



# JAMIA HAMDARD

## Centre of Excellence in Unani Medicine

(Pharmacognosy & Pharmacology)

Bioactive Natural Product Laboratory (BNPL)

### Welcome to

## DR. DEBPRASAD CHATTOPADHYAY

Former Director ICMR, Regional Center, Belagavi

### BRAIN STORMING SESSION

ON

## Drug Discovery From Natural Products



2<sup>nd</sup> August 2023 (Wednesday) 10: 30 a.m. (IST)

Venue: CoE, BNPL, 3<sup>rd</sup> Floor

# Topic: Drug Discovery From Natural Products

*CoE Lecture Series #1*



**DR. DEBPRASAD  
CHATTOPADHYAY**



Among top 2% Global Scientists. Served as the Founder Director & Scientist G at ICMR-National Institute of Traditional Medicine, Director at Regional Medical Research Center, and as Scientist at ICMR-NICED and ICMR Virus Unit, Kolkata. Associate Editor of Frontiers in Pharmacology, and reviewer of 44+ Publication Houses. He is a Member of Project Review & Approval Committee of several Funding Agencies. His work from "Information to innovation" help in translating 'traditional wisdom' into modern 'evidence based medicine'.

# Topic: Drug Discovery From Natural Products

- The presentation by Dr. Debrasad Chattopadhyay clarified how phyto-antimicrobials can help overcome antimicrobial resistance. His research covers traditional ethnomedicines, mechanisms of action against microbes, and recent developments in natural products.
- The presentation focused on plant-based substances that offer promise against antibiotic-resistant pathogens. Dr. Debrasad Chattopadhyay discussed the importance of traditional ethnomedicines as sources of information for treating microbial infections. Such customs provide insights into plant-based treatments that can combat pathogens.
- His studies compared the mechanisms of multi-drug resistance (MDR) in pathogenic strains like *Staphylococcus aureus* and *Streptococcus mutans* to phyto-organosulfur compounds. He sought to comprehend how specific compounds might interfere with MDR mechanisms in order to develop treatments that might be more successful.
- A subset of terpenes called terpenoids was mentioned as having strong antimicrobial properties. These substances can interact with the unsaturated fatty acids found in microbial membranes. This interaction may result in membrane changes, which could compromise the pathogen's stability.
- Recent developments in assessing the anti-viral properties of natural products were also covered in the presentation. This suggests that the application of phyto-antimicrobials covers viral infections in addition to bacterial infections. The use of animal models as research tools for examining the effects of antidiabetic and anti-inflammatory plants was mentioned by Dr. Chattopadhyay. Researchers are now able to comprehend how these plants might affect intricate physiological systems.
- Recent research has shown the antimicrobial effects of essential oils and plant-derived compounds on bacteria. This highlights the potential of natural resources in fighting off microbial infections. He also discussed the potential of plant-derived immunomodulators in enhancing the immune system's ability to combat infections. Furthermore, he researched plants used in ethnomedicine that may contain antibacterial properties. The presentation concluded with the evaluation of *Alstonia macrophylla* Wall ex A. DC. leaf extract's ability to alleviate inflammation. This study illuminates the potential of plant-derived compounds in controlling inflammatory reactions.