Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

"Gheorghe Asachi" Technical University of Iasi, Romania

TREATMENT OF ORGANIC POLLUTED WATER BY THE SPENT COFFEE GROUNDS IN THE CONTEXT OF THE INTEGRATED WASTE MANAGEMENT IN ALGERIA

Amira Khemmari[1]; Oumessad Ali[2]; Abdelkader Namane[1*], Jazia Arrar[1]

[1]Ecole Nationale Polytechnique, 10 Avenue Hacen Badi, BP182, Laboratoire des Sciences et Techniques de l'Environnement, El Harrach Alger 16200, Algeria
[2]University Mouloud Mammeri, Tizi-ouzou.15000; Algeria

Abstract

This paper presents the feasibility of removal phenol from aqueous solutions by using microwaves activated spent coffee grounds.
The activation of the coffee grounds made it possible to increase by more 75% the quantity eliminated compared to the coffee grounds not activated
The results showed that the adsorption process was favourably fitted with the pseudo-second order kinetic model and the isotherm obeys to Langmuir model.
The maximum amount of phenol adsorbed (7.35 mg/g) for optimal conditions, was determined using an experimental factorial design 2^3.

Keywords: adsorption; factorial design, microwaves activation, phenol; spent coffee grounds

Received: June, 2020; Revised final: September, 2020; Accepted: October, 2020

[*] Authors to whom all correspondence should be addressed: e-mail: abdelkader.namane@g.enp.edu.dz; Phone: 00213699281573