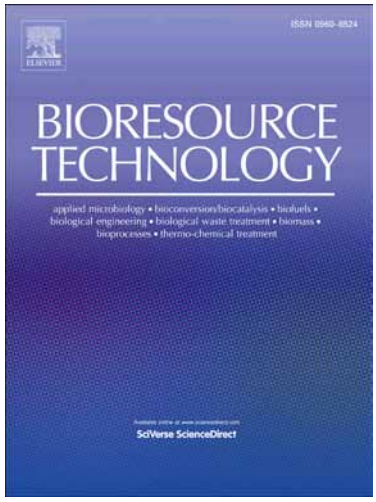

Sorption of methyl orange from aqueous solution by protonated amine modified hydrochar

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Sorption of methyl orange from aqueous solution by protonated amine modified hydrochar

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Abstract

The protonated amine modified hydrochar (PAMH) was synthesized by etherification, amination and protonated reaction with hydrochar, which was enriched with abundant protonated amine for methyl orange (MO) removal. PAMH was characterized by elemental analysis, scanning electron microscopy, nitrogen adsorption-desorption measurement, zeta potential and Fourier transform infrared. The sorption of MO from aqueous solution by PAMH was investigated by batch experiments. The results showed that sorption of MO was significantly influenced by the initial concentration of MO, temperature, contact time and ionic strength, while hardly affected by pH values ranging from 4 to 11. The pseudo-second-order and Langmuir equations were able to depict sorption kinetics and sorption isotherms,