

Faculty Talk: Insightful Seminar Series
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

Topic

Innovative Eco-Friendly Solutions for Textile Wastewater Treatment

Overview

Sri Lanka's textile industry is renowned globally for producing high-quality apparel for leading fashion brands and stands as a key contributor to the nation's foreign exchange. However, the extensive use of synthetic textile dyes, which are highly resistant to natural degradation, poses significant environmental challenges. Meeting stringent textile wastewater discharge guidelines remains difficult due to the high cost and impracticality of conventional treatment methods. This research focuses on developing a cost-effective and environmentally friendly treatment system utilizing native microorganisms. Microbial isolates obtained from textile wastewater and sediment were screened for their dye degradation potential. The most efficient strains underwent further studies, including optimization, degradation kinetics, consortium interactions, and the elucidation of decolorization mechanisms. Additionally, biosorption alternatives and phytoremediation strategies were explored. The findings led to the design of an advanced treatment unit integrating adsorption, enzyme-mediated degradation, and phytoextraction/phyto-degradation processes. This innovative system ensures the effective decolorization and complete degradation of real textile wastewater, offering a sustainable solution for the textile industry.

Speaker

Dr. Manavi Ekanayake, Lecturer

Department of Aquaculture and Fisheries, Faculty of Livestock, Fisheries, and Nutrition, Wayamba University of Sri Lanka



Dr. Manavi Ekanayake earned her BSc Special Degree in Aquatic Resource Management from the University of Sri Jayewardenepura, Sri Lanka, in 2015. She pursued her PhD at the same institution in 2020, conducting research at the Centre for Water Quality and Algae Research.

Her research expertise spans environmental toxicology, bioremediation, and pollution management, focusing on sustainable solutions to mitigate environmental contaminants.

Moderator

Dr. W.A. Harindra Champa, Chairman, Research Development and Publication Committee, Faculty of Livestock, Fisheries and Nutrition

Date & Time

11:30 AM - 12:00 Noon on 05th February 2025

Venue

Aquaculture & Fisheries Lecture Room, Faculty of Livestock, Fisheries and Nutrition

Contact

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Organized by: Research, Development and Publication Committee
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