Environmental Engineering and Management Journal

December 2014, Vol.13, No. 12, 3025-3036
http://omicron.ch.tuiasi.ro/EEMJ/

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POTENTIAL USE OF *Crambe abyssinica* PRESS CAKE AS AN ADSORBENT: BATCH AND CONTINUOUS STUDIES

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Abstract

This study evaluates the potential of *Crambe abyssinica* press cake, a residue from crambe oil extraction and/or biodiesel production, as an adsorbent for removal of cationic dyes from wastewaters. Batch adsorption tests were performed at 30, 40 and 50°C. Adsorption kinetics and equilibrium were satisfactorily described by the pseudo second-order and Freundlich models, respectively. Adsorption was spontaneous and exothermic. Fixed bed adsorption (breakthrough curve) was satisfactorily described by the Dose-Response model. The obtained values of maximum adsorption capacity were 79.7 and 102.5 mg g^{-1} in batch and continuous systems, respectively. Adsorption tests showed that crambe press cake, without any thermal treatment, presented higher adsorption capacity than activated carbons produced from other oilseed press cakes (sunflower, coffee and *Raphanus sativus*), confirming that this type of waste material is a suitable candidate for use in the production of adsorbents.

Key words: adsorption, biodiesel solid waste, cationic dyes, crambe

Received: March, 2012; Revised final: Octomber, 2012; Accepted: November, 2012

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