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Evaluation of humic acid removal efficiency in aqueous solution by feather protein granules

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ABSTRACT

The use of cheap adsorbent has been studied as an alternative substitution of activated carbon for the adsorption of the organic pollutant from aqueous solution. In the present study, the effect of contact time, pH, initial concentration of humic acid, and temperature was tested for investigation of the humic acid removal efficiency of the feather protein granule as a low-cost adsorbent. The equilibrium time was 120 min. It was found that the removal efficiency depended on pH and the highest removal was 68.3 % at pH of 3.0. The equilibrium adsorption data fitted with linear of Freundlich and Langmuir isotherm models. The thermodynamic studies revealed the endothermic and spontaneous process in 298°C. The feather protein granules were successfully used for the adsorption of humic acid from aqueous solution.

Keywords: Feather protein; Humic acid; Removal efficiency; Aqueous solution

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