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**Assessing the Efficiency of Floating Wetland for Nutrient Remediation in Pond Water:
Case Study**

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Abstract

The proper management and handling of water containing high nutrient concentrations is essential in rehabilitation of harmed pond ecology and more for the environment as a whole. In this research, researchers seek to assess to what extent Constructed Floating Wetlands (CFWs), can be used as an eco-friendly technique to treat water from nutrient-rich ponds. CFWs use water plants with firm roots to remove and minimize the wastes and pollutants which include excessive nutrients. The three selected Endemic Sri Lankan plants namely *Massula angustifolia*, *Coix lacryma-jobi* (Kiridi), *Eriocaulon ceylanicum* (Kokmota) were tested for 49 days. These species were chosen because they are found locally as endemics/natives, have already demonstrated phytoremediation ability, are adapted to polluted water environments and are growing rapidly and are easy to manage. These traits make the plants effective in nutrient uptake and suitable for utilization in CFW systems. Plant acclimatization as well as earlier studies that showed that the plant could remove pollutants within 49 days were used to determine this value. This study was carried out in a controlled laboratory setup, and three tanks were constructed to represent the functional FWSs through replication, and the systems' capability to remove Eutrophic Pond water was examined. Different samples have achieved different efficiency and *Massula angustifolia* was able to remove pollutants at varying efficiency like TDS of 24.14%, turbidity of 85.71%, TSS of 89.33%, nitrite at 55.82%, nitrate at 84.72%, phosphate at 98.51%, COD at 88.89%, ammonia at 92.70%, and BOD at *Coix lacryma-jobi* and *Eriocaulon ceylanicum* were equally efficient with the removal of phosphate at rates of up to 97.42% and 96.66% respectively. The paper points to the fact that these plant species can be used in the reclamation of water in the eutrophic pond water hence acting as an economic way of supporting the treatment of domestic and freshwater bodies in the developing world.

Keywords: *Reclamation, Eutrophication, Constructed floating wetlands, Aquatic ecosystems*