

BOOK OF ABSTRACTS

**Published on the Occasion of a International Conference on
Cutting-Edge Strategies in Epidemiology and
Diagnostics of Infectious Diseases (CESEDID - 2025)**

Organizers

**Department of Microbiology, Centre for Infectious Diseases (CID),
Saveetha Dental College and Hospitals, SIMATS, Chennai**

**Editors: Rajesh Kanna Gopal, A.S. Smiline Girija, R.V. Geetha,
Sathish Sankar, J. Vijayashree Priyadharsini,
Pitchaipillai Sankar Ganesh & Priya Devi K.**

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The colour change from green synthesized into greenish-gray indicates the synthesis of silver nanoparticles. Silver nanoparticles using *Portulaca oleracea* were successfully synthesized and characterized using UV-Vis spectroscopy (with an absorption peak at 265 nm for (AgNPs). The findings highlight the therapeutic potential of *P. oleracea*-mediated nanoparticles, offering a green, sustainable, and cost-effective approach for cancer treatment. Future studies should address environmental safety and scalability to ensure broader biomedical application and safer nanoparticle utilization.

KEYWORDS: *Portulaca oleracea*, Medicinal plants, Phytochemicals, Silver nanoparticles

Biopolymer production from microbiota of insectivorous plants – A novel sustainable approach

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Insectivorous plants, like *Drosera* and *Nepenthes*, present an intriguing yet underexplored habitat for the isolation of such microorganisms. These plants, which trap and digest insects, create a unique microenvironment enriched with diverse micro flora, potentially including bacteria capable of producing biopolymers. Insectivorous species such as *Nepenthes* and

Drosera were collected from diverse geographical regions, including Sri Lanka, Assam, and wetlands of Tamil Nadu. This work aimed to explore insectivorous plants and their associated microbiota for the sustainable production of biopolymers. Microorganisms associated with these plants were isolated under sterile conditions, leading to the identification of novel strains of *Bacillus* and *Pseudomonas*. These isolates were cultured in MRS broth, and biopolymer extraction was achieved using precipitation methods. The work successfully screened and characterized microbial strains capable of biopolymer production, laying the foundation for their application in bioplastic development. The study showed promising results in isolating efficient strains for biopolymer synthesis. Planned downstream activities include optimization of media, scale-up fermentation, composite development, and application testing for food wrapping and heavy metal absorption. Future directions involve biodegradability testing and commercialization prospects. The findings indicating significant scientific and societal impact in promoting sustainable, biodegradable alternatives to synthetic plastics.

Keywords:

Insectivorous plants, *Nepenthes*, *Drosera*, *Bacillus*, *Pseudomonas*, Biopolymer, Biodegradation