Sorption of oil from simulated seawater by fatty acid-modified pomelo peel

Junchen Zou, Xiaoyan Liu*, Wenbo Chai, Xinying Zhang, Beibei Li, Yuxi Wang, Yining Ma

College of Environmental and Chemical Engineering, Shanghai University, 99 Shangda Road, Shanghai 200444, P.R. China, Tel. +18221235819; email: junchen526@163.com (J. Zou), Tel. +86 21 66137767; email: lxy999@shu.edu.cn (X. Liu), Tel. +18818215695; email: 526203314@qq.com (W. Chai), Tel. +18917802319; email: 86435427@qq.com (X. Zhang), Tel. +18818216331; email: 743421914@qq.com (B. Li), Tel. +18101032207; email: 260111614@qq.com (Y. Wang), Tel. +18818218198; email: 531718826@qq.com (Y. Ma)

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ABSTRACT

A new, low-cost and locally available sorbent, pomelo peel (PP), was tested for its ability to remove spilled oil from simulated seawater. The experiments were conducted to evaluate the oil sorption capacities of PP modified by fatty acids (oleic acid and stearic acid). The effects of temperature, salinity, and oscillation frequency on the oil sorption capacity of the PP were studied in simulated seawater. It was found that the oil sorption capacity of the PP was greatly enhanced by the surface modification. The results showed that the PP modified by oleic acid had better oil sorption capacity than that treated with stearic acid. The sorption kinetics of unmodified and modified PP were well described by the pseudo-second-order kinetic model. The results indicated that PP was an attractive candidate for removing oily pollutants from seawater.

Keywords: Pomelo peel; Fatty acids; Oil spill; Sorption; Kinetics

*Corresponding author.

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