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Removal of textile industrial dyes using Coralwood legume pod as natural adsorbent

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Abstract : The dye effluent from textile industry is a major environmental problem which is not only aesthetic to the environment, it affects the perturbation of light to the aquatic environment and death of aquatic organisms and animals. In the present study coral wood legume pod is used as an adsorbent for the removal of textile dye effluent using batch method and parameters like pH, adsorbent dosage, contact time and concentration of dyes were studied. Adsorbent used to be effective, with total removal of all textile dyes of high removal percentage (up to 97 %). After the adsorption study, adsorbent was analysed by Scanning electron microscope and Fourier transform infrared microscopic spectral studies for the identification of the surface morphology and characteristic functional group analysis. For the adsorption process, adsorption isotherms like Freundlich, Langmuir and Dubinin-radushkevich models were carried out and found that the adsorption process is kinetically favourable. The result concludes that, coral wood legume pod is very good natural bio-adsorbent for the removal of textile dye effluents.

Key words : adsorption, coral wood legume pod, dose, isotherm, SEM, FTIR.

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