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Utilization of Fishbone for the Removal of Nickel Ions from Aqueous Media

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Abstract : Fishbone is a type of waste generated from food and food processing industries. Fishbone wastes are usually treated as the source of organic matter for the by-production. It is a rich source of hydroxyapatite (HAP). In this study, the adsorption behavior of fishbone was examined in a batch system as an economically viable adsorbent for the removal of Ni^{+2} ions from aqueous solution. The powdered fishbone was characterized using Fourier Transform Infrared (FT-IR) spectrophotometer and Scanning Electron microscope (SEM). The study investigated the influence of adsorbent dosage, solution pH, contact time, and initial metal concentration on the removal of Nickel (II) ions at room temperature. The batch kinetics study showed that the optimum adsorption of Ni(II) was 98% at pH 7, metal ion concentration of 30 mg/L. The results obtained from the experimental work showed that fishbone can be used as an adsorbent for the removal of Ni(II) ions from aqueous solution.

Keywords : adsorption, aqueous media, fishbone, kinetic study
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