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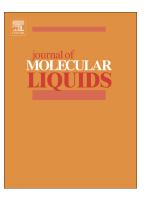
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ACCEPTED MANUSCRIPT

Amines modified fibers obtained from natural *Populus Tremula* and their rapid biosorption of Acid Blue 25

Najeh Tka¹, Mahjoub Jabli^{1,2}, Tawfik A saleh^{3*}, Ghazwan Ali Salman⁴

¹Laboratory of Organic Synthesis Assymetric and Homogenous Catalysis, FSM, Monastir 5000. Tunisia

²Textile Materials and Process Research (ENIM), Monastir 5000, Tunisia ³Chemistry Department, King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia

⁴Al-Mustansiriyah University, College of Science, Chemistry department, Baghdad, Iraq

*Corresponding author

E-mail address: tawfik@kfupm.edu.sa; tawfikas@hotmail.com

Fax: (966) 13 860 1734; Phone # (966) 13 860 1734

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Abstract

The development of low-cost solid sorbents with high sorption capacities has gained a major interest. In the current study, amines modified natural fibers were prepared via the hydrothermal method by using ethylenediamine and hydrazine as modifiers and fibers obtained from natural *Populus Tremula* as raw materials. Unmodified and amines modified fibers were characterized and were employed in batch mode experiments for the biosorption of Acid Blue 25 (AB25) as a pollutant model from water samples. The studied fibers were proven to be a lignocellulosic fiber with a 12% lignin content in addition to a high content of cellulose (60%). The coordinating sites were 0.578 and 0.647mmol.g⁻¹ for the ethylenediamine-fiber and the hydrazine-fiber. The registered adsorbed amounts of AB25 follow the order: ethylenediamine-fiber (67mg·g⁻¹) >hydrazine-fiber (48mg·g⁻¹) > unmodified fiber (22.33mg·g⁻¹). The fitting of the experimental data to theoretical equations reveals that the biosorption complies well with the pseudo-second-order for the amines

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