IDENTIFICATION AND CHARACTERIZATION OF FRESHWATER ALGAE IN THE EASTERN PROVINCE SRI LANKA.

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ABSTRACT

Freshwater algae are essential components of aquatic ecosystems, providing primary production, nutrient cycling, and water quality maintenance. Nevertheless, their diversity and ecological importance in Sri Lankan freshwater habitats are not adequately investigated. The present research centers on the identification and characterization of freshwater algae from the Eastern Province of Sri Lanka with the goal of filling the knowledge gap in algal taxonomy and distribution. The samples were gathered from different sources of freshwater such as rivers, lakes, and reservoirs with the help of regular sampling procedures. Morphological and microscopic studies were performed for identifying and grouping the algae based on their structure. Environmental parameters like pH, temperature, and nutrient levels were also quantified to determine their effect on the distribution of algae.

A total of 25 freshwater algal species were found, belonging to major taxonomic groups of Chlorophyta, Bacillariophyta, Cyanophyta, and Euglenophyta. Chlorophyta was the most dominant, followed by Bacillariophyta, indicating favorable environmental conditions for green algae growth. The study established a strong correlation between the algal diversity and water quality parameters, enhancing the prospects of certain species as bioindicators of aquatic ecosystem health. Some species had the potential for bloom formation, which could be of relevance in the management of water resources.

Findings of this study would be immensely useful to understand diversity and ecological function of freshwater algae in the Eastern Province of Sri Lanka. It would also serve as a baseline for ecological survey, conservation, and sustainable utilization of water resources in the future in the province. Future studies using molecular methods are recommended for species identification, functional roles in freshwater ecosystems, and their maintenance.

Keywords: inextricably, phototrophic, instantaneous, emphasized,

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