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Abstract

Removal of Ni (II) in model Solution by adsorption technique

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Abstract:

The aim of the present work is to study the removal of Ni (II) in model Solution by adsorption technique using biopolymer composite of chitosan and activated coconut shell adsorbent. Coconut shell Carbon (CSC) was modified with chitosan to produce biopolymer adsorbent. Biopolymer composite absorption [Chitosan Coated Coconut Shell Carbon (CACSC)] was prepared by mixing chitosan get and activated coconut shell carbon. The physicochemical properties of Activated Coconut Shell (ACSC) and Chitosan coated Activated Coconut Shell Carbon were bulk density value 3.3. and 5.0 g ml, moisture content 24.1 and 25.8% , ash content 11.2 and 8.2%, pH value 7.4 and 7.2 and fixed carbon percent 64.7 and 66.0% respectively. The characteristics of ACSC and CACSC samples were conducted by using FT IR and SEM Techniques. The adsorption efficiency of Activated Coconut Shell Carbon (ACSC) and Chitosan Coated Activated Coconut Shell Carbon (CACSC) adsorbents were evaluated by measuring the extent of adsorption in synthesis Ni (II) model. The optimum removal efficiency of operational parameters such as pH value was 7 ± 0.2, agitation time was 150 min, adsorbent concentration was 0.1 g and initial Ni (II) ion concentration was 100 ppm. The CACSC exhibited more effective than ACSC in the removal of Ni (II) from aqueous solutions. Adsorption data's were fitted well with Langmuir model. Langmuir isotherm refers to homogeneous monolayer adsorption.

Keywords: CSC, ACSC, CACSC, Chitosan, biopolymer composite, model solution, adsorption isotherms.

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Publication of speakers:

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