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Role of Lemna Minor Lin in Treating the Textile Industry Wastewater

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Abstract : Textile industry processes are among the most environmentally unfriendly industrial processes, because they produce colour wastewater that is heavily polluted the environment. Therefore, textile industry wastewater has to be treated before being discharged into the environment. In this study, experiments were conducted for different process parameters like nutrient dosage and dilution ratio against the pH and contact time to remove COD and colour in a textile industrial wastewater using aquatic macrophytes Lemna minor L. The experimental results showed that the maximum percentage reduction of COD and colour in a textile industry wastewater by Lemna minor L. was obtained at an optimum nutrient dosage of 50 g, dilution ratio of 8, pH of 8 and contact time of 4 days. Similarly, the results of validation experiments showed that the experiments were able to reproduce the obtained optimum process parameters. The maximum removal percentage of colour in an aqueous solution (86.35 %) is higher than the removal of colour in a textile industry wastewater (82.85 %). Further, the first order kinetic model was fitted well with the experimental data of this present study. Finally, this study concluded that Lemna minor L. may be used for removing all type of parameters in any type of textile industry wastewater.

Keywords : Aquatic Macrophyte, Process Parameters, Textile Industry Wastewater
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