

Use of Low Cost Biosorbents for Treating Wastewater from Aquaculture

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Aquaculture contributes to the economy of Sri Lanka significantly. Aquaculture industries are producing export quality products while generating employment opportunities. Unique location of Sri Lanka and its resources supporting aquaculture development immensely. Even though aquaculture supporting our economy through multiple ways, the main hindrance for the development of this industry is the pollution caused by aquaculture waste water. Chemical Oxygen Demand (COD) is the amount of oxygen required to oxidize all soluble and insoluble organic compounds present in a volume of water. This can be used to know the pollution status of an aquaculture system. The main objective of this study was to analyze the physical and chemical parameters of aquaculture waste water and reduction of the Chemical Oxygen Demand in the waste water using environment friendly biosorbents. Waste water was collected from a hatchery and physical parameters such as the pH, total dissolved solids, dissolved oxygen, turbidity, electrical conductivity and temperature were analyzed. In this study three bio sorbents and their combination were used to compare their COD removal efficiency (T1- *Musa* peel powder, T2 - Oyster shell powder, T3- Egg shell powder, T4 - 0.5g Egg shell mixed with 0.5g *Musa* peel powder, T5 - 0.5g *Musa* peel powder mixed with 0.5g Oyster shell powder, T6 - 0.5g Oyster shell powder mixed with 0.5g Eggshell powder). Results were analyzed using CRD design in SAS software. It was found that COD removal efficiency of *Musa* peel powder is high (92.63±0.86) and significantly different ($p < 0.05$) from other treatments. Therefore can utilize *Musa* peel powder as an effective and low cost natural biosorbent.

Keywords: Aquaculture, Biosorbents, Chemical oxygen demand, Wastewater