

Sugar Industry Waste Water Treatment With Natural Low Cost Adsorbent : Mango Shell Charcoal And Coconut Shell Charcoal

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ABSTRACT

Plenty of waste water generates during the production of Sugar in Sugar Industry. This waste water contains Organic as well as Inorganic Materials, which causes serious environmental issues. Chemical as well as biological treatments to these waste waters are in practice since long. Among them Adsorption by low cost natural material has been proved to be an excellent way to treat industrial waste effluents. It offers significant advantages like the low-cost, availability, profitability, easy of operation and efficiency. Present study is a comparative study of two low cost natural material Mango shell charcoal(MSC) and Coconut shell charcoal(CSC). This study proves that both these material works as and adsorbent and the result of COD and BOD removal follow Freundlich and Langmuir adsorption isotherm. Coconut shell charcoal removes 50.98% of COD at the dose of 50 gm/L, whereas Mango shell charcoal removes 41.18% of COD at the dose of 50 gm/L and found exhausted for higher dosages. The BOD reduced up to 35.09% (Mango shell charcoal) and 87.72% (coconut shell charcoal). With increasing amount of both these material there found slight increase in pH, conductance and alkalinity, whereas hardness and chloride content do not affected at any dose.

Keywords: Adsorption isotherm, Adsorption intensity ($1/n$), Adsorption energy ($b \times 10^3$), Adsorption capacity (K, Θ_0)