

Removal of Heavy Metal from Wastewater using Bio-Adsorbent

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Abstract : The liquid waste-wastewater- is essentially the water supply of the community after it has been used in a variety of applications. In recent years, heavy metal concentrations, besides other pollutants, have increased to reach dangerous levels for the living environment in many regions. Among the heavy metals, Lead has the most damaging effects on human health. It can enter the human body through the uptake of food (65%), water (20%), and air (15%). In this background, certain low-cost and easily available biosorbent was used and reported in this study. The scope of the present study is to remove Lead from its aqueous solution using Olea EuropaeaResin as biosorbent. The results showed that the biosorption capacity of Olea EuropaeaResin biosorbent was more for Lead removal. The Langmuir, Freundlich, Tempkin, and Dubinin-Radushkevich (D-R) models were used to describe the biosorption equilibrium of Lead Olea EuropaeaResin biosorbent, and the biosorption followed the Langmuir isotherm. The kinetic models showed that the pseudo-second-order rate expression was found to represent well the biosorption data for the biosorbent.

Keywords : novel biosorbent, central composite design, Lead, isotherms, kinetics

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