-cancer properties too. The principal constituents of *kava kava* are divided into two i.e., Kavalactones and Chalcones aside of the therapeutic boon of *kava kava* its toxicity act as ban to various research have proved the hepatotoxic behaviour of the herb.

Keywords : *Kava Kava, Piper methysticum*, Kavalactones, kavain, Chalcones, Anxiolytic, Antidepressant

Betulin: Therapeutic Potential and Recent Advances in Drug Delivery

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ABSTRACT

Betulin is a natural compound such as bioflavonoids and pentacyclic triterpenoids have found applications in health care system. Due to their wide pharmacological activities high safety margins and lower cost. Traditionally it is used as antiobesity agent that called (Medohara) in Ayurvedic term, used as poisonous antidote (Visahara) and as antiulcer agent (Vranaropana). However current research has shown its multi spectrum biological benefits for the treatment of various chronic diseases such as anticancer, antibacterial, antimalarial, anti-inflammatory antioxidant, diabetes, hypertension and hypercholesterolemia. Its use as advantageous over the other phytoconstituents. As it is a non-toxic and non-oxidizable moiety. This review focus on various studies performed on betulin explaining its broad spectrum biological activities. In addition, this review will also focus on challenges associated with drug and various approached to enhance the oral bioavailability of betulin. Betulin is a highly potent compound due to its strong antioxidant and free radical scavenging properties. In the near future enhancing its bioavailability using novel drug delivery technology having minimum side effects will bring this promising natural compound to the forefront of therapy for the treatment of various chronic human disorder.

Keywords : Betulin, Antioxidant, Bioavailability, Novel drug delivery

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Olive Oil's Medicinal Marvels

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ABSTRACT

This poster unravels the medicinal potency of olive oil, spotlighting its rich array of health benefits. Delving into its high content of monounsaturated fatty acids and antioxidants, the poster emphasizes the cardiovascular advantages, anti-inflammatory properties, and potential cancer-fighting capabilities of olive oil. Additionally, it explores the oil's positive impact on cognitive health, suggesting its role in reducing the risk of neurodegenerative diseases, cardiovascular diseases and skin disorders. Compact and informative, the poster aims to shed light on olive oil's therapeutic potential and encourage its inclusion in daily health practices.

Keywords : Anti-inflammatory, cardiovascular, neurodegenerative diseases

Computational Investigation of Cinnamic Acid (*Cinnamomum zeylanicum* L.) Derivatives for Antidiabetic Activity

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ABSTRACT

Background: Cinnamic acid is a natural aromatic carboxylic acid (isolated from the bark of *Cinnamomum zeylanicum* L, Lauraceae). The chemical formula $C_9H_8O_2$ and a weight of 148.15 g.mol. It plays a vital role in the formation of commercially important intermediate molecules necessary for the production of different pharmaceutical ingredients. Cinnamic acid and its derivatives have a wide spectrum of biological activities such as anti-inflammatory, neuroprotective, anti-microbial, anti-cancer, and antidiabetic properties. anti-diabetic properties.

Aim: To evaluate the physicochemical properties, toxicological study, and molecular docking of cinnamic acid and its derivatives for antidiabetic activity.

Methods: A computational investigation was performed to evaluate, the physicochemical properties of some novel ester derivatives which was calculated by the Molinspiration online property calculator toolkit and predicted their bioactivities using Pass online. Toxicological studies (carcinogenicity) were evaluated by PreADME software.

Results According to the Ames test, it was found that Cinnamic acid was a mutagenic compound but it demonstrated that non-carcinogenicity in the Mouse model and HERG inhibition risk is low. Using the docking software, the molecules were docked to the specified target site, to identify and understand the binding mode of Cinnamic acid and its derivative's intermolecular interaction with the target site for antidiabetic activity.

Conclusion: The computational study has successfully predicted the physicochemical, toxicological, and molecular docking studies of cinnamic acid and its derivatives for antidiabetic activity.

Keywords: *Cinnamomum zeylanicum*, Cinnamic acid, Antidiabetic activity, Carcinogenic, Molecular docking

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Extraction and purification of Betulin From *Betula utilis* D. Don

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ABSTRACT

Background: *Betula utilis* D. Don is known as the Himalayan silver birch and Bhojpatra is a long-lived member of the Betulaceae family. *B. utilis* contains Betulin, Betulinic acid, Acetyloheanolic acid, Lupenone, Methyl Betulonate, Sitosterol, and Methyl Betultriterpenoid and possess various Pharmacological activities like anti-inflammatory, anti-microbial, anti-cancer, hepatoprotective, anti-psoriatic, anti-obesity, anti-urolithiatic capabilities, anticonvulsant potential, anti-HIV and antioxidant. Betulin is a pentacyclic triterpene natural product that belongs to the Lupane family and has the systematic name 3, 28-dihydroxy-20(29)-Lupen or Lup-20(29)-en-3, 28-diol.

Aim: To extract and purify Betulin from the bark of *Betula utilis*.

Methodology: The extraction was carried out by seven cycles of Soxhlet extraction method. The resulting extract was then concentrated by distillation and the purification process included five steps: The first step of purification was the removal of acids; the second step was removal of lupeol, the third purification was to remove other impurities present. The fourth step was to remove remaining residual impurities. The last step was crystallization.

Results The compound was isolated and the thin layer chromatography was performed to confirm that the impurities are removed and the purified compound is Betulin.

Conclusion: The betulin was extracted by Soxhlet extraction and isolated by purification process.

Keywords: *Betula utilis*, Extraction, Purification, Betulin, TLC

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Assessing the Public Knowledge of Chronic Kidney Disease: A Questionnaire Survey-Based Study

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ABSTRACT

Background: With the advance of medical care, chronic non-communicable diseases, like chronic kidney disease (CKD), have become the predominant diseases around the world. Screening programs may help to address the burden of CKD. Public awareness is an important determinant of the uptake of screening programs. However, data on the public knowledge of CKD is lacking.

Aim & Objective: The aim of this study was to develop a validated questionnaire and assess the public knowledge of CKD.

Methodology: To assess public awareness concerning CKD, a comprehensive survey inquiry was conducted via Google Form. From October 2023 to November 2023, a survey-based study was conducted at Jamia Hamdard. Subjects of age 18 years or above were enrolled in this study. They received a self-developed questionnaire to evaluate their CKD-related awareness. Further, their demographic data was collected.

Result: The result obtained in the study indicates that more than 50% people are aware about CKD and around 25 to 30% people know about the treatment of same. The public knowledge of CKD was relatively poor. Participants expressed differing levels of knowledge about risk factors and prevention measures, emphasizing the need for targeted educational initiatives. Access to healthcare was a significant concern, with many respondents expressing challenges related to affordability and availability.

Conclusion: In Conclusion, the survey reveals varying levels of awareness and perceptions about CKD among the population.

Keywords: Chronic kidney disease, public awareness, questionnaire-based study

Quantitative Estimation of Resveratrol by Using UV Spectroscopic Method

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ABSTRACT

Background: Severe disease commonly manifests as a systemic inflammatory process. Inflammation is associated with the enhanced production of reactive oxygen and nitrogen species and with a marked reduction in the plasma concentrations of protective antioxidant molecules. Resveratrol (RSV), a naturally occurring polyphenol. The main sources of RSV includes, grapes (*Vitis vinifera* L.), a variety of berries, peanuts, medicinal plants such as Japanese knotweed and red wine. It has anti-aging effects in animals and also potent antioxidant, anti-inflammatory effects, and shown to modulate the metabolism of lipids, inhibit the oxidation of low-density lipoproteins, and reduce platelet aggregation.

Aim/Objectives: In the present research work an attempt has been made to develop UV-Vis spectrophotometric method for determination of resveratrol in bulk powder.

Methods: The method was developed using methanol as a solvent in which resveratrol shows maximum absorbance wavelength at 283nm. The linearity study was performed over a range of concentrations from 2 to 10 µg/ml.

Results A novel UV spectrophotometric method for the determination of resveratrol in bulk powder was developed.

CONCLUSION: On the basis of results obtained, it can be concluded that the developed method can be used for estimation of resveratrol in bulk drug and in formulations.

Keywords: Resveratrol, UV spectrophotometry, grapes seed, quantitative estimation.

Understanding the Role of Plant Growth Promoting Rhizobacteria (PGPR) in improving Physio-biochemical Parameters, Yield Traits and Antioxidant defense, and imparting cadmium stress tolerance in linseed (*Linum Usitatissimum* L.)

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ABSTRACT

Linseed or flaxseed (*Linum usitatissimum* L.), is an annual or perennial herbaceous plant belonging to family Linaceae. The plant is conventionally cultivated for the flax fibre or linen and linseed oil. Besides, flax has been intensively used in various traditional system of medicine, as it possesses anti-cancer, anti-diabetic, antioxidant, anti-inflammatory properties. Plant growth promoting rhizobacteria (PGPR) are the group of bacteria that exist in the rhizosphere and get localised inside the root cortex of the plant, and produce PGPs that helps in the overall growth of plant. The aim of the current work was to evaluate the role of PGPR in mitigating the Cd stress in linseed and its effect on growth, biochemical, antioxidant enzymes and yield traits. Two bacterial strains Bacillus and Pseudomonas were used in the present study. The treated plants were treated with varying concentrations of cadmium (T0-control, T1-Bacillus, T2- Pseudomonas, T3- Cd 100 μ M) along with inoculation with PGPR alone and in synergism (T4- Cd 200 μ M, T5- Cd 100 μ M + Bacillus, T6- Cd 200 μ M + Bacillus, T7- Cd 100 μ M + Pseudomonas, T8- Cd 200 μ M + Pseudomonas, T9- Cd 100 μ M + Bacillus + Pseudomonas, T10- Cd 200 μ M + Bacillus + Pseudomonas). A significant reduction in growth (like fresh and dry weight, plant height) and biochemical traits such as chlorophyll content, total protein and sugar content was noticed in plants grown in Cd stress. Supplementation with PGPR alone and in combination improved growth features, biochemical parameters and modulated antioxidant enzyme system which was evident by high levels of SOD, catalase and APX and low generation of ROS as depicted by histochemical staining. Mitigating effects were more prominent in plants grown in combination of Bacillus and Pseudomonas showing their synergistic association. Overall, this study highlights the promising role of PGPR in mitigating Cadmium stress in plants, which help in sustainable crop production.

Keywords : PGPR, Linseed, Lignan, Abiotic stress, Pseudomonas

Unani Approaches to *Otorrhea* : Concepts and Management

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ABSTRACT

The term “*otorrhea*” originates from the Greek words “*otos*,” meaning “ear,” and “*rhein*,” indicating discharge. *Sailan-ul-Uzn* is derived from the Arabic words “*Sailan*,” meaning “discharge,” and “*Uzn*,” meaning “Ear.” Unani physicians commonly associate *otorrhea* with *Sailan-ul-Uzn*, describing it as a condition where a burning sensation develops in the external auditory canal, leading to continuous ear discharge, especially prevalent in children with a wet temperament. According to Unani Medicine, this ailment typically affects individuals with excess *rutubat* (fluid) and a phlegmatic temperament, manifesting symptoms such as ear pain, increased body temperature, ear fullness, stabbing temple pain, and ear pressure. Unani treatments involve oral administration of *Musaffi e dam*, *Muhallil*, *Musakkin*, *Dafe Ta’ffun advia*, and local application of *Mujaffif* through *Dhooni* (Fumigation) and *Nafookh* (Insuffulation)

Keywords: *Otorrhea*, *Sailan-ul-Uzn*, Ear discharge.

Co-application of salicylic acid and *Pseudomonas* effectively improved drought tolerance in wheat (*Triticum aestivum* L.)

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ABSTRACT

Drought impedes growth and productivity in cropping systems worldwide, which exacerbates the problem of food insecurity in the era of climate change. Wheat (*Triticum aestivum* L.; family, *Poaceae*), is the second most important staple diet for a sizable section of the world's population, thus ensuring food security. However, its cultivation faces numerous challenges like different abiotic and biotic stresses. The impact of drought stress is the most common stress that significantly hampers the growth and productivity of wheat crops worldwide. Thus far, different strategies have been proposed to improve drought tolerance in wheat. In this study the combined application of plant growth-promoting rhizobacteria (PGPR) and salicylic acid (SA) was used to mitigate adverse effects of drought stress. The tested wheat plants were grown in different drought levels (T0 control, T1-50% and T2- 80% of field capacity), either inoculated with *Pseudomonas* (T3-PGPR alone), or treated with different concentration of SA (T4-50 μ M, T5-100 μ M). The plants were also tested with combinatorial treatments of drought, PGPR and SA (T6- D50% + PGPR, T7-D80% + PGPR, T8- D50% + SA 50, T9-D80 + SA 100, T10- D80 + SA 50, T11- D80 + SA 100, T12- D50 + PGPR + SA 50, T13- D50 + PGPR + SA 100, T14- D80 + PGPR + SA 50, T15- D80 + PGPR + SA 100). Our study found that growth traits (like plant height, plant biomass) , biochemical parameters (like chlorophyll content, total protein, sugar content) were significantly reduced in drought conditions, maximally in 80% drought. Sole application of PGPR and foliar supply of SA significantly improved growth, osmolytes and antioxidant system in wheat. Co-application of PGPR and SA further improved the drought tolerance of wheat by modulating growth, antioxidant enzymes like SOD, catalase and APX leading to decrease in ROS production which was evident from histochemical staining. This also led to an increase in total phenol and total flavonoid content in wheat plants, increasing its antioxidant potential. Conclusively our results suggest that co-application of PGPR (*Pseudomonas*) and SA improves drought tolerance in wheat plants, thus could help in attaining sustainable agriculture.

Keywords : Drought, PGPR, Salicylic acid, Antioxidant enzymes

Exploring Contemporary Frontiers: Current Trends and Approaches in Scientific Research within Unani Medicine

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ABSTRACT

Background: Unani medicine, also known as ‘Greek medicine’, originated in ancient Greece and refined by Arab and Persian scholars. It relies on the idea of equilibrium and unity among the body, mind, and spirit, employing natural remedies and holistic methods to address different illnesses and health issues. In recent years, there has been a growing interest in scientific research in Unani medicine, with a focus on modernizing and validating its traditional practices. This paper AIMS to explore the current trends and approaches in scientific research in Unani medicine.

Objective: The objective is to critically examine recent scientific research in Unani medicine, identifying emerging trends, methodological approaches, and the overall impact on healthcare practices.

Method: A comprehensive literature review was conducted, analyzing a diverse range of research articles, clinical trials, and experimental studies in the field of Unani medicine. The selected studies were systematically assessed to identify common themes and methodologies.
Current Trends: Formulation Standardization, Tech Advancements, Clinical Validation
Research Approaches: Pharmacological Insights, Ethnobotanical Validation, Chemical Composition

Result: Growing interest in evidence-based Unani medicine research is evident. Researchers use rigorous methods like clinical trials, molecular studies, and ethnopharmacology, reflecting a broader recognition of the need for scientific validation in traditional practices.

Conclusion: Unani medicine's scientific research is modernizing and validating its traditional practices, establishing it as credible and evidence based. Further research is vital to explore its potential in treating various health conditions and bridging the gap between traditional and modern medicine.

Keywords: Unani medicine; scientific research; evidence-based; traditional medicine; holistic healthcare

Evaluation of Protective Effect of *Mangifera indica* Kernel Extract in Indomethacin Induced Gastric Ulcer in Experimental Rats

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ABSTRACT

Background: Stomach ulcer is a significant global public health concern that can result in severe complications such as gastrointestinal bleeding, perforations, GI obstruction, and cancer. *Mangifera indica* is a commonly used traditional remedy for treating stomach ulcers. The current study aimed to determine the effectiveness of *Mangifera indica* kernel extract in preventing stomach ulcers in rats.

Methods: *Mangifera indica* kernel powder samples were strenuously extracted with ethanol (80%) using the Soxhlet system. This extract was compressed into a little volume using rotator evaporator and further evaporated to a dry mass. SD rats were divided into six groups. Each group consists of five rats. Group-I received 1ml/kg/day p.o of 1% carboxymethylcellulose. Group-II received Indomethacin (20 mg/kg/day, p.o). Group-III received *Mangifera indica* kernel extract (0.5g/kg/p.o./day). Group-IV received MI extract (1g/kg/p.o./day). Group-V received 50 mg/kg/day ranitidine. Group-VI (per se) received MI extract (1g/kg/day p.o). Rats were sacrificed. . The ulcer index, mucus barrier, and histology were all calculated. After homogenization of stomach tissue in buffer antioxidant enzyme potency was evaluated.

Results: MI kernel extract significantly ($p < 0.01$) and dose-dependently increased mucus, SOD, and catalase levels while lowering ulcer index and TBARS in comparison to ulcer control group-II. According to histopathological research, indomethacin medication led to gastric ulcers whereas *Mangifera indica* kernel extract protected them from the disease. MI 1000mg/kg/day in group IV had ulcer prevention potency comparable to ranitidine 50mg/kg/day in group V.

Conclusion: In rats, the extract derived from the kernel of *Mangifera indica* seed shielded their stomachs from gastric ulcers caused by indomethacin. It achieved this by preventing the onset of muco-oxidative stress, reinforcing the gastric mucosa, and reducing the secretion of gastric acid.

Keywords: *Mangifera indica* ,Gastric ulcer, Ulcer index, Indomethacin, Oxidative stress

Quality Control And Hptlc Analysis Of *Punica granatum* L. Flower, *Daucus carota* L. Fruit And *Gymnema sylvestre* R. Br. Leaves For Development Of Pharmacopoeial Monograph

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ABSTRACT

The traditional medical system has been used for a very long period to treat numerous diseases. The study was carried to perform some qualitative dates includes plant extracts of *Punica granatum* L. flower, *Daucus carota* L. fruit and *Gymnema sylvestre* R. Br. leaves. The study also contains the macroscopic (size, shape, surface view etc.), microscopic (xylem, phloem, etc.) and power microscopic characteristics of the mentioned plants along with physio-chemical parameters determination such as foreign organic matter, ash value, acid insoluble ash value, extractive yield. The qualitative data includes the total phenolic, total flavonoid content, DPPH assay, and reducing power assay along with the TLC fingerprinting of each plant extracts to find out different metabolites (phytoconstituents) present in the given sample of plants also includes aflatoxin determination by using TLC fingerprinting, HPTLC quantification followed by TLC bioautography to find out antioxidant potential of the specific phytoconstituent and characterization of compounds via FTIR spectroscopy for identification for functional groups present in the plants.

Keywords: HPTLC, FTIR, TLC, Traditional System Of Medicine, Usp Monograph

Forging Ahead: Unveiling Unani Medicine's Anti- Cancer Potential

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ABSTRACT

Background: Cancer is one of the most of the fastest growing diseases, with an estimated worldwide incidence of 10 million new cases per year. Mortality is high, with more than 7 million deaths per year. According to WHO, cancer is a genetic term for a large group of diseases that can affect any part of body and the defining feature of cancer is rapid creation of abnormal cells that grow beyond their boundaries and invade adjoining part of bodies and then spread to various organs. In the last two decades, great advances have been made in cancer therapies; however, the success rate still remains unsatisfactory. Current conventional therapies are associated with side effects. In Unani system of Medicines, Cancer is also known as Sartān, an Arabic word which means crab. This review highlights the strength of Unani Medicines in treatment of Cancer.

Aim and objective: The objective of review was to highlight the herbs documented in both traditional and scientific literature as potential treatment for condition; while avoiding the detrimental effects of synthetic drugs.

Methods: Data on Anti- Cancer herbs include *Artemisia absinthium* , *Withania somnifera*, *Nigella sativa*, *Vinca rosea* were collected and compiled from Scientific Databases like Google Scholar, Pub Med.

Result: Results from various sources demonstrated promising results. These findings showcase the potential of Unani system in treatment of cancer.

Conclusion: In Conclusion, Nature is still today a rich source of active principles against cancer cells. This review unveils the captivating potential of Unani medicines. Moving forward, future research and development in this area holds the promise to provide more safer and efficacious treatment for cancer patients.

Keywords: Anti- cancer, Herbs, Unani system

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Natural Antifungal Agents for the Management of Skin Ailments

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ABSTRACT

Background: Structure of human skin is built in such a way that it can defend itself from many infections. But sometimes it can be affected by some fungal infections which delved deeply in the skin and cause infection. Despite our skin has its own protection, fungal infection still manages to make human sick. **Aim and Objectives:** To triumph the infections chemical medicinal drugs are convenient in the form's sprays, creams and ointments. But these synthetic drugs were displaying adverse effects in body and also various types of fungal infections-built defiance against these infections. So as there is a high occurring resistance of fungal infection effect on synthetic drugs, natural drug founded to be the best alternative against fungal infection. **Methods:** Literature survey was conducted from PubMed, google, research papers and reputed journals.

Results And after rigorous survey from literature examinations many natural herbs were encountered which found successful in tackling with fungal infections as it contains such pieces which have potential to clash against fungal infections including essential oils, flavonoids, saponins, derived from it displays positive impact.

Conclusion: Natural constituents derived could be useful at industrial and research scale to utilize the benefits to maximum. And also, plant-based treatment against it has minimal side effect and holds good therapeutic effect.

Keywords: Antifungal agents, Natural, Herbs, Infections, Essential oils

Photoprotective Phytoherbals In Nanocosmeceuticals

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ABSTRACT

Background: Ultraviolet rays, pollution and synthetic chemicals affects the skin causing various problems such as sun burn which further leads to skin cancer. This study focuses on the various herbal ingredients which have the power for skin protection and healing. The nature has the potential with its everlasting treasure of herbal ingredients to prevent and cure skin related problems. Prohibition of UV rays from penetrating the skin can be achieved by using herbal ingredients.

Objectives: To identify the nano cosmeceutical formulations of herbal ingredients such as antioxidant rich phytoherbals, carotenoids containing phytoherbals, polyphenols rich phytoherbals, vitamins enriched phytoherbals, melanin enhancers, pigmentation support.

Method: Herbs and herbal ingredients have a great potential in protection of skin from UV rays. Antioxidants such as green tea extract, grape seed extract inhibit the free radical formation and neutralize reactive oxygen species and enhances skin protection from harmful UV rays. The gel from aloe is believed to stimulate skin and provides assistance in new cell growth.

Results As compared to synthetic products herbal proves to be effective in chronic conditions with less side effects and availability at low cost.

Conclusion: This study concludes the harmful effects of UV rays, types of UV rays and the study of herbal ingredients and their chemical constituents present in it which helps in protection of skin from UV.

Keywords: Antioxidant, carotenoids, melanin

Role Of *Ginkgo biloba* In Treatment Of Schizophrenia

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ABSTRACT

Renowned herbal medicine *Ginkgo biloba* has garnered interest for its possible medicinal function in managing schizophrenia. A review of the phytochemical components of ginkgo biloba and their potential mechanisms of action in the treatment of schizophrenia is given in this abstract. Flavonoids, terpenoids, and organic acids are just a few of the bioactive substances found in ginkgo biloba that are known for their anti-inflammatory, antioxidant, and neuroprotective qualities. Quercetin and kaempferol are two examples of flavonoids that exhibit neuroprotective effects by scavenging free radicals and blocking inflammatory pathways linked to an etiology of schizophrenia. Terpenoids, particularly ginkgolides and bilobalide, affect neurotransmitter systems linked to the pathophysiology of schizophrenia, such as glutamate and dopamine. Some of the organic acids that provide *Ginkgo biloba* its anti-inflammatory properties are ginkgolic acids. This abstract emphasizes the promise of ginkgo biloba phytochemicals in the treatment of schizophrenia by synthesizing data from in vitro, animal, and clinical investigations. Preclinical studies show promise, but clinical trials produce contradictory results, therefore further research is necessary to determine the safety and effectiveness of *Ginkgo biloba* supplements for schizophrenia. Knowing the phytochemical makeup of ginkgo biloba and how it affects the pathophysiology of schizophrenia provides new opportunities for treatment approaches. Further investigation into the components of *Ginkgo biloba* may provide tailored therapies that improve patient outcomes and therapy efficacy in the management of schizophrenia.

Keywords: *Ginkgo biloba*, schizophrenia, antioxidant, neuroprotective

Pharmacovigilance of *Habbe Shifa*: A Review of Safety Profile and Adverse Effects

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ABSTRACT

Unani System of Medicine based on Hippocratic theory of humours is well established in India. Simultaneously it is also believed that Unani dosage forms acts on human body in holistic way and do not exhibit the adverse effects. It is true up to some extent but not at all. Unani dosages forms are sometime exhibit adverse effects if not consumed in proper quantity or prepared in proper manner. *Habb-e-Shia* is a pharmacopoeial preparation and used as *Daf-e Humma* (Antipyretic), *Daf-e-Tashannuj* (Anti-Spasmodic), *Musakkin-e-Alam* (Analgesic) agent in Unani System of Medicine. *Habbe Shifa* is a popular Unani medicine renowned for its therapeutic properties in managing various ailments. Despite its widespread use, there remains a lack of comprehensive pharmacovigilance data concerning its safety profile and adverse effects. This review aims to address this gap by systematically analyzing available literature on the pharmacovigilance of *Habbe Shifa*. We explore documented adverse reactions, drug interactions, and other safety concerns associated with its consumption. Additionally, we discuss the challenges and opportunities in monitoring the safety of *Habbe Shifa* and other Unani medicines. By synthesizing existing evidence, this review emphasizes the importance of ongoing pharmacovigilance efforts to ensure the safe and effective utilization of *Habbe Shifa* in clinical practice.

Keywords : *Habbe Shifa*, Unani Drug, Adverse Effect

Pharmacovigilance in Food Products: A Comprehensive Analysis in the Indian Context

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ABSTRACT

Pharmacovigilance, traditionally associated with drug safety, is increasingly gaining prominence in the context of food products. This abstract delves into the landscape of pharmacovigilance concerning food products in India, shedding light on the emerging challenges, regulatory framework, and the imperative need for enhanced monitoring. In India, where food safety and quality have garnered increasing attention, the integration of pharmacovigilance principles into food product monitoring has become imperative. This abstract examines the landscape of pharmacovigilance as it pertains to food products in India, highlighting the regulatory framework, challenges, and opportunities. It explores the roles of various stakeholders, including regulatory bodies, food manufacturers, healthcare professionals, and consumers, in ensuring the safety and efficacy of food items. Furthermore, the abstract underlines the importance of collaborative efforts among regulatory agencies, healthcare professionals, and the food industry to strengthen pharmacovigilance practices. Furthermore, it highlights the need for enhanced surveillance, robust reporting mechanisms, and greater awareness to address the potential risks associated with food consumption. By fostering collaboration and implementing proactive measures, India can strengthen its pharmacovigilance system for food products, thereby safeguarding the health and well-being of its population. This study underscores the importance of interdisciplinary collaboration among government agencies, industry stakeholders, healthcare professionals, and academia to address the evolving challenges and opportunities in pharmacovigilance. By fostering collaboration and implementing proactive measures, India can strengthen its pharmacovigilance system for food products, thereby safeguarding the health and well-being of its population.

Keywords : Food; Pharmacovigilance; Regulatory; Consumers; India

Integrating Modern Analytical Techniques for Quality Control of Herbal Unani Formulations

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ABSTRACT

Herbal Unani formulations represent a significant component of traditional medicine systems, with a rich history spanning centuries. However, ensuring the quality, safety, and efficacy of these formulations remains a critical challenge due to their complex nature and variability in composition. This research study aimed to conduct a thorough quality control analysis of Herbal Unani formulations, employing modern analytical techniques and traditional pharmacopeial standards. The study involved the collection of various Herbal Unani formulations from reputable sources and will be subject them to rigorous quality assessment protocols. Analytical techniques such as, Ultraviolet–visible (UV–VIS) spectrophotometry and thin-layer chromatography (TLC) were utilized to identify and quantify key bioactive compounds, ascertain purity, and detect potential contaminants. Furthermore, physicochemical parameters including moisture content, ash values, extractive values, and microbial load will be determined to evaluate the overall quality and safety of the formulations. Compliance with regulatory standards outlined in official pharmacopoeias and guidelines for Herbal Unani medicines was also assessed. The findings of this study will provide valuable insights into the quality control measures essential for ensuring the safety, efficacy, and reproducibility of Herbal Unani formulations. By integrating traditional knowledge with modern analytical approaches, this research will contribute to the development of robust quality assurance protocols vital for promoting the acceptance and utilization of Herbal Unani medicines in contemporary healthcare practices.

Keywords : TLC, Herbal medicine, Unani formulations

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A systematic review of nutraceutical properties of various underutilized edible flowers

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ABSTRACT

The increasing fascination with edible flowers is driven by more than just aesthetic and health-related goals. It also stems from a craving for novel tastes and fresh prospects in culinary creativity. Edible flowers are nontoxic, innocuous flowers with health benefits when consumed in the human diet. These edible flowers can be used as spices, food colorant, additive as well as nutraceuticals. Most of the published researches indicated that popular edible flowers are Rosemary, Bougainvillea, Jasmin and marigold. Rosemary and Jasmine exhibit potent activities against breast, liver, cervical and bladder cancer. Edible flowers possess various phytochemicals to scavenge the free radicals by showing antioxidant properties. However, many of the edible flowers are such as gladiolus, nasturtium, Paracress, also known as tooth ache plant and hemerocallis commonly known as day lily flower; are highly underutilized. Various nutraceutical aspects shown by these beneficial flowers are anti-inflammatory properties, anticancer properties, antidiabetic, anti-Alzheimer's effect, antidepressant, antiseptic, blood purifier, antimicrobial, gastroprotective, geno-protective as well as cardio and hepatoprotective effects. Underutilized edible flowers need to be explored more, in order to tap their potential, and for utilization in various food formulations and commercial applications. This review reveals that more in-depth investigations are needed, to utilize these edible underutilized flowers by exploring the nutraceutical benefits of underutilized edible flowers and their potential health benefits. This review also provides the systematic compilation and interpretation of published data on edible flowers in order to increase their popularization among food industry and consumers.

Keywords: Edible Flowers, Nutraceuticals, Underutilized food sources, Phytochemicals

The Efficacy Of *Maribavir* For Cytomegalovirus (CMV) Infection In Haematopoietic Stem Cell Transplantation Recipients - A Systematic Review

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ABSTRACT

Objectives: To evaluate the efficacy and safety of maribavir in the treatment of cytomegalovirus (CMV) infection in hematopoietic stem cell recipients.

Methodology: A literature search was conducted to identify relevant RCTs assessing the use of maribavir for CMV infection treatment in transplant patients. Five RCTs met the inclusion criteria and were included in the analysis. The studies were analyzed for outcomes related to CMV viremia clearance, incidence of CMV disease, side effects, and comparison with other treatment options.

Results A significant clearance of viremia observed in hematopoietic stem cell recipients. However, results regarding maribavir prophylaxis were inconclusive, and further research is needed to determine its optimal role after CMV transplantation.

Conclusion: *Maribavir* holds promise as an effective treatment for CMV infection in hematopoietic stem cell recipients. However, additional research is required to confirm its effectiveness as a prophylactic treatment.

Keywords: Cytomegalovirus Infection, *Maribavir*, HSCT, CMV, Livtencity

***Centella asiatica*: An Ethnomedicinal Herb with Broad Applications in Ayurveda and Traditional Medicine**

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ABSTRACT

Centella asiatica, thriving in tropical and sub-tropical regions of China, India, South-Eastern Asia, and Africa, stands out as a prominent nutraceutical employed in diverse clinical and cosmetic treatments. Extracts of *C. asiatica* play a significant role in Ayurvedic and Chinese traditional medicine, recognized for their potential to enhance memory, prevent cognitive deficits, and optimize brain functions. The primary bioactive components, namely pentacyclic triterpenoid glycosides, asiaticoside, madecassoside, and their aglycones, asiatic acid and madecassic acid, serve as key markers according to the Chinese Pharmacopoeia. These triterpene compounds offer a spectrum of pharmacological properties, encompassing neuroprotective, cardioprotective, hepatoprotective, wound healing, anti-inflammatory, anti-oxidant, anti-allergic, anti-depressant, anxiolytic, antifibrotic, antibacterial, anti-arthritis, anti-tumour, and immunomodulatory activities. Asiaticoside and madecassoside find extensive use in addressing various health concerns, including skin abnormalities, burn injuries, ischaemia, ulcers, asthma, lupus, psoriasis, and scleroderma. Beyond medicinal applications, these phytochemicals are acknowledged for their cosmetic benefits, contributing to anti-ageing, skin hydration, collagen synthesis, UV protection, and scar healing. This exploration underscores the holistic potential of *Centella asiatica*, emphasizing its versatile contributions to both traditional healing practices and contemporary cosmetic applications.

Keywords: Ayurveda, herbal, phytochemical, *Centella asiatica*, Hepatoprotective

A Network Pharmacology Study of *Rheum emodii* an important Unani Plant to Explore Its Multi-Compound and Multi Target Mode of Action against Uropathogenic *E. coli*

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ABSTRACT

The twenty-first century has seen a number of serious infectious disease outbreaks, some of which have had a significant impact on social, economic, and global health issues. One of the most common infections are urinary tract infections (UTI), which are also among the hardest to treat due to their frequent recurrence. Phytochemicals, which are bioactive compounds found in plants, have demonstrated diverse and promising antimicrobial properties. By combining in silico techniques with experimental validation, researchers can identify novel drug candidates from natural sources and potentially develop more effective and safer pharmaceuticals. The highly valuable medicinal plant *Rheum emodi* Wall., also known as Himalayan rhubarb, is a significant plant that is utilised in numerous formulations in conventional Indian medical practises like Ayurveda and the Unani system to treat various diseases. Network pharmacology of *Rheum emodii* gave six most important compound which were interacting with different bacterial genes like DNA gyrases, biofilm formation gene etc.

Keywords: UTI, Network pharmacology, antimicrobials

Antimicrobial and anti-acne potential of *Kinnow* peel oil: A comprehensive review

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ABSTRACT

Citrus reticulata (*Kinnow Mandarin*) is a widely cultivated citrus fruit known for its refreshing taste and nutritional value. While the juicy flesh of the kinnow is often enjoyed, its peel often considered as by-products in fruit processing, possesses valuable medicinal properties. This review aims to provide a comprehensive overview of the medicinal properties of kinnow peel and their utilization in food, pharmaceutical, and cosmetic sectors. Firstly, the composition and nutritional profile of fruit peels are discussed, highlighting the rich content of bioactive compounds such as phenolics, flavonoids, and dietary fibers, which exhibit potent antioxidant, anti-inflammatory, antimicrobial, and anticancer activities. Next, the methodologies for peel extraction and processing are reviewed, including conventional techniques and emerging technologies like supercritical fluid extraction, microwave assisted extraction and ultrasound assisted extraction. The functional properties of peel-derived extracts, including antioxidant, antimicrobial, and anti-inflammatory activities, are evaluated, emphasizing their potential applications in cosmetic formulations, particularly in skincare products, is explored, focusing on their moisturizing, anti-acne, exfoliating, and anti-aging properties. Finally, challenges and future perspectives for the sustainable utilization of fruit peels are discussed, including strategies for waste reduction, valorization of by-products, and development of novel processing technologies. In Conclusion, this paper throws light on the importance of bioactive compounds of fruit peel as valuable resource for various industries and Further research is warranted to elucidate its full therapeutic potential and develop innovative applications in the fields of medicine and cosmetics.

Keywords: *Citrus reticulata*, bioactive compounds, antimicrobial property, anti-acne property

The current approach of QbD in Medicines and Medical Devices

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ABSTRACT

Quality by Design, or QbD, was recently established and modified specifically in terms to support medicine companies in their efforts to achieve sales and operational superiority. Its roots lie in the broad field of quality management. Today, medical equipment and/or pharmaceuticals are manufactured with the appropriate quality using the Quality by Design method. It's a modern method that makes troubleshooting easier and streamlines the development of products. The goal should be on prevention rather than just fixing quality-related problems. It is not feasible to test quality into things; instead, products must be constructed with quality from beginning to end up. It is possible to think of QbD as a procedure that is specified by a number of document requirements. A comprehensive understanding of the connections between the process and critical quality attributes (CQAs), the therapeutic qualities of the product, and the variability in raw materials is necessary for an effective application of QbD. This approach combines methodological analytical technology (PAT) with QRM concepts. Regulation compliance is a prerequisite for companies in the medical industry to have their products licensed for marketing. Meeting regulatory criteria is the primary reason behind QBD implementation.

Keywords: Quality, Pharmaceuticals, Analytical, Regulatory.

Application of acellular fish skin grafts for wound healing: a systematic review

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ABSTRACT

Acellular fish skin grafts can be used as a regenerative and antimicrobial tool for healing complicated wounds but clinical evidence remains unclear. We conducted a systematic review to investigate the efficacy of fish skin grafts for the treatment of complicated wounds. Electronic databases like PubMed, ScienceDirect, Cochrane, Google Scholar and Clinicaltrials.gov were extensively searched for relevant literature dating from inception to November 2022. The following keywords (variably combined) were included: “acellular fish skin”, “fish skin grafts”, “fish skin”, “wound healing”, “diabetic foot ulcer”, “venous foot ulcer”, and “acute biopsy wounds”. Based on the inclusion and exclusion criterion, 6 studies were selected for data extraction, and were thoroughly studied for the efficacy of fish skin grafts for wound healing. Existing evidence shows that acellular fish skin grafts accelerate wound healing, reduce pain, prevent antibiotic administration and cause no immune reactions. Fish skin grafts showed significantly better effects than standard-of-care therapy, collagen alginate dressing and dehydrated Human amnion/Chorion Membrane. Overall, the evidence obtained in this systematic review indicates that acellular fish skin grafts represent an effective option for the treatment of wounds when compared with conventional alternatives.

Keywords: Acellular fish skin graft; Biopsy wounds; Diabetic foot ulcer; Wound healing; Biomaterials;

Comparative Analysis of Low Dose versus High Dose Iron: Absorption, Safety, and Efficacy Evaluation

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ABSTRACT

Iron deficiency anemia is a prevalent global health issue, particularly affecting vulnerable populations such as young children and pregnant women. While oral iron supplementation is a common treatment, high doses often lead to gastrointestinal side effects and potential toxicity. This study aimed to compare the safety, efficacy, and absorption of low-dose iron versus high-dose iron supplementation using a rat model. Female Wistar rats were divided into control, iron deficiency anemia (IDA), low dose iron (LDI), and high dose iron (HDI) groups. After inducing iron deficiency anemia, rats were treated with either low-dose iron (3 mg) or high-dose iron (10 mg) for four weeks. Various parameters including antioxidant activity, serum hepcidin levels, hematological analysis, liver iron content, fecal calprotectin levels, and histopathology were assessed. Results indicated that low-dose iron supplementation effectively restored iron status without causing excessive iron deposition in tissues or significant gastrointestinal side effects. In contrast, high-dose iron supplementation led to oxidative stress, iron overload, liver damage, intestinal inflammation, and elevated fecal calprotectin levels. Notably, low-dose iron supplementation exhibited superior efficacy in improving blood iron circulation and maintaining iron balance compared to high-dose iron. These findings suggest that low-dose iron supplementation may offer a safer and more effective alternative to high-dose iron therapy for the treatment of iron deficiency anemia. Further research is warranted to determine the optimal dosage of iron supplementation that minimizes side effects while effectively restoring iron status.

Keywords: Iron deficiency anemia, Low-dose iron, High-dose iron, Gastrointestinal side effects, Oxidative stress

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Unveiling Medicinal Plant Extracts Stability during Storage: A Review

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ABSTRACT

Medicinal plant extracts have been used in various traditional medicinal systems around the world for millennia. They possess wide spectrum of bioactive chemicals with therapeutic potential. Nowadays, they are widely employed in pharmaceutical, food and cosmetic industries for medicinal and aromatic properties. However, ensuring the stability of these extracts is paramount to maintain their efficacy and safety for medicinal applications. This review provides an overview of stability studies of various medicinal plant extracts exposed to different environmental conditions, concentrating on the important findings. Comprehensive information was searched systematically from electronic databases, namely, Google scholar, PubMed, Science direct, Scopus, Wiley, and Springer to find relevant data regarding the stability of medicinal plant extracts stored under different conditions. The reported studies encompassed the influence of storage conditions such as temperature, humidity, and light exposure on physical, chemical, and microbiological stability of medicinal plant extracts. Accelerated and long-term stability studies provided insights into shelf-life parameters under different storage conditions. Chemical analysis through analytical techniques such as HPTLC, HPLC, LC-MS, GC-MS etc elucidated changes in the content and composition of bioactive compounds over time, aiding to storage recommendation conditions. The stability investigations emphasise the significance of storage of medicinal plant extracts for framing stringent quality control measures in the production of herbal products. By understanding the factors influencing the stability, manufacturers can optimize storage conditions to ensure the consistent quality and efficacy of medicinal plant extracts, thereby enhancing their therapeutic value and promoting consumer safety.

Keywords: Medicinal plants, Storage, Stability studies, Phytochemicals, Quality control

Cloning & Expression of Recombinant E2 gene of Chikungunya Virus in *E.coli* and *Nicotiana tabacum* Exhibiting Strong Immunogenic Response in BALB/c mice

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ABSTRACT

The world awaits an effective vaccine against the *Chikungunya virus* (CHIKV) for the last 70 years. CHIKV causes a huge number of infections worldwide. Protein vaccines provide active immunity against viruses. The vaccine induces active immunity through the introduction of weakened or killed pathogen proteins. Else, a protein or protein fragment from the pathogen could serve as a source of immunity in the host. In this study, we genetically engineered the *E. coli* and *Nicotiana tabacum* plants with recombinant Chikungunya E2 gene, chemically synthesized, encoding chikungunya envelope protein E2 (rCHIKV-E2), a protein that plays a critical role in the virus-host interaction. Successful cloning of recombinant rCHIKV-E2 gene (+His tag) between BamH1 and HindIII restriction sites in pUC57 vector with ampicillin resistance gene (*E. coli*), expression of recombinant rCHIKV-E2 protein using engineered pET28a(+) vector with kanamycin resistance gene (*E. coli*) and expression of recombinant rCHIKV-E2 protein using vector pCAMBIA1302 with kanamycin resistance genes was successfully achieved. Recombinant protein rCHIKV-E2 was extracted from genetically modified both *E. coli* and *Nicotiana tabacum* plants on Ni-NTA column with the help of His-tag. The rCHIKV-E2 protein from both sources was able to induce active immunity in female BALB/c mice, where IgG antibodies was found. No post-vaccination symptoms, immunization reactions or side effects were visible in immunized mice. Interestingly, the same plasma (antibodies), from BALB/c plasma, gave positive results on ELISA in the commercial CHIKV detection kit for E2. Our results provide a promising lead in the direction of the development of a successful vaccine against the chikungunya vaccine.

Keywords: Chikungunya, recombinant envelope protein E2 , vaccine, *Nicotiana tabacum*

Efficacy of Sulforaphane in Skin Cancer Animal Models – a Systematic Review

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ABSTRACT

Background: Skin cancer is the most common type of cancer worldwide, with melanoma being the most severe. The incidence of cutaneous melanoma is predicted to increase by over 50% by 2040, and preventive measures are crucial. Sulforaphane, which is present in cruciferous vegetables, has been proven to exhibit chemopreventive properties against skin cancer by stimulating the Nrf2 pathway, prompting phase II detoxifying enzymes, and hindering the growth of skin tumors.

Methodology: A systematic search of several databases was conducted, and studies were selected based on inclusion criteria. Data were extracted using a standardized form, and the quality of the studies was assessed using the SYRCLE Risk of Bias tool for animal studies. Studies published in English from 2000 to 2023 were included and a total of 9 studies were included in our review Result: Sulforaphane has a potential protective effect against skin cancer development in animal models. It inhibits skin tumorigenesis induced by various carcinogens, suppresses the formation of skin tumors, inhibits the proliferation and invasion of skin cancer cells, and prevents skin tumorigenesis during the stage of promotion. Sulforaphane also has a chemopreventive effect against UVB-induced skin cancer by inhibiting the AP-1 pathway.

Conclusion: Sulforaphane has the potential as a chemopreventive agent against skin cancer based on animal studies. However, optimal dosage, duration, and delivery method for humans are yet to be determined. Sulforaphane could serve as an alternative or adjunct to current skin cancer prevention strategies if proven effective.

Keywords: Sulforaphane, Skin Cancer, Animal Models

Molecular Docking, Synthesis and Anticancer Evaluation of Pyrazole-based EGFR Tyrosine Kinase inhibitor

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ABSTRACT

Cancer is characterized by uncontrolled cell proliferation that can metastasize and substantially increase mortality worldwide. It remains a global health challenge necessitating innovative treatments. This study presents an in silico evaluation of a novel pyrazole-based compound as a potential EGFR kinase inhibitor for cancer therapy. Pyrazole, a five-membered heterocyclic ring comprising three carbons and two nitrogens, has diverse biological effects and has been extensively developed into pharmaceutical agents. Pyrazole derivatives were designed to target EGFR, critical in cancer progression. Our research focuses on strategic in silico studies including molecular docking and QikProp studies using Schrodinger Maestro 10.1 to predict ADME properties and generate docking scores and ADME drug-likeness parameters. These were used to assess pharmacokinetic profiles and drug-binding energies. The in silico studies show these compounds emerge as a potential template for investigating more active analogues for anticancer activity.

Keywords: Pyrazole, EGFR-TKI, Cancer.

Phytochemical And Chromatographic Analysis Of Cinnamon Bark With Specific Reference To Tlc Analysis

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ABSTRACT

Background: *Cinnamon* bark, derived from various species of the *Cinnamomum* genus family *Lauraceae*. *Cinnamon* bark does contain Cinnamic acid. This compound has antioxidant, anti-inflammatory, antimicrobial properties and several potential health benefits. The resulting extracts were analyzed for total phenolic, flavonoid contents, and chromatographic Analysis.

Aims/Objectives: In the present research work an attempt has been made to develop Phytochemical and chromatographic analysis method of cinnamon bark with specific reference to TLC analysis.

Methods: *Cinnamon* bark samples were collected and subjected to sequential extraction using solvents of varying polarities. The resulting extracts were analyzed for total phenolic, flavonoid contents, and chromatographic analysis. The phytochemical screening revealed the presence of a wide array of bioactive compounds, including cinnamic acid derivatives, flavonoids, and other polyphenols.

Results The Phenolic content and Flavonoid content are found to be 2.10mg/g & 1.20mg/g respectively. TLC analysis found cinnamic acid at Rf value 0.7 at 254nm.

Conclusion: On the basis of obtained result, it can be concluded that the results was found to be significant.

Keywords: Cinnamon bark, cinnamic acid, chromatographic analysis, phenolic content, favonoid content

Exploring the Therapeutic Potential Of *Nigella Sativa* and its Major Component Thymoquinone in Burn Wound Management

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ABSTRACT

Background: Burn injuries represent a significant worldwide public health concern. As per WHO, burns rank as one of the primary factors contributing to the loss of disability-adjusted life-years in low- and middle-income countries. In this context, the use of herbal medicinal plants such as *Nigella sativa* holds potential as a viable solution to address this issue. *Nigella sativa*, belonging to the Ranunculaceae family, is a globally recognised medicinal plant with extensive usage in traditional systems like Ayurveda, Unani, and Siddha. Both its seeds and oil have a rich history of traditional medicinal applications.

Aim: This review aimed to evaluate the potential of *Nigella sativa* extract and its major component, Thymoquinone, for the acceleration of burn wound healing. It focused on finding the mechanisms of action, safety profile, and efficacy of *Nigella sativa* extract and Thymoquinone in the context of burn injury management.

Methodology: Relevant studies were searched using online databases PubMed, Google Scholar and ScienceDirect by using keywords “*Nigella sativa*”, “Thymoquinone”, “burns”, “wound healing”, “pharmacological activity”. The reports were then examined to assess the suitability of *Nigella sativa* extract and Thymoquinone for burn wound healing. We examined their mechanisms of action, safety considerations, and evidence of efficacy. The scientific name was confirmed with www.worldfloraonline.org.

Results Recent research has revealed that *Nigella sativa* extract and Thymoquinone have the potential to accelerate the healing of burn wounds both in vitro and in vivo. Thymoquinone, in particular, has been demonstrated to mitigate oxidative stress and inflammation in murine burn models. These findings suggest that *Nigella sativa*-based formulations may be promising candidates for the treatment and management of burn injuries.

Conclusion: Formulations based on *Nigella sativa* extract and thymoquinone hold great potential in treating and managing burn injuries and can be extrapolated into clinical settings.

Keywords: *Nigella sativa*, Burns, Burn injury, Wound healing, Thymoquinone

Evaluation of the Neuroprotective Potential of *Khamira-e-Gaozaban* Through Network Pharmacology

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ABSTRACT

Background: *Khamira-e-Gaozaban* (KGS), a Unani polyherbal formulation, made in Qiwan is consumed for its Neuroprotective activity. However, the pharmacological mechanism of KGS, remains unknown. In this study, we have applied a network pharmacology-based approach to explore its potential mechanism of action.

Objectives: To develop and standardize sugar-free *Khamira-e-Gaozaban* (sf-KGS); To evaluate the possible pharmacological mechanisms linked to its neuroprotective properties via use of network pharmacology and computational chemistry.

Methods: Individually extracted herbs using maceration and soxhlation were blended to produce sf-KGS; its pharmacognostic evaluation including antioxidants assays was performed; standardized by HPLC. Network pharmacology was applied to build a phytoconstituents-disease-target gene network – PPI, clustering, hub gene identification using Cytoscape. Gene targets for phytoconstituents and the disease were retrieved from online databases like DisGenet and SwissTarget. Common target genes obtained by plotting Venn diagram using Venny 2.0 followed by formation of network using STRING database. Molecular docking and dynamic simulation of compounds with best docking scores, binding energies, interactions and ADMET properties were analysed using Schrodinger Maestro.

Results: sf-KGS was prepared and standardized. The formulation displayed good DPPH and PFRAP findings, with antioxidant activity equivalent to gallic acid at 1.4mg/ml dose. TPC was calculated as 38mg GAE/g. AKT1 and GAPDH were identified as most significant target genes between phytoconstituents and neurological disorders. A multi-target (AKT1, GAPDH, ALB, TNF, MAPK3) and multi-pathway (TNF-signalling, ACE-RAGE, IL-17 pathways) network was established. Two phytoconstituents displayed good docking scores (up to -8.7) against AKT1, forming stable interactions at active site with RMSD and RMSF values within the range.

Conclusion: *Khamira-e-Gaozaban* contains herbs that could help in prevention and treatment of neurological disorders.

Keywords: *Khamira-e-Gaozaban* Sada, Network Pharmacology, Neuroprotective activity, Molecular Dynamics, Cytoscape

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Cannabis as a potential compound against various malignancies, legal aspects, advancement by exploiting nanotechnology and clinical trials

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ABSTRACT

Various preclinical and clinical studies exhibited the potential of cannabis against various diseases, including cancer and related pain. Subsequently, many efforts have been made to establish and develop cannabis-related products and make them available as prescription products. Moreover, FDA has already approved some cannabis-related products, and more advancement in this aspect is still going on. However, the approved product of cannabis is in oral dosage form, which exerts various limitations to achieve maximum therapeutic effects. A considerable translation is on a hike to improve bioavailability, and ultimately, the therapeutic efficacy of cannabis by the employment of nanotechnology. Besides the well-known psychotropic effects of cannabis upon the use at high doses, literature has also shown the importance of cannabis and its constituents in minimising the lethality of cancer in the preclinical models. This review discusses the history of cannabis, its legal aspect, safety profile, the mechanism by which cannabis combats with cancer, and the advancement of clinical therapy by exploiting nanotechnology. A brief discussion related to the role of cannabinoid in various cancers has also been incorporated. Lastly, the information regarding completed and ongoing trials have also been elaborated.

Keywords: Cannabis, anti-cancer agent, endocannabinoid systems, clinical trials, drug delivery, nanotechnology

Salt Stress Responses in *Ashwagandha* : A Comprehensive Analysis of Seed Germination and Biochemical Profiling

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ABSTRACT

This study delves into the intricate relationship between Ashwagandha and salt stress, examining germination and biochemical profiling. Seeds were subjected to a range of salt concentrations (0 mM, 50 mM, 100 mM, 150 mM, 200 mM, 250 mM, and 300 mM) to elucidate the plant's adaptability. Our results demonstrate the interplay between salt concentrations and germination outcomes. We observed resilience in germination rates at lower stress levels (0 mM), while higher concentrations (300 mM) significantly affected seedling establishment. The biochemical analysis unveiled a cascade of responses, including alterations in antioxidant enzyme activities and other critical biochemical markers. These findings collectively contribute to our understanding of Ashwagandha's ability to navigate salt stress scenarios. The implications of this research extend beyond mere stress responses, offering valuable insights into agricultural practices.

Keywords: Ashwagandha, biochemical, seed germination salt stress, tolerance

Identification and Evaluation of Indian Medicinal Plants against Uropathogenic Bacteria

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ABSTRACT

Urinary tract infections (UTIs) are highly prevalent, largely caused by uropathogenic microorganisms like Escherichia coli, leading to escalating antibiotic resistance. This study aims to evaluate Indian medicinal plants for their antibacterial potential against UTI-causing bacteria. A diverse selection of plants was chosen based on traditional knowledge and therapeutic use. Bioactive compounds were extracted and analysed for antimicrobial properties, targeting antibiotic-resistant uropathogens. Initial findings indicate promising antibacterial activity in plant extracts, with phytochemical analyses identifying active compounds. Safety assessments ensure suitability for human use. Molecular docking studies elucidate interactions with bacterial targets. Furthermore, combining plant extracts with antibiotics, especially against multi-drug resistant strains, is explored for synergistic effects. This innovative strategy seeks to strengthen antibiotic efficacy and combat bacterial resistance, offering potential solutions to the global antibiotic resistance crisis.

Keywords: Urinary Tract Infections (UTIs), Antibiotic resistance, Indian medicinal plants, Antibacterial activity, Antibiotics.

Revolution in Wound Care: Dissolvable Nanodressing of Isoquinoline Quaternary Alkaloid for Chronic Wounds

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ABSTRACT

Background: Chronic wounds (CWs) present as persistent challenge for healthcare professionals because of aging population and rising rates of obesity, diabetes, and vascular disease. CWs impair the skin's functional and structural integrity, affecting millions of people and thus posing immense economic and social challenges to healthcare systems globally, necessitating novel therapeutic strategies. Approx one-third of all conventional medicines are used in the treatment of skin diseases including wounds care. Isoquinoline Alkaloid exhibits many biological effects, including anti-viral, anti-microbial, antioxidant, anti-inflammatory and wound healing properties. These properties are helpful in accelerating healing process.

Aims/ objective: This research aims to formulate and evaluate a nano-dressing with Berberine (BBR) and clove oil for chronic wounds. The research involves a sequential formulation strategy, beginning with the development of a stable nanoemulsion encapsulating both BBR and clove oil. In parallel, the nanoemulsion is loaded into dissolving microneedles to facilitate targeted and minimally invasive delivery directly to the wound site

Methods: The evaluations include insilico analysis, in-vitro studies, drug release kinetics, ex-vivo study and antioxidant potential.

Results & Conclusion: This study aims to provide innovative perspectives on the management of chronic wounds through the integration of pharmaceutical formulation, novel drug delivery systems, and comprehensive evaluations. The integration of BBR and clove oil takes advantage on their synergistic therapeutic potential. The findings of this study not only offer potential for the advancement of improved wound treatments but also highlight the significance of tailored approaches in addressing the complex difficulties presented by chronic wounds.

Keywords: berberine, wound healing, nano dressing, Microneedle, natural product

Inhibition of Dipeptidyl Peptidase 8/9 in a VCD-Induced Bone Loss Model in Rats

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ABSTRACT

Objective: The immune mediators (chemokine, cytokine, macrophage) influence metabolism and create an imbalance in bone remodeling leading to inflammation-induced osteoporosis. The purpose of this study was to explore the role of dipeptidyl peptidase-8/9 (DPP-8/9) in inflammatory osteoporosis by inhibiting its effect with a flavonoid chrysin, in rats.

Methods: The 4-vinylcyclohexene diepoxide (VCD) induced osteoporosis rat model was used to evaluate the inflammatory mediators and DPP-8/9 levels. The expression of DPP-8/9 and inflammatory cytokines was detected by the ELISA method. The impact of inflammatory mediators on bones was measured by bone resorption and absorption parameters. Histopathological and immunohistopathological staining methods were used to assess the changes in DPP-8/9 in trabecular bone. Finally, micro-computed tomography was used method for the visualization, measurement, and quantification of bone structure.

Results This study revealed the possible role of DPP-8/9 in inflammatory osteolysis in rodents. The elevated DPP-8/9 significantly correlated with the increased levels of bone resorption in rats. Chrysin significantly inhibited the elevated DPP-8/9 levels as compared to the no-treatment group. The significant suppression of the bone resorption parameters and decreased inflammatory cytokines confirmed a reduction in osteoclastogenesis.

Conclusion: DPP-8/9 was shown to be a potential therapeutic target for the treatment of immunoporosis. The inhibition of DPP-8/9 with chrysin significantly decreased the inflammatory markers and led to an improvement in bone resorption. However, future investigations are required for a better understanding of the complex interplay between DPP-8/9 and macrophages in osteoclastogenesis.

Keywords: Osteoporosis, Chrysin, Inflammation, Dipeptidyl Peptidase-8, Dipeptidyl Peptidase-9

Application of In Silico Approaches to Study the Renoprotective Action of Active Ingredients of *Punica grantum* (pomegranate)

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Objective: To study the renoprotective action of active ingredients of *Punica grantum* (PG) using network pharmacology (NP) and molecular docking approaches

Methodology: Active ingredients of *Punica grantum* (PG) was procured from IMPPAT database and their corresponding targets (genes) were acquired from the STITCH online platform. The gene symbols of renoprotective-related targets were procured from the GeneCards (Version 5.0) online database which were then intersected with list of PG target genes to develop PG- renoprotective common targets. Cytoscape software (version 3.10.0) was used to construct an active ingredient-renoprotective target network. The PG-renoprotective common targets were imported into the STRING platform (version 12.0) for human to obtain the protein–protein interaction (PPI) from which key targets were confirmed and their corresponding active ingredients from NP to perform molecular docking using SWISSDOCK. Gene Ontology (GO) enrichment analysis was performed using Metascape platform.

Results and Conclusions: GO threw light on role of PG in multiple cellular processes related to reno-protection. Furthermore, molecular docking simulations observed strong binding interactions between PG compounds and key renoprotective-related proteins, hence providing new scientific insights supporting pomegranate as a food with immense therapeutic potential.

Keywords: In silico, renoprotective, network pharmacology, docking

Network pharmacology-based strategy to investigate the potential therapeutic targets of *Brivaracetam* for the treatment of Alzheimer's disease

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ABSTRACT

Background: Recent studies suggest that anti-seizure drugs are effective in improving cognition in patients with mild cognitive impairment. Brivaracetam, an antiseizure drug, acts by binding to the synaptic vesicle protein 2A (SV2A). The dysfunction of SV2A is involved in the pathogenesis of AD, thus, it is anticipated that brivaracetam might exhibit positive cognitive effects in AD.

Aim: This study aims to investigate the potential therapeutic targets of *Brivaracetam* for the treatment of Alzheimer's disease using network pharmacology.

Material and Methods: Targets of *brivaracetam* were identified from Swiss Target Prediction database, while AD related targets were obtained from GeneCards, DisGeNET and Therapeutic Target Database. Online Venn analysis software was used to screen common targets of genes related to brivaracetam and AD. The STRING library was utilized for gathering protein-protein interaction data and imported into Cytoscape (version 3.9.1) to analyze the interactions. The molecular docking of top-hub genes was performed using AutoDock Tools Version 1.5.7.

Results 16372 and 100 potential targets were obtained respectively for AD and Brivaracetam. 84 intersecting targets were identified by Venn analysis to map the brivaracetam targets with AD. Topological assessment resulted in selection of following 18 hub-genes for brivaracetam: XIAP, SRC, SIRT1, PIK3CA, PARP1, MMP9, MMP2, MAPK14, HDAC1, GSK3B, DRD2, CYP2C19, CYP19A1, CTSL, CTSB, CDK2, BACE1, ACE. Molecular docking analysis showed that SIRT1 has most favourable interaction followed by BACE1 and GSK3B.

Conclusion: The study provides a basis for the use of brivaracetam, an anti-seizure drug, against AD which would further be validated using in vivo studies.

Keywords: Network pharmacology, Alzheimer's disease, Brivaracetam, anti-seizure, molecular docking

Exploring the relationship between Alzheimer's Disease and Gut Microbiota

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ABSTRACT

Background: Alzheimer's Disease (AD) is a progressive, multifactorial and chronic neurodegenerative disease, characterized by impaired intellectual function, dementia and altered behavior. The human gut harbors at least 1000 species of bacteria, which perform protective and metabolic functions. The recent novelty in the field of neurodegenerative disorders is to slow down the disease progression with probiotics and prebiotics, which are acting outside the central nervous system through gut microbiota.

Objective: This study aims to explore and understand the relationship between gut microbiota and Alzheimer's Disease and to explore the use of traditional medicines in its treatment.

Methods: Several databases such as ScienceDirect, PubMed, Google Scholar, Scopus etc. were consulted. Keywords such as "Alzheimer's disease", "Gut Microbiota" and "Herbal Medicine" were used in the process. The data was then collected accordingly.

Result: Herbal medicine can alleviate the progression of diseases by regulating gut microbiota. Therefore, deep understanding of different mechanisms of herbal medicine that regulate gut microbiota in the treatment of AD will give a new therapeutic strategy for its treatment. This review shed a light on potential neuroprotective effects of herbal medicine. It also highlights the opportunities and challenges for future research on integration of herbal medicine gut microbiota and AD. As the global population ages, access to this information is becoming increasingly important for developing effective treatments for these diseases.

Conclusion: In Conclusion, the relationships between herbal medicine, gut microbiota, and AD hold untapped potential for innovative strategies of treatment.

Keywords: Gut microbiota, Herbal medicine, Alzheimer disease.

Promoting herbal medicines for treatment of Chronic Kidney Disease

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ABSTRACT

Background: Chronic Kidney Disease (CKD) has emerged as a pervasive global health concern, affecting millions of individuals and posing substantial challenges to healthcare systems worldwide. Characterized by the gradual loss of kidney function over time, CKD encompasses a spectrum of stages, each representing varying degrees of renal impairment.

Aim: The aim of this study is to compile all the plant-based drugs for the management of different CKD.

Methodology: A systemic search has been carried out through different search engines by using different keywords.

Results Three mechanistic processes that are well-documented in CKD pathogenesis are inflammation, fibrosis, and oxidative stress. Many plants and their extracts are already known to ameliorate kidney dysfunction through antioxidant action, with subsequent benefits on inflammation and fibrosis. A comprehensive search was carried out to find out potential herbal drugs, which are acting through these three mechanism and would be helpful in the management of CKD.

Conclusion: The concurrent application of plant extracts with the conventional therapies are quite useful to mitigate CKD and show Renoprotective activity as well.

Keywords: Herbal medicines, Chronic Kidney Disease, Renoprotection, Inflammation, Fibrosis, Antioxidant.

Use of herbal drugs acting on TGF- β pathway

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ABSTRACT

Background: The chronic kidney disease (CKD) is a significant concern for public health particularly for the patient with hypertension and diabetes. Because it is the risk factor for cardiovascular disease, kidney failure and other complications. It is one of the major cause of the mortality around the globe with prevalence rate of 8-10% and it's been observed from the data of past decades that is been on the rise of incidence.

Aim/Objective: The objective of writing this review is to search alternative therapeutic strategies from plants acting on TGF- β pathway.

Methodology: Different search engines were used to compile the data by using related keywords like Chronic kidney disease, herbal medicines, TGF- β pathway, fibrosis, etc.

Results There are few common pathways of the chronic kidney disease which are being observed in the Kidney biopsy samples that can show definitive evidence for CKD. The common changes include glomerular sclerosis, tubular atrophy, interstitial fibrosis, etc. Targeting fibrosis is one of the major pathways to tackle the chronic kidney disease through herbal drugs. Transforming growth factor- β (TGF- β) is the main targeted factor that drives fibrosis in most CKD cases, overexpression of this factor lead to the renal fibrosis. This review highlights the plant drugs targeting TGF- β to reduce the production of the extracellular matrix against renal fibrosis and further CKD.

Conclusion: Potential candidates could be searched for further experimental studies to find out the better therapeutic agent for CKD.

Keywords: Herbal drugs, Transforming growth factor- β , Chronic Kidney Disease, Fibrosis.

Exploring The Potential Of Pomegranate Peel Extract As An Anti- Tussive And Mucolytic Agent

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Background: Cough is one of the most cases of referral to medicinal centres. Cough is a protective mechanism for the airway and clears the airway of excess secretions and foreign particles. The acute cough usually lasts less than 3 weeks and can be caused by viral infections. Nowadays, Herbal medicines are very popular because people believe these drugs have natural origin with fewer side effects compared to complementary drugs. Punica granatum has been traditionally recommended for coughs. Pomegranate peel extract could inhibit myeloperoxidase enzyme to reduce lungs inflammation.

Aim And Objective: The objective of review was to highlight the herbs documented in both traditional and scientific literature as potential treatment for this condition; while avoiding the detrimental effects of synthetic drugs.

Methods: Data on pomegranate peel extract were collected and compiled from Scientific Databases like Google Scholar, Pub Med.

Result: Results from various sources demonstrated promising result. It was proved that Pomegranate peel extract exhibited anti- tussive and mucolytic properties.

Conclusion: In Conclusion, our investigation into the properties of pomegranate peel has revealed promising evidence of its effectiveness as both an antitussive and mucolytic agent. Furthermore, the observed effects support the traditional use of pomegranate peel in various cultures for respiratory ailments.

Keywords: anti tussive, pomegranate peel, respiratory ailments

Potential Role of Phytoconstituents in the Management of Hyperlipidemia

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ABSTRACT

Background: Hyperlipidemia, a disorder of lipid metabolism, increases plasma concentrations of lipid fractions (LDL, VLDL, triglyceride, HDL, and total cholesterol), represents pivotal cardiovascular risk factor and is currently the leading cause of mortality. Phytoconstituents, sourced from plants, exhibit diverse bioactive properties, showing potential in modulating lipid metabolism. Complementary and Alternative Medicine (CAM), utilizing phytochemicals and natural products, reveals a reduced incidence of treatment-related toxic effects.

Aim: Despite notable advancements in allopathic medicines, their associated adverse effects and cost inefficiencies prompt a search for alternative, less toxic, and cost-efficient medicinal plants for hyperlipidemia treatment.

Methods: A systematic literature search across PubMed, Science Direct, and the National Library of Medicines utilized variations of "hyperlipidemia," "phytoconstituents," "herbal drugs," and related keywords to comprehensively explore relevant studies.

Results Various phytoconstituents, including polyphenols, flavonoids, saponins, and terpenoids, exhibit lipid-lowering effects through mechanisms like cholesterol synthesis inhibition, modulation of lipid metabolism enzymes, enhanced cholesterol excretion, and oxidative stress mitigation. Extracts from garlic, green tea, turmeric, and fenugreek demonstrate efficacy in reducing total cholesterol, LDL-C, and triglycerides, while increasing HDL-C.

Conclusion: The results of systematic review revealed that phytoconstituents offer a promising and well-tolerated approach to hyperlipidemia management, complementing conventional treatments. Integrating them into dietary and therapeutic interventions may significantly contribute to preventing cardiovascular diseases.

Keywords: Phytoconstituents, hyperlipidemia, complementary alternative medicine.

Emerging role of Phytoconstituents in treating Dyslipidemia

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ABSTRACT

Background: A lipid metabolism disorder called dyslipidemia is marked by increased levels of TC, TG, LDL-C, and/or decreased HDL-C. Obesity, hypercholesterolemia, and diabetes are all associated with dyslipidemia and they have become one of the major common causes of death in recent years. Growing consumer awareness of the connection between nutrition and health has directed attention toward plant-based treatments for metabolic syndromes.

Aim: The purpose of this review is to investigate potential phytoconstituent that have lower toxicity as possible substitutes for treating dyslipidemia, mitigating side effects and resistance related to traditional therapies, such as medication and lifestyle modifications, is the aim.

Methods: Using terms like "dyslipidemia," "herbal extracts," "metabolic disorders," and pertinent synonyms, a comprehensive search of electronic databases was carried out, including ScienceDirect, PubMed, and Google Scholar.

Findings: The systematic result analysis have shown the significant potential of phytoconstituent to treat dyslipidemia and may represent a new class of anti-hyperlipidemic medications. To understand their mechanisms and pinpoint the active ingredients, however, more thorough chemical and pharmacological research is required. Examples of these include berberine, red yeast rice, oats, fermented black soybeans, garlic, vine tea, evodiamine, and *Cyamopsis tetragonoloba*.

Conclusions: Owing of their natural origins, lower side effects, holistic approach, cultural acceptance, and sustainability, plant-derived remedies have advantages over traditional medicines.

Keywords: Dyslipidemia, metabolic disorders, herbal extract

Development of Quality Standards of Arjuna Based Polyherbal Formulation

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ABSTRACT

Background: Herbal medicine is not only easily accessible at low prices for primary health care, but also can serve as valuable reservoir for pharmacological drug development. *Terminalia Arjuna* (*T. Arjuna*) is a deciduous, large-fluted tree that can reach up to 30 meters in height and 2-2.5 meters in diameter. The bark of *T. arjuna* possesses properties such as being anti-dysenteric, antipyretic, astringent, cardio tonic, lithotripter, anticoagulant, hypolipidemic, antimicrobial, and antiuremic. Various phytoconstituents, including triterpenoids, tannins, and flavonoids, have been isolated from *T. Arjuna*, contributing to its therapeutic properties.

Aims/Objectives: Development of quality standards and evaluation of Arjuna tablets.

Methods: Standard methods of quality control of herbal drugs were performed according to World Health Organisation (WHO) and pharmacopoeial guidelines. Phytochemical screening quantitative estimation of total phenolic and total flavonoid contents and evaluation parameter such as Hardness, Friability, Dissolution and Disintegration of the formulation were carried out according to pharmacopoeial guidelines.

Results Various Quality control tests were performed including hardness, friability, disintegration, dissolution tests for evaluation of the formulation. Development of quality standards such as ash value, TLC, phytochemical screening, total phenolic and flavonoid contents were successfully performed and the results are summarised in the table and group.

Conclusion: On the basis of findings obtained in this study it can be concluded that the data generated in this study will be used in academia and industries for evaluation of quality and safety of the formulation.

Keywords: *Terminalia arjuna*, Quality control tests, Evaluation parameters, quality standards

Industrial Utility of Plant Derived Secondary Metabolites

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ABSTRACT

Background: Plants hold various defense mechanisms to defend themselves against several threats by producing secondary metabolites, including terpenoids, phenolic compounds, alkaloids and many more compounds. These bioactive compounds serve diverse ecological as well as physiological roles like antimicrobial defense and deterring herbivorous, these properties can be utilized for industry purposes.

Aim and Objectives: Basically the main aim is to examine their production in both well known plants like *Artemisia* and *Coffea arabica* L. and also, discovery of new techniques to elevate the production of plant secondary metabolites in cell cultures by inducing cell wall modifications. Which is beneficial for utilization in industries.

Methods: Literature survey was conducted from PubMed, Google, research papers and reputed journals.

Results Development of various strategies to increase secondary metabolite production in cell cultures through cell wall modifications and micronutrient alteration are proposed.

Conclusion: Plant derived secondary metabolites play an important role in industry includes pharmaceuticals, cosmetics, nutrition, fragrance production. Understanding their production mechanism can enhance their industrial utility.

Keywords: Secondary Metabolites, Industrial applications, Cell culture, Terpenoids

Development and Assessment of Cookies Enriched with Dietary Fiber Derived from Indian Medicinal Plants Targeting Gastrointestinal Disorders

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ABSTRACT

Background: *Psyllium* husk, or isabgol, is well known for having a high soluble fiber content and for its therapeutic effects in relieving constipation. However, there can be issues with palatability and convenience with traditional methods of consuming isabgol. In order to address these issues, this study investigates the incorporation of *Isabgol* into cookies, offering a more convenient and palatable substitute for those who are interested in Isabgol's gastrointestinal benefits.

Methodology: *Isabgol* cookies were formulated using fifteen different optimization methods. Sensory qualities of the formulations were systematically examined. To be further evaluated, the final optimized formulation containing 1.7% Isabgol was chosen from the 15th iteration. The nutritional composition, sensory evaluation, physical analysis, color measurement, texture profile analysis of Isabgol cookies were determined.

Results The *Isabgol* cookies consistently displayed stability across essential parameters. They maintained an appropriate moisture content, ash content, protein content, fat content, and fiber content. The color analysis revealed specific values for lightness (L*), redness (a*), and yellowness (b*). Notably, the cookies exhibited a considerable level of hardness, measured by a hardness value, and a notable fracturability. These findings collectively indicate a well-balanced composition and texture of the *Isabgol* cookies.

Conclusion: Physiochemical variations did not compromise sensory characteristics or acceptance, affirming the potential of Isabgol cookies as a practical and favored solution for addressing constipation-related concerns.

Keywords: *Psyllium* husk, dietary fibre, constipation, Gastrointestinal disorder

Exploring The Potential Of Pomegranate Peel Extract As An Anti- Tussive And Mucoytic Agent

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ABSTRACT

Background: Cough is one of the most cases of referral to medicinal centres. Cough is a protective mechanism for the airway and clears the airway of excess secretions and foreign particles. The acute cough usually lasts less than 3 weeks and can be caused by viral infections. Nowadays, Herbal medicines are very popular because people believe these drugs have natural origin with fewer side effects compared to complementary drugs. *Punica granatum* has been traditionally recommended for coughs. Pomegranate peel extract could inhibit myeloperoxidase enzyme to reduce lungs inflammation.

Aim and Objective: The objective of review was to highlight the herbs documented in both traditional and scientific literature as potential treatment for this condition; while avoiding the detrimental effects of synthetic drugs.

Methods: Data on pomegranate peel extract were collected and compiled from Scientific Databases like Google Scholar, Pub Med.

Result: Results from various sources demonstrated promising result. It was proved that Pomegranate peel extract exhibited anti- tussive and mucolytic properties.

Conclusion: In Conclusion, our investigation into the properties of pomegranate peel has revealed promising evidence of its effectiveness as both an antitussive and mucolytic agent. Furthermore, the observed effects support the traditional use of pomegranate peel in various cultures for respiratory ailments.

Keywords: Anti tussive, pomegranate peel, respiratory ailments

Role of Flavonoids For Improving Biopharmaceutical Attributes Of Drugs Using Cocrystallization Approach

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ABSTRACT

Flavonoids are considered as an indispensable component in a variety of nutraceutical, pharmaceutical, medicinal and cosmetic applications due to their anti-oxidative, anti-inflammatory, anti-mutagenic and anti-carcinogenic properties. Crystal Engineering is the design and synthesis of molecular solid-state structures with desired properties based on intermolecular interactions. Flavonoids used as pharmaceutically acceptable cofomers with an active pharmaceutical ingredient (API) to systematically tune the physicochemical properties of a drug (i.e., solubility, permeability, hydration, colour, compaction, tableting, bioavailability) without changing its molecular structure is the hallmark of the pharmaceutical cocrystals platform, as a bridge between drug discovery and pharmaceutical development. For instance, the Quercetin–Isonicotinamide cocrystal have been found to possess increased solubility ($\times 5$); increased bioavailability ($\times 6$) and reaches systemic circulation faster as compared to the individual components.

Keywords: Flavonoids, cocrystal, solubility

Potential Role of Phytoconstituents in the Management of Hyperlipidemia

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ABSTRACT

Background: Hyperlipidemia, a disorder of lipid metabolism, increases plasma concentrations of lipid fractions (LDL, VLDL, triglyceride, HDL, and total cholesterol), represents pivotal cardiovascular risk factor and is currently the leading cause of mortality. Phytoconstituents, sourced from plants, exhibit diverse bioactive properties, showing potential in modulating lipid metabolism. Complementary and Alternative Medicine (CAM), utilizing phytochemicals and natural products, reveals a reduced incidence of treatment-related toxic effects.

Aim: Despite notable advancements in allopathic medicines, their associated adverse effects and cost inefficiencies prompt a search for alternative, less toxic, and cost-efficient medicinal plants for hyperlipidemia treatment.

Methods: A systematic literature search across PubMed, Science Direct, and the National Library of Medicines utilized variations of "hyperlipidemia," "phytoconstituents," "herbal drugs," and related keywords to comprehensively explore relevant studies.

Results Various phytoconstituents, including polyphenols, flavonoids, saponins, and terpenoids, exhibit lipid-lowering effects through mechanisms like cholesterol synthesis inhibition, modulation of lipid metabolism enzymes, enhanced cholesterol excretion, and oxidative stress mitigation. Extracts from garlic, green tea, turmeric, and fenugreek demonstrate efficacy in reducing total cholesterol, LDL-C, and triglycerides, while increasing HDL-C.

Conclusion: The results of systematic review revealed that phytoconstituents offer a promising and well-tolerated approach to hyperlipidemia management, complementing conventional treatments. Integrating them into dietary and therapeutic interventions may significantly contribute to preventing cardiovascular diseases.

Keywords: Phytoconstituents, hyperlipidemia, complementary alternative medicine.

Industrial Utility of Plant Derived Secondary Metabolites

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ABSTRACT

Background: Plants holds various defense mechanisms to defend themselves against several threats by producing secondary metabolites, including terpenoids, phenolic compounds, alkaloids and many more compounds. These bioactive compounds serve diverse ecological as well as physiological roles like antimicrobial defense and deterring herbivorous, these property can be utilized for industry purposes.

Aim and Objectives: Basically the main is to examine their production in both well known plants like Artemisia and Coffea arabica L. and also, discovery of new techniques to elevate the production of plant secondary metabolites in cell cultures by inducing cell wall modifications. Which is beneficial for utilize in industries. Methods: Literature survey was conducted from PubMed, google, research papers and reputed journals.

Results: Development of various strategies to increase secondary metabolite production in cell cultures through cell wall modifications and micronutrient alteration are proposed.

Conclusion: Plant derived secondary metabolites play important a role in industry includes pharmaceuticals cosmetics, nutrition, fragrance production. Understanding their production mechanism can enhance their industrial utility.

Keywords: Secondary Metabolites, Industrial applications, Cell culture, Terpenoids

The Natural Treasure: Exploring Herbs For Skin Ageing

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ABSTRACT

Background: The process of aging begins even before we are born, according to an international team of researchers. Patients not only wish to look younger but also want fewer scars.

Aims and Objectives: Due to the presence of hydroxyl group in phenols which acts as electron donator thus exhibit efficient antioxidant activity. There is sufficient evidence to suggest that ageing is a result of free radical damage caused by various endogenous factors.

Methods: Literature survey was conducted from PubMed, google, research papers and reputed journals.

Result: The antioxidant activity of coffee plant fruit extract (*Coffea arabica*) is mediated by potent antioxidant polyphenols especially quinic acid and ferulic acid. The Isoflavone extract from Soybean cake is a good candidate for an anti-photo-ageing agent in skin care. The ethanol extract of Liquorice (*Glycyrrhiza glabra* L) showed powerful antioxidant activity by means of hydrogen-donating and metal ion chelating. *Cinnamon* extract significantly promotes type I collagen biosynthesis within dermal fibroblasts. Cinnamaldehyde is the major active component in the *Cinnamon* extract that induces type I collagen biosynthesis. *Amla* extract (*Emblica officinalis*) elevates the mitochondrial activity of human skin fibroblasts and promotes production of procollagen.

Conclusion: Over the plant extracts are often considered safe, because of the simple fact that they come from nature.

Keywords: Antiageing; Antioxidant; Polyphenols

Optimization of Composite Scaffolds for the Enhancement of Antimicrobial properties

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ABSTRACT

Background: Bone tissue engineering aims to develop effective strategies for repairing or replacing damaged bone tissue. Composite scaffolds offer a promising approach, integrating various materials to enhance mechanical strength, biocompatibility, and antimicrobial properties. Silver nanoparticles (AgNPs) and nano-hydroxyapatite (nHA) have shown potential for imparting antimicrobial activity and promoting bone regeneration, respectively. However, optimizing the composition and properties of composite scaffolds remains a critical challenge.

Objective: This study aims to develop and optimize composite scaffolds containing polycaprolactone (PCL), AgNPs, and nHA for bone tissue engineering. Specifically, we seek to determine optimal concentrations of AgNPs and nHA, assess scaffold characteristics using advanced characterization techniques, evaluate antimicrobial efficacy against and investigate the biodegradability of the composite scaffold.

Results Optimal concentrations of AgNPs (20 mg/ml) and nHA (up to 1%) were determined through minimum inhibitory concentration assays and scaffold quality assessments. Advanced characterization techniques revealed the structural and chemical properties of the modified composite scaffold. Antimicrobial activity increased with higher nHA concentrations, as evidenced by time kill assays, SEM analysis of bacterial morphology, and confocal microscopy live-dead assays.

Conclusion: Increasing nHA concentration in the composite scaffold enhances its bactericidal properties, suggesting a potential strategy for combating infections in bone tissue engineering applications. The optimized composite scaffold exhibits promising characteristics for promoting bone regeneration while mitigating microbial colonization, highlighting its potential for clinical translation in the field of bone tissue engineering.

Keywords: PCL, PCL composites, Optimization, SEM, antibacterial assay,

Clinical Evaluation and Pharmacovigilance Studies of Traditional Medicines

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ABSTRACT

Traditional medicine, deeply rooted in historical practices and cultural wisdom, remains a vital aspect of global healthcare systems. The increasing interest in traditional medicine prompts a critical need for rigorous scientific evaluation to guarantee its safety, efficacy, and quality. This comprehensive review examines the contemporary landscape of clinical evaluation and pharmacovigilance studies in traditional medicine. Clinical evaluation aims at scrutinizing the therapeutic effects and safety profiles of traditional remedies through controlled trials and observational studies. The diverse nature of traditional healing practices poses challenges, including intervention standardization, outcome measure selection, and harmonizing traditional and modern healthcare approaches. Overcoming these challenges is paramount for establishing evidence-based guidelines for integrating traditional medicine into mainstream healthcare systems. Pharmacovigilance plays a pivotal role in monitoring the post-marketing safety of traditional medicines. Adverse events linked to traditional remedies may arise from factors such as contamination, adulteration, or interactions with conventional medications. Pharmacovigilance systems serve to identify and mitigate potential risks, ensuring the ongoing safe utilization of traditional medicine. Key considerations in pharmacovigilance studies involve establishing robust reporting mechanisms, conducting comprehensive risk-benefit assessments, and fostering collaboration among traditional healers, healthcare providers, and regulatory authorities. The integration of traditional medicine into national pharmacovigilance frameworks is indispensable for comprehensive surveillance and regulatory oversight. In Conclusion, clinical evaluation and pharmacovigilance studies are indispensable for the evidence-based integration of traditional medicine into modern healthcare systems. Continuous research endeavors, collaborative initiatives, and regulatory support are imperative for maximizing the benefits and minimizing the risks associated with traditional remedies. This review underscores the current status, challenges, and the necessity of addressing these issues for the successful integration of traditional medicine, ultimately ensuring public health safety and efficacy in diverse healthcare settings.

Keywords: Traditional medicine, Clinical evaluation, Pharmacovigilance, Safety and Efficacy

Development of Hfd Model for the Screening of Anti-Diabetic and Anti-Obesity Activity in Male Wistar Rats

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ABSTRACT

Background: In the past decades, Obesity and its associated metabolic disorders have reached epidemic proportions. Type-2 diabetes mellitus is also one of the most common metabolic disorders which are caused by combination of two primary factors a) defective insulin secretion by pancreatic β -cells b) inability of insulin sensitive tissue to respond. Many plants are traditionally used to manage diabetes mellitus. They contain several dietary fibers, lipids (medium to long chain) and other constituents with antihyperglycaemic and anti-obesity effects.

Objectives: The objective of the present study was to develop and validate an experimental rat model that replicates the metabolic characteristics of human type-2 diabetes and obesity and also to check its suitability for pharmacological screening of potential antidiabetic plants.

Methodology: Male rats were divided into six groups of 6 each animal. Control group received 0.5% aqueous solution of CMC once daily orally. Rest of the groups was fed on HFD (high fat diet). Toxic group received HFD with low dose of STZ (25mg/kg. b.w, i.p). Diabetic control group were administered metformin (100mg/kg b.w). The remaining groups were administered test drugs extracts (Althaea officinalis, Linum usitatissimum and Glycine max) (750mg/kg b.w).

Results All the animals were fed on HFD during the entire experiment. The B.W (body weight) of all animals was recorded and the consumption of high fat diet per day was also measured. After an interval of at least one week, the fasting blood glucose (FBG) was recorded. Daily high fat diet consumption of each rat was about (20-25g/day). Body weight of animals for each group was significantly increased to almost as triple as compared to normal (130-390g) group. Fasting glucose levels were also increased gradually ($> 200\text{mg/dl}$).

Conclusion: HFD fed rat model for the screening of antidiabetic and anti-obesity effect was successfully developed.

Keywords: Herbal drug extracts, Anti-diabetic, Anti-obesity, STZ, Experimental wistar rats.

The Preventive Aspect Of Yoga In *Urdhvajatrugata Vikara*: A Review

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ABSTRACT

Introduction: Shalaky Tantra is a separate branch amongst the eight branches of Ayurveda that deals with the Urdhvajatrugata Vikara i.e eye, ENT and head. As the life style and dietary habit are changing owing to the hectic schedule of people, there is utmost need to explore prevention from increasing ophthalmology disorders. Physical exercises and Yoga have always been found to have significant effect on disorders related to eye, ENT and head. Yoga shastra describes six purificatory measures (Shat Karma) as the means of Nadi Shodhana. Among the Shatkarmas, Trataka and Neti are said to bring clear vision. Hence, this review aimed to look at the scope of applicability of these Yoga practices to target the ocular and ENT disorders.

Aim: The aim of this paper is to review the effect of different Yoga and its preventive aspect in ocular disorders and ENT diseases. **Objective:** To understand and prove that Yoga does have significant role in treating ocular and ENT disorder.

Methodology: A critical literary review of texts and modern concepts about the alleviating factors of disorders while practicing Yoga through various text books and databases like PUBMED etc.

Result and Conclusion: After this review we can conclude that Yoga has significance role in treating disorders related to ocular and ENT disorder.

Keywords: Yoga, ENT disorder, Neti, ophthalmology

Formulation Development and Evaluation of Dual Drug-Loaded Nanoemulgel For Therapeutic Management of Wound

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ABSTRACT

Laceration/trauma wounds accounts for 21.4% of the total wounds amounting to 5 million cases globally. Wound care aims to accelerate the healing process and prevent the wound from becoming chronic. Current treatments have drawbacks such as delayed healing, and risk of infection. Combining nanotechnology with medicine provides better management of wounds. The current work aims to establish a combination therapy which includes a synthetic drug along with herbal compound for better management of wounds. The optimized nanoemulsions were prepared of size 263.6nm, which were characterized by SEM and TEM studies. These NE were further loaded into the chitosan gel base. The nanoemulgel was then characterized by in-vitro drug release studies to estimate the release profile. This novel dual drug-loaded nanoemulgel is anticipated to provide increased therapeutic effects and reduce risks of delayed healing.

Keywords: Topical delivery, Nanoemulgel, Combination therapy Topical delivery, nanoemulgel, Combination therapy

Synergistic Burns Wound Healing: Antibiotic And Stilbenoid-Infused Emulsion Within Beeswax-Coated Bandages For Enhanced Burns Management

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ABSTRACT

Burn injuries are among the most dangerous medical conditions. The WHO estimates that there are 11 million burn injuries globally each year. Literature supports, that the combination of an antibiotic and stilbenoid with beeswax may contribute to a synergistic effect, providing a comprehensive approach to burn wound healing. Using gauze as a carrier for the emulsion allows for controlled and sustained release of the active ingredients onto the burn wound site, potentially optimizing their therapeutic effects, and enhancing drug stability. The study aims to develop, optimize, and characterize dual drug-loaded beeswax emulsion-coated bandages for enhanced drug delivery, utilizing an innovative coating technique, and assessing their efficacy in both in vitro and in vivo settings, culminating in preclinical evaluation in an animal model of burn injury. The study includes analytical techniques like UV, FTIR, and DSC, which were applied for the characterization of both drug compounds. Globule size and in vitro release kinetic study were also determined. The physicochemical properties of both synthetic and stilbenoid drugs such as solubility, loss on drying, and melting point were determined to develop a novel formulation. The characterization studies established the necessary physicochemical parameters of both synthetic and stilbenoid in combination with beeswax which is essential to develop a safe, effective & stable dosage form with better therapeutic values. The in-vitro results have shown that, in comparison to conventional burn wound treatments, we can use drug-loaded emulsion-coated bandages as a promising candidate for future research that will support a more efficient and rapid healing process.

Keywords: Burn wound, Beeswax, Bandage, Antibiotic, Antioxidant

Nanoformulation Strategies For Enhanced Drug Delivery Of Bioflavonoids In Parkinson's Disease

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Background: Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by the loss of dopaminergic neurons in the substantia nigra, leading to motor and non-motor symptoms. In recent years, there has been a growing interest in the potential therapeutic effects of natural bioflavonoids in mitigating the impact of PD. Bioflavonoids, abundantly found in fruits, vegetables, and plant-derived products, have garnered attention for their antioxidant and anti-inflammatory properties. This investigation seeks to unravel the molecular and neuroprotective mechanisms underlying the effects of bioflavonoids on Parkinson's pathology.

Aim and Objective: The primary objective of the present research work is to formulate and statistically optimize the nanoformulation through the intranasal route for the management of Parkinson's Disease.

Method: The study includes the evaluation of in vitro drug release kinetics, ex vivo study, CLSM, antioxidant study, and advanced analytical techniques like UV, FTIR, XRD, and DSC, which were applied for the characterization of specific bioflavonoid compounds, elucidating their structures and interactions within neural environments. The identification of physicochemical properties of bioflavonoids such as solubility, melting point, and partition coefficient, were determined to develop a novel formulation.

Results: This study aims to provide unique perspectives on Parkinson's disease management through the use of pharmaceutical formulation, novel drug delivery methods, and extensive evaluations and in-depth exploration of the preformulation studies conducted to characterize the bioflavonoids and assess their suitability for Parkinson's disease management.

Conclusion: The characterization results proved the purity and authenticity of the drug so; the drug can be used for future formulation development.

Keywords: Bioflavonoids, spectroscopic analysis, Parkinson's, neurological disorder, physicochemical properties

Development of Nanostructured Lipid Carrier based Film Forming Spray for the Management of Topical Burn

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ABSTRACT

Burns are the most severe form of trauma that an individual experiences. The damage to skin causes growth of opportunistic bacteria leading to wound infection and sepsis. Current treatments have associated drawbacks like cytotoxicity, delayed healing time and frequent dressing. Combining nanotechnology with medicine provides novel opportunities for management of topical thermal burns. Therefore, current work aims to formulate QbD based optimized chitosan coated nanolipid carrier loaded novel spray for management of topical burns. Prepared formulation will lead to increased patient compliance and overcome shortcomings associated with conventional treatment. The NLCs were successfully formulated and optimized using Central Composite Design (CCD), which showed an average particle size of 228 nm and a Zeta potential value of -22 mV. The optimized formulation was then characterized by SEM and TEM studies. Further, the film forming spray was also developed and evaluated on parameters like drying time, and film flexibility, etc. To evaluate the release profile of spray we performed in-vitro drug release studies. Lastly, the novel NLC loaded FFS holds great potential in management of burns owing to increased therapeutic efficacy along with increased patient compliance due to reduced application frequency.

Keywords: Topical Burns, Nanostructured Lipid Carriers, Film Forming Sprays, Topical delivery

Drug-loaded Nanostructured Lipid Carrier Based Spray for the Treatment of Non-melanoma Skin Cancer

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ABSTRACT

Skin cancer (SC), is one of the most devastating and the fifth most common forms of cancer. Amongst the different kinds of SC, non-melanoma skin cancer (NMSC) remains the most prominent variety. Nevertheless, current treatment approaches are still inefficient in producing a favourable clinical outcome and result in various adverse effects. Application of nanotechnology have shown great promise for improving skin cancer treatment. Here in, we devised an innovative topical spray system incorporating chitosan-coated drug-loaded nanostructured lipid carriers (NLC) for the management of NMSC. The NLCs were successfully synthesized and optimized employing Central Composite Design (CCD), which resulted in a mean particle size of 297 nm and a Zeta potential value of -6.9 mV. The nanoparticles were further analysed by SEM and TEM studies. Alongside, film forming system was also developed and evaluated in terms of film thickness, folding endurance, washability, etc. Further, we performed in-vitro drug release studies to evaluate drug release profile. Lastly, this novel NLC-loaded spray system offers great advantages in skin cancer management and diminishing the problems associated with the proposed conventional topical formulations. Consequently, improving the effectiveness and compliance of patients towards the therapy.

Keywords: Non-melanoma skin cancer, NLCs, spray system

Gastroprotective Effect of Hydro-Alcoholic Extract of *Polygonum bistorta* Lin Root in Indomethacin- Induced Gastric Ulcers in Sprague Dawley Rats

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ABSTRACT

Background: *Polygonum bistorta* has been used as hemostatic drug in Unani system of medicine due to its cold and dry temperament.

Objective: Gastroprotective effect of hydro-alcoholic extract of *Polygonum bistorta* Linn root (HEPB) was investigated in indomethacin-induced gastric ulcer in Sprague Dawley rats.

Methods: The rats were divided into six groups each consisting of five rats. Group-I, group-II, group-III, group-IV, Group-V and group-VI rats received 1 mL/kg/day 1% carboxymethyl cellulose (CMC), group-III & IV 500 & 1000 mg/kg/day HEPB respectively, 20 mg/kg/day ranitidine and 1000 mg/kg/day HEPB per oral (p.o.) respectively for 11 days. Further, rats of all groups except group-I and group-VI were administered with 20 mg/kg body wt. indomethacin (p.o.) on eleventh day. Then, rats were sacrificed, stomach was opened, and ulcer index was calculated. Mucus barrier and histopathology was studied. The stomach tissue was homogenized in buffer to evaluate antioxidant parameters thiobarbituric acid reactive substances (TBARS), catalase (CAT) and superoxide dismutase (SOD).

Results HEPB in group-III and group-IV significantly ($p < 0.01$) and dose dependently increased the levels of mucus, SOD and catalase while, decreased ulcer index and thiobarbituric acid reactive substances compared to that of ulcer control group-II. Histopathological findings showed that indomethacin treatment caused gastric ulcer while; HEPB treatment protected them from indomethacin-induced ulcer. Ulcer protection potency of HEPB 1000 mg/kg/day in group-IV was comparable to that of 20 mg/kg/day ranitidine in group-V.

Conclusion: HEPB protected stomach from indomethacin-induced gastric ulcers in rats by prevention of induced muco-oxidative stress. Thus, HEPB possesses gastro protective effect against indomethacin-induced gastric ulcers in rats.

Keywords: *Polygonum bistorta*, Indomethacin, Oxidative stress, Ulcer index, PUD.

Pharmacoinformatics Based Investigation of Paclitaxel for the Management of OSCC

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Background and Objective: Overexpression of the epidermal growth factor receptor (EGFR) is a common occurrence in epithelial malignancies, such as oral squamous cell carcinoma. Consequently, the inhibition of EGFR is considered a promising therapeutic approach.

Aim: This study focused on exploring the anti-EGFR potential of paclitaxel through an in-silico investigation.

Methodology: Widely utilized docking programs, AutoDock Vina were employed for this analysis. The compounds were docked onto the EGFR receptor, and the results, including fitness scores and binding affinities, were obtained from AutoDock Vina.

Result and Conclusion: To ensure robust findings, a comprehensive analysis was conducted by scrutinizing the drugs coupled with EGFR across both docking programs. Paclitaxel emerged as the most potent ligand, exhibiting a remarkable binding energy of -9.4 kcal/mol according to AutoDock Vina. Through AutoDock Vina software, paclitaxel demonstrated the most stable hydrogen bonds, the maximum number of hydrophobic contacts, and a robust ionic interaction, collectively establishing it as the most potent EGFR inhibitor in this study.

Keywords: Epidermal Growth Factor Receptor (EGFR), Oral Squamous Cell Carcinoma (OSCC), Binding Affinity, Molecular Target

Targeted Delivery of Bioflavonoids via Transdermal Patch: Effective Strategy for Osteoarthritis Management

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Background: Osteoarthritis (OA) stands as a prevalent musculoskeletal disorder with limited therapeutic options, emphasizing the need for innovative approaches. This study delves into the potential of flavonoids, naturally occurring compounds abundant in plants, to address OA inflammation and their comprehensive characterization through analytical studies. Furthermore, this employs advanced analytical techniques, including spectroscopy, to unravel the structural intricacies of flavonoids. This multifaceted approach aids in crafting a refined understanding of the relationship between flavonoid structure and therapeutic efficacy.

Aim And Objective: This research aims to formulate and statistically optimize the nanoformulation through transdermal patch for management of Osteoarthritis (OA).

Method: The evaluation in this study includes ex vivo study, CLSM, DPPH study, in vitro drug release kinetics, and advanced analytical techniques like UV, FTIR, XRD, and DSC were performed for the characterization of specific bioflavonoid compounds. The identification of physicochemical properties of bioflavonoids such as solubility, melting point, and partition coefficient, were determined to develop a nanoformulation.

Result/Conclusion: The characterization studies established necessary physicochemical parameters of bioflavonoid essential to develop a safe, effective & stable dosage form with better therapeutic values. The finding indicates that we can utilize the bioflavonoid as a valuable candidate for the future development of formulation that can mitigate the inflammation in osteoarthritis.

Keywords: Bioflavonoids, transdermal patch, osteoarthritis, antioxidant

Pharmacognostic Evaluation of *Catharanthus roseus*: A Review

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ABSTRACT

Catharanthus roseus is one plant recognized well in Ayurveda. It is known for its antitumour, anti-diabetic, anti-microbial, anti-oxidant and anti-mutagenic effects. It is an evergreen plant first originated from islands of Madagascar. The flowers may vary in colour from pink to purple and leaves are arranged in opposite pairs. It produces nearly 130 alkaloids mainly ajmalicine, vinceine, reserpine, vincristine, vinblastine and raubasin. Vincristine and vinblastine are used for the treatment of various types of cancer such as Hodgkin's disease, breast cancer, skin cancer and lymphoblastic leukemia. It is an endangered species and need to be conserved using techniques like micropropagation. It has high medicinal values which need to be explored extensively. Remarkably, vinblastine and vincristine isolated from this plant were the first plant-derived anticancer agents deployed for clinical use. Recently, new isolated indole alkaloids from this plant including catharoseumine, 14',15'-didehydrocyclovinblastine, 17-deacetyoxycyclovinblastine and 17-deacetyoxivinamide effectively inhibited human cancer cell lines in vitro. Moreover, vindoline, vindolidine, vindolicine and vindolinine isolated from *C. roseus* leaf exhibited in vitro antidiabetic property. These findings strongly indicate that this plant is still a promising source of bioactive compounds, which should be further investigated. This paper provides an overview of the traditional use and phytochemical profiles of *C. roseus*, and summarises updated techniques of the preparation of dried material, extraction, and isolation of bioactive compounds from this plant. In addition, purported health benefits of the extracts and bioactive compounds derived from this plant were also addressed to support their potential as therapeutic agents.

Keywords: Alkaloids, catharanthus roseus, vinblastine, vincristine, anti-cancer

Design And Development of Novel Combination Therapy for Amelioration of Alzheimer's Disease

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ABSTRACT

Introduction: Alzheimer's patients experience greater memory loss and many other cognitive difficulties due to Amyloid beta and NFT accumulation. So, the major problem associated with Alzheimer's patients is completing normal daily tasks and remembering to take medications daily on time these patients forget to take medication daily which leads to the preparation of RIVA-CBD-NE loaded PLGA-PEG-PLGA in-situ depot for the amelioration of Alzheimer's disease.

Methods: The aqueous phase titration method is one of the methods of preparation of Nano-emulsions that was implemented to prepare RHT and CBD co-loaded NE. The obtained formulations were subjected to optimization by Design Expert 12 software (Stat- Ease Inc. Minneapolis, MN). The effect of oil concentration, Smix concentration, and stirring speed on the independent variables like particle size, polydispersity index, and zeta potential were analyzed using CCD (Response surface methodology). The analysis data obtained and the effect of independent variables on the responses were analyzed by ANOVA with the 3D response surface methodology. Further, the optimized formulation is characterized by particle size, zeta potential, TEM, FTIR, and In-Vitro drug release.

Results And Discussion: The proposed combination of Rivastigmine Hydrogen Tartrate with Cannabidiol exhibits synergistic effects eliminates the shortcomings and side effects of Rivastigmine and enhances the therapeutic effects. The Nano-emulsion formulation was optimized, entrapping 100% of both drugs with enhanced therapeutic efficacy and easily crossing the BBB to reach the hippocampus region of the brain compared to conventional formulations. The prepared formulation was further characterized for particle size of 137 ± 9 , zeta potential -5mv , TEM and SEM analysis reveals the particle's spherical shape, smooth surface, and In-Vitro drug release. The in-vitro drug release study shows that the prepared formulations show sustained drug release for 21 days. Thus, our finding suggests that a developed formulation could be established for improved Alzheimer's disease treatments.

Keywords: Alzheimer's disease, depot formulation, combinatorial therapy

Effects of Curcumin on HbA1C, Random Blood Sugar and Lipid Profile in Type 2 Diabetes: Single Blinded Randomized Control Trial

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Objective: *Diabetes mellitus* is defined as a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both or insulin resistance. Curcumin inhibits NF- κ B signaling pathway. The aim of this study is evaluation of the effect of curcumin on HbA1C, Random blood glucose and lipid profile (total cholesterol and triglycerides) in diabetic patients.

Materials and Methods: 50 type-2 diabetic patients (fasting blood glucose (FBG) \geq 126 mg/dL or 2-hr postprandial blood glucose \geq 200 mg/dl) randomly received 500mg curcumin thrice a day single blind randomized clinical trial. Fasting blood glucose, HbA1C, and lipid profile were checked before and after the intervention. Data analyses, including parametric and nonparametric tests were done using the SPSS 11.5 software. A p value $<$ 0.05 was regarded as statistically significant.

Results: HbA1C, RBS, total cholesterol (TC), triglyceride (TG) and had no significant difference at the baseline between the groups. In Curcumin group, a significant decrease was found in HbA1C, RBS TG, comparing results of each subject before and after the treatment ($p < 0.05$). By comparing pre- and post-treatment values among the groups, HbA1c, RBS and Triglycerides variables showed significant differences ($p < 0.05$).

Conclusion: These findings suggest an HbA1c lowering effect for Curcumin in type-2 diabetes; also, it decreased RBS and triglycerides

Keywords: curcumin, Type 2 *Diabetes mellitus*, hbaic lipid profile, RBS

Multi targeted therapeutic method of Novel Dual-drug combination for the Management of Alzheimer's disease

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ABSTRACT

Background: Alzheimer's disease (AD) is an irreversible progressive neurodegenerative disorder of the CNS which is responsible for causing dementia in aged people and has high impact worldwide, accounting with more than 46 million cases and it is estimated that the number of patients will be four times higher in 2050 but its treatment remains still challengeable.

Aims/Objectives: Using pharmacoinformatic-based analysis, we explored the relevance of donepezil and piperine against oxidative stress induced alzheimer's disease.

Methods: Network pharmacology and molecular docking analysis was performed to investigate the multi-mechanistic and therapeutic action of donepezil and piperine involved in pathophysiology of renal disease. Furthermore, Swiss ADME analysis was performed to investigated the pharmacokinetic behavior of screened polyphenols with respect to drug distribution and permeability.

Results Donepezil and Piperine were analysed for their docking scores and binding energies. In silico analysis predicted ADMET and physicochemical properties of the compounds and were used to assess their drug-likeness. The Egg plot predicted that Donepezil and Piperine both have high probability of brain penetration but donepezil was predicted to be actively effluxed by P-gp (PGP+) and Piperine was predicted as non-substrate of P-gp (PGP-). The docking score. Both the drugs followed the Lipinski Rule of 5. The docking score of Donepezil and Piperine came out to be -8.712 and -7.453 kcal mol⁻¹ respectively. Representation of the Protein Protein Interaction (PPI) network for Donepezil and Piperine generated by STRING database showed that Donepezil interacts with BACE1, APOE, ACHE and CASP3 proteins whereas Piperine interacts with IL1B, TNF and IL6.

Conclusion: According to the results obtained, Donepezil and Piperine showed higher binding energy -8.712 and -7.453 kcal mol⁻¹ respectively and these compounds may be used as lead compounds to protect cells against oxidative stress induced alzheimer's disease.

Keywords: Alzheimer's disease (AD); Network pharmacology; molecular docking; In silico analysis

Exploring the Potential of Functional Foods in Head and Neck Cancer

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ABSTRACT

Head and neck cancer (HNC) encompasses diverse malignancies affecting the oral cavity, pharynx, larynx, and paranasal sinuses. Early symptoms include mouth sores, persistent throat pain, difficulty swallowing, and voice changes. Established risk factors include tobacco and alcohol use, human papillomavirus (HPV) infection, and poor diet. HNC remains a significant global health concern, with Globocan 2022 estimating 936,329 new cases and 491,358 deaths annually. Functional foods offer health benefits due to its bioactive compounds. Emerging research has explored their potential role in HNC management and prevention, offering effective treatment along with conventional therapies. Curcumin exhibits anti-tumor and anti-inflammatory effects in HNC, potentially improving response rates and survival when combined with standard therapy. In another study, a significant association is observed between increased fruit and vegetable intake and reduced HNC risk. Research suggest that bioactive compound in green tea might suppress tumor growth and angiogenesis, potentially aiding treatment response in HNC patients. Resveratrol found in grapes and red wine may enhance the effectiveness of radiotherapy by targeting cancer cells and reducing side effects. Studies demonstrated that cruciferous vegetables like cauliflower, cabbage, broccoli, kale etc., contain glucosinolate, which break down into potential anti-cancer compounds inhibiting cancer cell growth and invasion. While evidence remains preliminary, functional foods show a promising and effective approach for HNC management. Present study is a review to explore the efficiency of functional foods for HNC management.

Keywords: Resveratrol, Head and neck cancer, functional foods, bioactive compounds

Modulation of Human Microbiome by Kefir: A Review of the Medical Evidence

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ABSTRACT

Probiotics have emerged as a promising intervention over the past decade to mitigate dysbiosis (an imbalance in the gut microbial composition). Kefir, a probiotic-rich fermented milk beverage produced from kefir grains, contains a symbiotic culture of bacteria and yeast. The knowledge that fermented foods like kefir can beneficially modulate the human gut microbiota has expanded the scope of precision medicine to include microbiome therapeutics. With its diverse biological and medical properties, kefir may guide and complement future therapeutic approaches. This review summarizes key findings regarding kefir's antioxidative, immunomodulatory, anti-cancer (apoptosis and metastasis), neuroprotective, and psychobiotic effects. Kefir's promotion of cell death and prevention of cancer spread involves increasing the transforming key growth factor-beta 1, caspase-3, tumor protein 53, Bcl-2-associated X protein, the ratio of Bax: Bcl-2, and cyclin-dependent kinase inhibitor 1A while decreasing the transforming key growth factor-alpha, B-cell lymphoma 2, and matrix metalloproteinases. Kefir's neuroprotective effects stem from increased superoxide dismutase, catalase, and anti-inflammatory regulatory T cells along with reduced repetitive behaviors and modulation of apoptotic genes. Kefir's psychobiotic properties are largely attributable to the enrichment of *Clostridium butyricum*, *Lactobacillus*, and *Bifidobacterium*. In conclusion, kefir exhibits diverse health benefits mediated through the microbiome and effects on biomolecular pathways. Further research should explore precision applications of kefir and other probiotics to harness the microbiome for personalized medicine.

Keywords: Kefir, microbiome, apoptosis, gut microbiota, probiotic, medicinal modulation

Role of Functional Foods in Combating Cardiovascular Diseases & Hypertension

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ABSTRACT

Cardiovascular diseases (CVDs) include ischemic heart disease and cerebrovascular accidents (stroke). According to World Health Education (WHO) report presented in 2019, CVDS are the primary cause of 17.9 million deaths worldwide. The World Health Organization estimates that India is accountable for one-fifth of all global deaths, particularly among younger people. Where gene, gender, lifestyle (smoking, exercise and diet) are responsible for this non communicable disease. There are food ingredients which play a vital role in prevention of these cardiovascular disease, popularly known as function foods. Functional foods are characterized as having the potential to lower the risk of heart disease and contain physiologically active compounds derived from both plant and animal sources. These foods mainly address established risk factors such as, metabolic syndrome, elevated lipoprotein A, small dense low-density lipoprotein cholesterol (LDL-C), elevated inflammatory marker levels, and hyperlipidemia. Various clinical and epidemiological studies recommend different functional food like fish, garlic flaxseed, beans, cinnamon, carrot and tea have cardioprotective effect on human body. In addition to these foods' nutrients like potassium, vitamin C and calcium have shown beneficial effect on condition which impact cardiovascular health specially hypertension. Combination of oil is the most important concept in order to improve the oxidative and thermal stability of oils while also providing a balance of fatty acids and antioxidants. Therefore, a review has been done to explore the role of functional foods to prevent cardiovascular diseases and hypertension.

Keywords: functional foods, cardiovascular diseases, hypertension, bioactive compounds, phytochemicals

Nanoencapsulation in minerals

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ABSTRACT

Nanoencapsulation is considered as a novel technology and use of micronutrients nano capsules can increase the production of novel functional food formulations. Iron encapsulated forms are used as a core material in fortification of dairy products and encapsulated salts can also reduce off flavor and discoloration. Nanoencapsulation can improve absorption of micronutrients and address issues such as taste, stability and potential side effects. The technology is also explored in the drug delivery system, where nanoencapsulation of iron based drugs can enhance the therapeutic effect while reducing the adverse reactions. Encapsulated forms of calcium salts of tricalcium phosphate and calcium citrate have also been applied to fortify soy-yogurt and soy-milk. The most popular form of iodine and iron for fortifying edible salts is potassium iodate. Nanocarriers can also be designed for particular drug delivery as it allows the release of mineral in specific regions where the optimal absorption takes place. It has various applications in beverages, dairy products. Various attempts have been made for the development of fortified bakery products.

Keywords: Nanoencapsulation; therapeutic effect; fortified.

Unlocking the Medicinal Potential of Cinnamon for Hypertension Management

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ABSTRACT

Cinnamon, a commonly used spice with a long history of culinary and medicinal use, has garnered attention for its potential therapeutic effects. This has shown and proved to be a potent anti-fungal, anti-microbial, anti-diabetic, anti-oxidant, anti-inflammatory, anti-mycotic, nematocidal, insecticidal, mosquito larvicidal, and anti-cancer activities. The bioactive compounds found in Cinnamon leaves are Cinnamaldehyde (1.00 to 5.00%), Eugenol (70.00 to 95.00%) in Cinnamon Bark are Cinnamaldehyde (65.00 to 80.00%), Eugenol (5.00 to 10.00%), in Cinnamon Root Bark is Camphor (60.00%) and other phytochemicals such as, Catechins, and Procyanidins. These bioactive compounds exhibit potential roles in modulating blood pressure. Human clinical trials investigating the anti-hypertensive effects of cinnamon have demonstrated promising results, with reductions of 2-3% in systolic blood pressure and 5-6% in diastolic blood pressure. Similarly, animal studies have further supported these findings, revealing improvements in blood pressure regulation and vascular function with cinnamon supplementation. The therapeutic potential of cinnamon in hypertension management and cardiovascular health is proven scientifically. Therefore, this review aims to explore the anti-hypertensive properties of cinnamon and summarize the current state of knowledge regarding its efficacy and mechanisms of action.

Keywords: Cinnamon, hypertension, anti-hypertension, blood pressure.

Medicinal Importance of *Nigella sativa* – A Review

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ABSTRACT

Nigella sativa (N. sativa), a plant widely used in traditional medicine globally. It is commonly known as 'Kalonji'. Belonging to the Ranunculaceae family. It is particularly popular in Islamic literature and regarded as a potent healing medicine, recommended for regular use in Tibb-e-Nabwi (Prophetic Medicine). It is also used in Unani, Tibb, Ayurveda, and Siddha systems. Both its seeds and oil have a rich history of use in various medical and culinary applications. The seeds of *N. sativa* have been traditionally employed to treat diverse diseases. The plant exhibits a broad spectrum of therapeutic functions, including anti-hypertensive, diuretic, anti-diarrheal, appetite stimulant, analgesic, anti-bacterial, and dermatological applications. Researchers have extensively studied *N. sativa*, revealing its pharmacological actions, such as antidiabetic, anticancer, immunomodulatory, anti-inflammatory, spasmolytic, bronchodilator, hepato-protective, renal protective, gastro-protective, and anti-oxidant properties. Thymoquinone (30% - 48%), a major bioactive component in its essential oil, is attributed to many of these therapeutic properties. Other organic components include p-cymene (7%-15%), carvacrol (6%-12%), 4-terpineol (2%-7%), t-anethol (1%-4%), sesquiterpene longifolene (1%-8%) α -pinene and thymol etc., This review aims at providing a detailed study of scientific literature, covering the effectiveness of *N. sativa* for medicinal use.

Keywords: *Nigella sativa*, Thymoquinone (TQ), anti-cancerous, Ranunculaceae, bioactive compound

Teff Flour: Nutritional Composition and Health Benefits

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ABSTRACT

Teff, also known as Eragrostis tef. It is cultivated for its edible seeds, also known as teff. Teff plays an important role in food security. It has many attractive nutritional profiles i.e. gluten-free (GF) & high dietary fibre (DF) content, therefore it is becoming globally popular. Teff includes protein, polyphenols (PP), dietary fibre & certain minerals. Teff is widely used in making GF products such as flour, bread & pasta. So, it can be given to the celiac disease (CD) patient. Teff flour has anti-oxidative properties. It is a rich source of iron so it can improve haemoglobin level and is helpful in preventing anaemia. It has 80% complex carbohydrates hence these carbohydrates digest slowly so it is used in incidence of diabetes. Soluble and total fibre content of teff is several fold higher in teff flour than wheat, rice, maize and sorghum. It has high content of amino acid like alanine, glutamine, leucine, proline & relatively lower content of lysine. It is rich in unsaturated fatty acids like oleic acid & Linoleic acid. Red teff is richer in calcium and iron than white teff. Teff has higher zinc content than sorghum and wheat. But phytate content in teff is high which interferes with absorption of minerals like iron and zinc into the body. Phytate can be degraded by processing techniques like soaking, germination, fermentation & during cooking also. On the other hand, presence of phytate can also prevent kidney stone formation by inhibiting calcium salts in biological fluids. So consumption of teff is useful in combating many nutritional health problems. Thus teff flour is one of the nutritional rich millet and further consumption can be increased.

Keywords: Gluten Free, Celiac Disease, Polyphenol, Dietary fibre.

Nephroprotective Effect Of *Cassia fistula* Linn (Amaltas): A Review Of Evidences From Classical Unani Literature And Recent Scientific Researches

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ABSTRACT

Background: Amaltas (*Cassia fistula* Linn.) also known as Golden Shower Tree, is a well-known medicinal herb used in Unani medicine to treat renal issues. *cassia fistula* L. belonging to the Fabaceae family. *Cassia fistula* grows throughout in Bangladesh and in many other Asian countries such as India, China, Hong Kong, Philippines, Malaysia, Indonesia, and Thailand.

Aim: The aim of study to emphasize the traditional use of this plant and its chemical constituents and explores their potential nephroprotective effects.

Methodology: The classical Unani literature was studied from relevant books. The databases utilized for obtaining information as scientific research publications journals available through Google scholar, Scopes, pub med, and science direct. Relevant information were collected from different sources.

Results Traditionally the plant possesses hepatoprotective, nephroprotective, antipyretic, anti-inflammatory, leukotriene inhibition, antitussive activity, antioxidant, wound healing, hypolipidemia, anticancer, antidiabetic, activates central nervous system, antiulcer, antibacterial, antifertility, larvicidal and ovicidal, antifeedant, laxative, anti-epileptic, antimicrobial, urease inhibition, antifungal. The fruits, stem bark, and leaves of this plant contain a variety of biologically active compounds such as anthraquinones, flavonoids, flavon-3-ol derivatives, alkaloid, glycosides, tannin, saponin, terpenoids, reducing sugar and steroids those have various medicinal properties.

Conclusion: On the basis of literature survey and recent researches are available from various information collected from different sources, the selected plants exhibited antioxidant activity, were found to be low in toxicity, and demonstrated significant nephroprotective potential.

Keywords: Nephroprotective, *cassia fistula*, antioxidant, Golden shower tree

Effect of Dietary supplementation of *shatavari* on infertility

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ABSTRACT

Shatavari is called the "Queen of Herbs" in Ayurveda because it promotes love and devotion. It's a dietary supplement and a female reproductive tonic. *Shatavari*, also known as *Asparagus Racemosus*. *Shatavari* is a really powerful supplement that can help with a lot of different symptoms and also It's effective in treating various female reproductive system issues. The *Shatavari* plant root has been found to have great benefits for female infertility. There are several ways to use *shatavari*, including in pill, powder, tea, and tincture form. Around 50% of infertility cases in couples are attributed to female-related disorders. Female infertility can be caused by various underlying disorders, including ovulation issues, tubal damage, cervical disorders, and hormonal imbalances. Hormonal conditions such as PCOS, endometriosis, hypothalamic dysfunction, hyperprolactinemia, uterine fibroids, can contribute to infertility. Studies have shown that preparations containing AR can enhance the function of the blood forming tissues and increase the weight of accessory sex glands. The plant of AR has advantages in treating female infertility. It can be beneficial in improving reproductive health. As it promotes folliculo genesis and ovulation, prepares the uterus for conception, and reduces the risk of Miscarriage.. The energy source for the female reproductive system relies on glycogen, which is influenced by estrogen. Estrogen helps increase glycogen content in the uterus, and any decrease in uterine glycogen could indicate estrogen deficiency. Extracts from *Asparagus Racemosus* have been found to increase uterine weight and glycogen levels without affecting serum estrogen and progesterone levels in rats.

Keywords: *shatavari*, *Asparagus racemosus*, infertility, reproductive health

Fenugreek Seed and Cyclophosphamide Induced Apoptosis Effect

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ABSTRACT

Cyclophosphamide (CP), a chemotherapeutic agent, triggers apoptosis (programmed cell death) in cancer cells. While effective, CP can also induce apoptosis in healthy tissues, leading to adverse side effects. Fenugreek seeds, rich in bioactive compounds, have shown potential in modulating apoptosis in various models. Cyclophosphamide is a potent alkylating agent used in treating various cancers like lymphoma, leukemia, and breast cancer. It works by damaging DNA, triggering apoptosis in rapidly dividing cancer cells. Unfortunately, CP also harms healthy tissues with high cell turnover, causing side effects like nausea, hair loss, and bone marrow suppression. Fenugreek Seeds are traditionally used for medicinal purposes, containing diverse bioactive compounds like flavonoids, alkaloids, and saponins. Studies suggest fenugreek seeds have potential anti-cancer and anti-apoptotic properties, mediated by different mechanisms such as upregulating antioxidant enzymes and reducing oxidative stress, modulating pro-apoptotic and anti-apoptotic proteins like Bax and Bcl-2, inhibiting specific apoptotic pathways like caspase activation. However, limited research exists directly investigating the interaction between fenugreek and CP-induced apoptosis. A study in mice showed fenugreek seed extract reduced testicular damage and apoptosis caused by CP, likely through its antioxidant activity. While preliminary evidence suggests fenugreek seeds might modulate CP-induced apoptosis, more research is crucial to determine its efficacy and safety in this context.

Keywords: fenugreek seeds , cyclophosphamide, apoptosis, synergistic effect, antioxidant

Badiyan (*Foeniculum vulgare* Mill): An evidence-based review on its Phytochemical and traditional use in Unani medicine

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ABSTRACT

Background: Liver disorders are a worldwide health problem. In India, numerous medicinal plants have been evaluated for the treatment of liver disorders. *Foeniculum vulgare* commonly known as Badiyan is well-known herb used in Unani medicine to treat liver diseases.

Objective: This review study was carried out an unani drug Badiyan(Saunf) for liver disorder and scientifically it's validation in light of recent studies.

Methodology: Manuscripts related to Unani medicine such as *Muheete Azam*, *Khazain al-Advia*, *Makhzanul Mufradat*, *Bustanul Mufradat*, *Kitab al-Hawi*, *Al-Jamiul Mufradat al-Advia wa'l Aghziya*, *Akseere Azam* etc were reviewed. Pharmacological activity of *Foeniculum vulgare* related to hepatic disorder were also cited from various research article and database i.e, scientific publication, pubmed and science direct.

Results *Foeniculum vulgare* is well known for its essential oil that is use as a flavouring agents and have been reported to be transanethole, fenchone, estragol, a-phellandrene. These compounds alleviating hepatoprotective, antioxidant, anti-fungal, anti-bacterial, anti-diabetic, antithrombotic, antitumour, anti-inflammatory activities. Therapeutic activities in liver disorders are attributed due to fennel essential oil.

Conclusion: In the light of recent research studies it is evident that *Foeniculum vulgare* have lot of beneficial effects and this unani medicine can be effectively use in the treatment of liver disease especially NAFLD.

Comparative Study of *Sarpagandha* and its Adulterant

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ABSTRACT

Background: The prevalence of substitution or adulteration in the supply of a specific authentic herbals drugs with alternative species, owing to an imbalance between demand and supply of the original species, is widespread in the current herbal industry. Consequently, the authentication process of the herbals for secure administration as a herbal remedy assumes utmost importance.

Aim: *Sarpagandha* or *Rauvolfia serpentina* is an example of a medicinal substance for which *Barachandrika* or *Rauvolfia tetraphylla*, a member of the *Apocynaceae* family, is commonly employed as a replacement. To ensure the authenticity and efficacy of the herbal drug, the anatomical, histochemical, and powder microscopic characteristics of both species were compared using genuine samples. This analysis aimed to identify the similarities and differences between the substitute species.

Methods: Histological and histochemical features were examined through the utilization of sectioned materials in accordance with established protocols. Techniques of histochemistry were implemented to determine the specific locations of various metabolites, including phenol, alkaloid, starch, and other compounds.

Results Microscopic and histochemical markers showed the difference in the presence of metabolites in both the species.

Conclusion: The current study confirms the authenticity of the medicinal substance through the analysis of anatomical, histochemical, and powder microscopy characteristics, which are integral to ensuring the quality of the unprocessed drug.

Keywords: Authentication, microscopy, traditional plants, Traditional Indian Medicine

Pharmacokinetic pattern recognition after oral administration, stability testing and TLC-MS bioautography for determination of anti-acetylcholinesterase metabolites from hydroalcoholic extract of sugar free *Itrifal Muqawwi Dimagh*

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ABSTRACT

Itrifal Muqawwi Dimagh (IMD) is a traditional Unani formulation specifically formulated to support and strengthen brain function. Cognitive enhancement, to improve mental fatigue, and headaches and migraines are primarily related to its traditional uses. The present study aims to detect and identify the bioactive metabolites responsible for acetylcholinesterase inhibitory activity by using a combined approach called thin layer chromatography-mass spectrometry (TLC-MS) based bioautography and pharmacokinetics study was then conducted at 0, 1, 2, 4, 6, 8, 12 hours to understand how these compounds interact with the body when the sugar free IMD is administered. The in-vitro detection of acetylcholinesterase inhibitory activity by Ellman's method suggested the IC₅₀ values of formulation was found as 135.00 ± 0.44 µg/mL, as compared to the reference drug, galantamine, with an IC₅₀ of 24.00 ± 0.46 µg/mL. The outcomes of TLC-MS bioautography demonstrated the detection and identification of four anti-cholinesterase active compounds from the hydroalcoholic extract of sugar free *Itrifal Muqawwi Dimagh* suggesting its therapeutic potential in overcoming cholinergic deficiency. Stability studies using HPTLC at different conditions indicated that it can be best stored from 3 to 17 months at cool temperature, during their consumption. Pharmacokinetics study reveals the absorption, distribution, metabolism and excretion pattern of the bioactive metabolites, thus enabling us to understand and optimize the dose of the formulation.

Keywords: Pharmacokinetics, Unani formulation, anti-acetylcholinesterase activity, TLC-MS bioautography, Stability studies

Validating Traditional Unani Drugs for Kidney Protection: A Scientific Approach Using In-Vitro, Metabolomics, and Network Pharmacology Methods

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ABSTRACT

The objective of this study was to assess the potential nephroprotective effects of Unani medicinal plants, namely *Nigella sativa* L. (NS) and *Tribulus terrestris* L. (TT), which were identified from the Unani Pharmacopeia of India for their relevance to kidney-related disorders. The chosen plant materials underwent processing using the reflux extraction method. The estimation of total phenolic and flavonoid content was conducted using the Folin Ciocalteu (FC) and aluminum chloride methods, respectively, for each plant. The antioxidant capabilities of NS and TT were evaluated through DPPH (2,2-Diphenyl-1-Picrylhydrazyl) and FRAP (Ferric Reducing Antioxidant Power) assays. The phytoconstituents from these medicinal plants were separated, and their fingerprinting was established using HPTLC in NS and TT. Cytotoxicity of selected plants was assessed using the HEK-293 (Human Embryonic Kidney-293) cell line via the MTT assay. The nephroprotective activity of NS and TT was investigated using HEK-293 cells. All chosen plants exhibited elevated levels of total phenolic and total flavonoid content, with NS and TT demonstrating particularly significant values for total phenolic content and total flavonoid content, respectively. NS and TT displayed notable DPPH scavenging activity. The FRAP analysis for all three plants was consistent with the DPPH scavenging activity. HPTLC fingerprinting revealed distinct bands, each corresponding to different metabolites. NS exhibited the presence of thymoquinone, while TT showed steroidal saponin with a substantial amount. The medicinal plants demonstrated relatively low toxicity to HEK-293 cells. Additionally, all three medicinal plants exhibited nephroprotective potential. In summary, the selected plants exhibited antioxidant activity, were found to be low in toxicity, and demonstrated significant nephroprotective potential.

Keywords: *Nigella sativa*, *Tribulus terrestris*, HPTLC, HEK-293, DPPH, FRAP

Validating Traditional Claims: The Scientific Basis of Antiviral Unani Formulations

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ABSTRACT

The present study aimed to evaluate the Anti-viral potential of traditionally claimed Unani medicinal formulations. The selected formulations from Unani literature are already recommended by AYUSH as prophylactic and their constituents have been reported as best antioxidant, immunomodulator, anti-allergic and anti-inflammatory plant agents, the four major criteria in selection of plants for development of drugs for COVID-19. The plant materials were extracted in water and hydro alcohol at room temperature using soxhlet apparatus. Total phenolic and flavonoid contents of the extracts was measured by Folin Ciocalteu (FC) and aluminum chloride method. DPPH (2, 2-Diphenyl-1-Picrylhydrazyl) and RPA (Reducing Antioxidant Power) assay was used to determine the antioxidant activity of the extract. The metabolites of the plant materials were separated and quantified using High Performance Thin Layer Chromatography (HPTLC). Human embryonic kidney-293 (HEK-293) cell line was used to assess Anti-Viral potential of the plant materials. All the hydro-alcoholic extract showed a higher amount of total phenolic and flavonoid content. DPPH and RPA assay showed the significant antioxidant potential of all the extracts. Qualitative HPTLC analysis of the extracts revealed numbers of metabolite at 254 and 366 nm. A significant amount of specific marker compounds presents in both the extracts of plant materials. The in vitro cell line assay of the extract showed significant Anti-viral potential. The selected plants showed good antioxidant potential and were found to be significant Anti-viral potential.

Keywords: Unani Formulations, COVID-19, DPPH, Anti-viral, HPTLC

Identification of Adulteration in Seed Drugs of Traditional Indian Medicinal Plants through Quality Assurance and Metabolomic Profiling

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ABSTRACT

The current study aimed to evaluate the quality standards and metabolomic profiles of highly adulterated seeds of *Cichorium intybus* L. (CI). The selected plant was screened from Unani Pharmacopeia of India. The plant materials were extracted in water and hydro alcohol using the reflux extraction method. Total phenolic and flavonoid contents of the extracts were measured by Folin Ciocalteu (FC) and aluminum chloride methods respectively. The antioxidant potential was determined through 1, 1-diphenyl-2-picrylhydrazyl (DPPH) and ferric reducing antioxidant (FRAP) methods. Thin-layer chromatography (TLC) was carried out for the metabolomic profiling of the extracts using toluene, ethyl acetate, and formic acid (5: 4: 1, v/v/v) as a solvent system. The metabolomic profiling of the extracts was also carried out using gas chromatography and mass spectroscopy (GC-MS). All the hydroalcoholic extracts showed a higher amount of total phenolic and flavonoid content. DPPH and FRAP assay showed the significant antioxidant potential of all the extracts. TLC analysis of the extracts revealed numbers of metabolite at 254 and 366 nm. A significant amount of specific marker compounds were present in both the extracts of plant materials. GC-MS analysis revealed that essential oils, terpenes, and fatty acids are the major metabolites. Through principal component analysis (PCA), it was observed that the metabolite pattern of different plant materials may be different or similar. The developed method can be used to analyse the quality control of plant materials having similar metabolic profiles.

Keywords: *Cichorium intybus*, TLC, DPPH, FRAP, GC-MS

Formulation of a Synergistic Combination Utilizing Unani Medicinal Plants for the Treatment of Chronic Kidney Disease

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ABSTRACT

Chronic Kidney Disease (CKD) remains a global healthcare challenge, demanding innovative therapeutic approaches. In our study, we aimed to develop a nephroprotective synergy-based combination (SBC) on the principles of Traditional Unani Medicine, leveraging the wisdom of ancient healing traditions. It involved an extensive *in vitro* screening of aqueous and hydroalcoholic extracts derived from Unani System of Medicine (USM). These extracts were assessed for their potential nephroprotective effects using HEK 293 cell lines, along with an evaluation of their anti-inflammatory properties through the measurement of key markers, including NO, PGE₂, and TNF- α production. Additionally, antioxidant activities were determined through *in vitro* DPPH, and the quality control and identification of biomarkers were conducted using HPTLC. A comprehensive understanding of the possible mechanisms involved was elucidated through LCMS analysis and network pharmacology. The results unveiled a promising SBC with a specific ratio of 1:1, demonstrating remarkable synergetic activity. These findings propel us to further investigate this SBC's *in vivo* nephroprotective potential, which could be a significant step toward CKD treatment innovation. The results from our study suggest that this SBC could serve as a potential adjuvant in nephroprotective strategies for CKD. However, further supporting data and rigorous clinical trials are needed to confirm and refine these findings. We anticipate that these Unani medicine-derived extracts hold the promise of positive results in future clinical trials, offering hope for the management and treatment of CKD.

Keywords: *In vitro* & *In vivo* screening, HEK cell lines, nephroprotective activity, network pharmacology, Chronic Kidney Disease (CKD), Unani System of Medicine (USM)

***In Silico* Investigation of Metabolites from *Foeniculum vulgare*: Analyzing Molecular Docking for Potential Interactions with Cytochrome P450 Enzyme**

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ABSTRACT

The main focus of this study is an *in-silico* examination of possible drug interactions between CYP450 enzymes and metabolites from *Foeniculum vulgare* FV (fennel). Famous for its therapeutic qualities, FV interacts with drug-metabolizing enzymes in ways that must be understood in order to forecast pharmacokinetic results. The study entails building a curated database of CYP450 enzyme structures as well as retrieving the molecular structures of metabolites produced by FV. Sophisticated computational tools will be employed to perform molecular docking simulations to predict the binding affinity and possible interaction sites between CYP450 enzymes and metabolites from FV. This research aims to identify the metabolites of FV that may modulate the activity of CYP450 enzymes, affecting the metabolism of co-administered drugs by simulating the binding interactions at the molecular level. The findings will direct future experimental research and offer insightful information about the possibility of herb-drug interactions. Determining the safety and effectiveness of combining FV used as mouth freshener with food & traditional medications requires an understanding of the *in-silico* interactions between *F. vulgare* and CYP450 enzymes. To validate and investigate these interactions further, targeted experiments have been designed using the computational predictions.

Keywords: Molecular Docking, Drug Interaction, *Foeniculum vulgare*, Cytochrome P450, Herb-Drug Interactions

Validation of traditional claims of *Punica granatum* using *Scientific Approach*

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ABSTRACT

Background: *Punica granatum* (commonly known as *Darim* in Unani medicine) is reported analgesic, anti-inflammatory etc. The plant's cooling and astringent properties have also been traditionally acknowledged in Unani medicine.

Aim: The study explores the wound healing potential of *Punica granatum* by scientific approach.

Methodology: The research involved the authentication of collected peels through in-house macroscopic and microscopic characterizations, followed by assessment of physicochemical parameters. *In vitro* evaluations of antioxidant and anti-inflammatory potential were conducted, accompanied by spectrometric and chromatographic analyses of extracts and fractions.

Results: Methanol extraction and fractionation produced enriched fractions, culminating in a novel-enriched pooled fraction. Preliminary assessments of total phenolic content (TPC), total flavonoid content (TFC), and total steroidal content (TSC) were calculated using spectroscopic techniques. Further, TLC fingerprinting was done for separation of metabolites using solvent system (chloroform: ethyl acetate: formic acid) and was scanned at 254 nm and 366 nm. Total number of secondary plant metabolites found in methanolic extract was 07 and 07 at 254 nm and 366 nm, respectively and novel enriched pooled fraction has 07 and 08 metabolites at 254 nm and 366 nm, respectively.

Conclusion: The study signifies a significant step towards validating the ethnopharmacological relevance of *Punica granatum* and provides insights for the development of herbal alternatives for wound healing.

Keywords: Phytopharmaceutical, Wound healing, *Punica granatum*, Herbal alternatives, In silico studies.

Assessing public awareness of chronic kidney disease (CKD) in India: Regional disparities and implications for targeted interventions - A real time survey

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ABSTRACT

Background: Chronic Kidney Disease (CKD) is a global public health concern, with early detection and awareness being crucial for effective management.

Aim/Objective: To assess the public awareness of chronic kidney disease (CKD) in India through survey-based study.

Methodology: This study utilizes a Google Form-based survey comprising 25 questions to assess the level of public awareness regarding CKD in diverse regions of India, specifically New Delhi, Bihar, and Uttar Pradesh. The survey, administered to a representative sample from the general population, revealed varying levels of CKD awareness across the three regions.

Results: Notably, respondents in New Delhi exhibited a higher overall awareness, potentially influenced by factors such as better healthcare infrastructure and education levels. In contrast, participants in Bihar and Uttar Pradesh demonstrated lower awareness levels, highlighting potential gaps in public health campaigns and educational initiatives. Analysis of responses gathered through the form also provided insights into specific misconceptions about CKD prevalent in these regions. This information is crucial for tailoring educational interventions to address region-specific knowledge gaps effectively. The key factors influencing awareness included education, socioeconomic status, and access to healthcare facilities.

Conclusion: This survey-based study sheds light on the current state of public awareness regarding CKD in New Delhi, Bihar, and Uttar Pradesh. The identified regional disparities underscore the importance of targeted strategies to bridge knowledge gaps and promote proactive measures for CKD prevention and management.

Keywords: Chronic Kidney Disease (CKD), public awareness, regional disparities, healthcare infrastructure

Nephroprotective Potential of *Punica granatum* and *Piper cubeba* in Unani Medicine: An In-silico Exploration and Comprehensive Analysis

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Abstract

In Unani medicine, *Punica granatum* (pomegranate) and *Piper cubeba* (cubeb pepper) are highly esteemed for their medicinal attributes. These plants are traditionally valued for their astringent, hepatoprotective, and antioxidant properties, believed to contribute to improved digestion, cardiovascular health, and the management of conditions such as diarrhoea and inflammation. The historical use of these fruits in Unani medicine highlights their importance in holistic healing practices. This study aimed to assess the in-silico nephroprotective potential of the hydroalcoholic extract obtained from the peel of *Punica granatum* and the fruits of *Piper cubeba*. The authenticity of the plant materials was confirmed through macroscopy and powder microscopy. The Folin Ciocalteu method was employed to determine the total phenolic content, while the aluminium chloride method was used for assessing the total flavonoid content. In-vitro antioxidant activity was measured using the 2,2-diphenyl-1-picrylhydrazyl method and the reducing power assay. Additionally, thin-layer chromatography (TLC) fingerprinting was performed to separate metabolites, using chloroform: ethyl acetate: formic acid and toluene: ethyl acetate as solvents, and the results were scanned at 254 nm and 366 nm. The TLC fingerprinting revealed 14 metabolites in *Punica granatum* and 12 metabolites in *Piper cubeba*. The total phenolic content of *Punica granatum* and *Piper cubeba* was found to be 131.7 ± 0.8637 mg/gm and 11.5 ± 0.7840 mg/gm, respectively, while the total flavonoid content was 12.79 ± 0.8315 mg/gm and 10.49 ± 0.3418 mg/gm, respectively. In-silico studies indicated promising results, suggesting the extracts' potential for nephroprotective activity. However, further research involving in-vivo studies and metabolomics is necessary to establish their therapeutic efficacy.

Keywords: Network pharmacology, TLC fingerprinting, microscopy, anti-oxidant activity, total phenolic and flavonoid content

Phytochemical Analysis of Bearberry (*Arctostaphylos Uva-ursi* L.) with Specific Reference to TPC, TFC & TLC

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ABSTRACT

Bearberry (*Arctostaphylos uva-ursi* L. Sprengel) is a traditional medicinal plant employed worldwide due to its therapeutic activities, such as antioxidant, anti-inflammatory and mainly antimicrobial for the treatment of urinary tract infections. Polyphenols are the main constituents of bearberry and arbutin, a phenol glucoside, may be considered the major active marker, being found in high concentrations in the leaves. β -Arbutin occurs naturally in several plant species, whereas α -arbutin is commonly produced by chemical or biotechnological routes. The bearberry leaves were collected and subjected to various extraction techniques like reflux, Soxhlet, Maceration and ultrasonication assisted extraction and the phytochemical analysis of the extracts were analyzed using TFC, TPC and TLC. The analysis reveals the presence of wide range of phenolic, flavonoid compounds in it. The TPC and TFC were found to be 12.24, 9.15 in the extract obtained by the Reflux method respectively. The Rf value was found to be 0.43.

Keywords: β -Arbutin, Uva-ursi, arbutin, TPC, TFC, TLC

Comparative Studies on Extraction of Coumaric Acid from Zea Mays

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ABSTRACT

Background: *Zea mays* belongs to the family of grasses (*poaceae*) and Contains higher concentration of coumaric acid in their seeds. It is an important phytopharmaceutical which possess various bioactive properties such as antioxidant, anti- inflammatory, gout prevention, skin regeneration among others.

Aim: This study focuses on investigating the nephroprotective potential of hydroalcoholic extracts from *Punica granatum* peel with other plant for synergistic effect.

Methodology: Different extraction techniques are employed for the extraction of coumaric acid. It was found that reflux extraction technique was found to be the best technique. The extraction of coumaric acid when methanol was added as solvent the yield was found to be 7.8%.

Conclusion: It can be concluded that reflux extraction technique is the best extraction technique for coumaric acid and methanol is the best solvent.

Keywords: Reflux, Coumaric acid, Zea mays

Tanacetum umbelliferum (Boiss) An evidence- based review on its phytochemical aspects, pharmacological screening especially analgesic and anti-inflammatory benefits as Unani Medicine

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ABSTRACT

Background: Inflammation is a response of the tissue to an injury, infection, irritation or foreign substance and as a part of host defense mechanism. Because of their broad therapeutic potential and usefulness in treating a variety of conditions including arthritis, lupus erythematosus, pemphigus, rheumatic fever, and other conditions involving pain, fever, and inflammation, anti-inflammatory medication use is seen as significant. When tested in trials and clinics for their anti-inflammatory and related properties, some Unani medications, both single and compound, have demonstrated extremely encouraging outcomes with little side effects. For example, *Buzidan* has been shown to have anti-arthritic activity as well as strong analgesic and anti-inflammatory properties. Numerous complex Unani formulations, including *Majoon Seer Alwi Khan*, *Majoon Suranjan*, and *Majoon*, contain *buzidan*.

Objective: The review offers scientific support for the traditional Unani medicine literature & recommendation to use *T.Umbelliferum* for anti inflammatory activity in light of contemporary studies.

Methodology: The textbooks on Unani medicine, including *Al-Jami li Mufradat al-Advia wa'l Aghziya*, *Khazain al-Advia*, *Makhzan al-Advia*, *Muheete Azam*, and others, were assessed. Moreover, an abundance of scientific literature and databases were searched, such as Science-Direct, Wiley Online Library, and PubMed.

Results: It has been discovered that the Unani medication *Buzidan*, a white-colored, sweet-tasting root, possesses the qualities of *Muhallil-i-Auram*, *Musakkin-i-Alam*, and *Daf'e ta'ffun*. Among the phytoconstituents in *T. umbelliferum*, it has been observed to contain essential oils, alkaloids, flavonoids, glucosides, tannins, pyrethrin, 1,8-cineole, trans-thujone, camphor, myrtenol, α -thujone, β thujone, camphor, cysteinyl chrysanthemol, chrysanthemum, artemisia, alcohol, and more. Many biologically active substances, including anthraquinones, flavonoids, flavon-3-ol derivatives, alkaloids, glycosides, tannin, saponin, terpenoids, reducing sugar, and steroids, are present in the plant's fruits, stem bark, and leaves. These substances also have a range of therapeutic anti-inflammatory qualities.

Conclusion: According to scientific studies, one of the most important medicinal root. It has the potential to cure various inflammatory diseases like gout and arthritis successfully and, and it may also enhance general health.

***Croton bonplandianum* -A Traditional drug and their Medicinal Uses**

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ABSTRACT

Introduction: - The plant *Croton bonplandianum*, commonly known as *Ban tulasi* is used in treating liver disorders, skin diseases including ring worm infection, to cure the swelling of body, bronchitis, and asthma. It possesses antibacterial, antitumor, antidiabetic, anthelmintic, anti-inflammatory, hepatoprotective, wound healing and antioxidant properties. The seeds are used for the treatment of jaundice, acute constipation, abdominal dropsy, and internal abscesses.

Objectives: - This aim of the present study is to investigate and comprehend the fragmented information available on the traditional uses, phytochemistry, pharmacology of *C. bonplandianum* and to explore its therapeutic potential and future research opportunities. It is rich in bioactive components like alkaloids, diterpenes, volatile oils, glycosides which are responsible for the therapeutic activities.

Methods: - 100gm of *Croton bonplandianum* leaf and apex powder is taken & it should be in dried form, the methanolic extraction of leave and apex is performed by Soxhlet extraction method then Partition of extract using separating funnel afterwards performed by thin layer Chromatography.

Results: - The obtained methanolic extract of leaf was used for qualitative analysis of phytochemical components present in the leaves and apex.

Conclusion: - Phytochemical analysis of *Croton bonplandianum* identified a variety of secondary metabolites like alkaloids, phenolic compounds, anthraquinones, tannins. Glycosides, coumarins, flavonoids etc. A lot of these compounds are responsible for different pharmacological effects such as anti-cancer, anti-oxidant, anthelmintic, antimicrobial, antifungal effects.



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