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Notice for the PhD Viva Voce Examination

Ms Saranya Jayaram (Registration Number: 2071607), PhD scholar at the School of Sciences, CHRIST (Deemed to be University), Bangalore will defend her PhD thesis at the public viva-voce examination on Tuesday, 2 April 2024 at 11.30 am in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029.

Title of the Thesis	:	**Isolation of Fungal Endophytes from Hulimavu Lake Flora and Characterization and Optimization of Fungal Enzymes**
Discipline	:	**Biotechnology**
External Examiner (Outside Karnataka)	:	**Dr Siddharthan Surveswaran** Associate Professor Department of Life Sciences University of Hyderabad Gachibowli, Hyderabad Telangana - 500046
External Examiner (Within Karnataka)	:	**Dr Sreepriya M** Professor Department of Microbiology Bangalore University Jnana Bharathi Campus Bengaluru – 560056 Karnataka
Supervisor	:	**Dr Suma S** Associate Professor Department of Life Sciences School of Sciences CHRIST (Deemed to be University) Bengaluru – 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Registrar

Place: Bengaluru
Date: 25 March 2024

ABSTRACT

The present work was aimed at isolating fungal endophytes from Hulimavu Lake, extracting their secondary metabolites and fungal enzymes to subsequently probe the biological properties of these fungal endophytic bioactive compounds and enzymes. Literature survey was performed to identify the probable types of plants found in this lake that could be used for the study and these were subsequently collected, identified and processed under laboratory conditions. These plants were authenticated by a certified botanist and were identified as *Alternanthera philoxeroides*, *Ricinus communis* and *Persicaria glabra*. Fungal endophytes were then isolated from different plant parts collected and were screened to be then identified as *Aspergillus niger*, *Talaromyces amestolkiae*, *Cladosporium phaseolorum* and *Diaporthe phaseolorum*.

Fungal endophytic crude extracts displayed bacterial growth inhibition and significant free radical scavenging/ reduction potential. These were further tested for cytotoxic properties on different models like that of *Saccharomyces cerevisiae* (Baker's yeast), *Artemia salina* (Brine shrimp) and MCF-7 cell line. Fungal endophytic enzymes were detected qualitatively and estimated quantitatively. Fungal endophytic amylase and laccase were taken forward through fractional precipitation and dialysis for experiments to elucidate their properties of enzyme kinetics. Furthermore, enzyme activity was optimized and enhanced using RSM and enzyme functionalization/ encapsulation, respectively.

Keywords: *Fungal endophytes, Hulimavu Lake, free radical scavenging/ reduction potential, cytotoxic properties, fungal endophytic enzymes, RSM, enzyme functionalization/ encapsulation, elicitors, dye degradation potential.*

Publications:

1. Jayaram S. and Sarojini S. (2022). Bioprospecting of Fungal Endophytes in Hulimavu Lake for Their Repertoire of Bioactive Compounds. The Electrochemical Society, 107(1):10471—10481. https://doi.org/10.1149/10701.10471ecst.
2. Jayaram S., Biswas S., Philip I., Umesh M. and Sarojini S. (2023). Differential Laccase Production among Diverse Fungal Endophytes in Aquatic Plants of Hulimavu Lake in Bangalore, India. Journal of Pure & Applied Microbiology, 17(1). https://doi.org/10.22207/JPAM.17.1.19