

Ficus Carica as Adsorbent for Removal of Phenol from Aqueous Solutions: Modelling and Optimization

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Abstract : Phenol and its derivatives are organic compounds utilized in the chemical industry. They are introduced into the environment by accidental spills and illegal release of industrial and municipal wastewater. Phenols are organic intermediaries that considered as potential pollutants. Adsorption is one of the purification and separation techniques used in this area. Algeria produces annually 131000 tones of fig; therefore, a large amount of fig leaves is generated, and the conversion of this waste into adsorbent allows the valorization of agricultural residue. The main purpose of this present work is to describe an application of the statistical method for modeling and optimization of the conditions of the phenol (Ph) adsorption from agricultural by-product locally available (fig leaves). The best experimental performance of Ph elimination on the adsorbent was obtained with: Adsorbent concentration (X_2) = 0.2 g L⁻¹; Initial concentration (X_3) = 150 mg L⁻¹; Speed agitation (X_1) = 300 rpm.

Keywords : low-cost adsorbents, fig leaves, full factorial design, phenol, biosorption

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