BATCH STUDY ON WASTEWATER TREATMENT USING VETIVER ZIZIONIDE – A NATURAL COAGULANT

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Abstract:

Turbidity can be removed with the support of natural coagulants which are derived from different plant parts. The natural coagulants may be utilized in treatment of wastewater that is in coagulation-flocculation method. These natural materials are generally named as bio-adsorbents which can remove turbidity from any sort of water / wastewater sample. Turbidity is always a problematic parameter in wastewater treatment. Turbidity in reality refers to the cloudiness or muddiness of a solution. It points out the existence of total suspended solids (viz., clay, silt, organic matter) which are very harmful for mankind, biologically as well as chemically. The intentions of this study were to use natural coagulant available in the vicinity (i.e., Vetiver zizionide) as a substitute to the chemical coagulants. In this project two types of samples are collected i.e., domestic wastewater and agriculture wastewater. Impact of variables like pH, adsorbent dose and contact time were determined. Experimental results indicate that, Vetiver root powder shows good bio-adsorbent character. It is one of the medicinal plant root which has the capacity to remove or reduce turbidity and used as a natural adsorbent. These natural adsorbents can be effectively used for reducing turbidity without giving any chemical treatment. The highest turbidity removal efficiency of Vetiver zizionide for domestic wastewater and agriculture wastewater respectively were 91% and 89%.Both isotherm models i.e., Langmuir and Freund lich were used to express the performance of adsorption. The experimental values appropriately suited Freundlich than Langmuir isotherm model.