International Journal of ChemTechResearch
CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.05,pp161-169,2018

Use of Residual Biomass of African Palm (*Elaeisguineensis*) in the Removal of Emulsioned Oil in Aqueous Solution

Ángel Villabona Ortiz[1], Johanna Castellar Cohen[2], Yessica Cuadro Meza[3], Candelaria Tejada Tovar[4], Diofanor Acevedo[5]*

[1,2,3,4]Faculty of Engineering, Chemical Engineering program, Research Group IDAB, University of Cartagena Av. El Consulado, St. 30 No. 48-152. Colombia.
[5]Faculty of Engineering, Research Group Innovation, Agricultural and Agro-industrial Development, University of Cartagena Av. El Consulado, St. 30 No. 48-152. Colombia.

Abstract: The efficiency of the residual fibre of the African Palm (*Elaeisguineensis*) was evaluated as an adsorber of emulsified oils against a wastewater treatment process from an oil extraction plant. The initial characterization of the emulsified waters and residual fiber was carried out initially, then the amount of oil removed was evaluated through an experimental design that involved four variables at two levels, whose response variable was the final concentration of the liquid phase in the equilibrium. The removal capacity of the material used was determined from the adsorption isotherms, the Freundlich model being the one that best fits the system. After the experimental procedure, it was concluded that the residual fibre from oil extraction presents a removal rate of 85% when maintaining the temperature at 25ºC, a pH of 8.5, agitation of 80 rpm and use an A/E ratio of 1:80 with particles of 2mm at low concentrations, with a maximum adsorption capacity of 112 mg g^{-1}.
Keywords: Emulsified waters, Residual fiber, Isothermal, Removal, Turbidity.

International Journal of ChemTechResearch, 2018,11(05): 161-169.

DOI= http://dx.doi.org/10.20902/IJCTR.2018.110517

*****