

O 18. COMPARISON OF OLIVE STONE CHARCOAL AND ITS CHITOSAN MODIFIED MICROCAPSULES FOR THE REMOVAL OF CR(VI)

Türkan Altun¹, Serpil Edebalı¹, Yakup Kar²

¹ *Department Of Chemical Engineering, Selcuk University, Campus, 42079 Konya, Turkey*

² *Department Of Petroleum & Natural Gas Engineering, İskenderun Technical University, 31200 Hatay, Turkey*

E-mail: *turkanaltun@yahoo.com, serpilcetin@gmail.com, karyakup@gmail.com*

ABSTRACT: The agricultural wastes themselves are potential candidates for sorption of contaminants from aqueous medium. Olive stone which is the waste of olive oil production is one of the alternatives for this kind of materials. Since it does not have a high sorption efficiency for Cr(VI), it was first pyrolyzed to get a biocharcoal (OSCC) and then it was modified via chitosan with gluteraldehyde crosslinking (OSCG) to be used as alternative sorbents. These two sorbents were compared for their Cr(VI) removal capacity under different parameters. The experiments were performed as batch experiments by taking the effects of contact time, pH, concentration, into consideration. The sorption capacities of both sorbents were determined in terms of different isotherm models such as Langmuir, Freundlich and Scatchard. The Langmuir isotherm model was found the best model to represent the experimental data of Cr(VI) sorption. Moreover, sorption kinetic was also evaluated using the pseudo-first and pseudo-second order models while the second one was found to agree well with the data. As a consequence of this study, both sorbents but especially OSCG can be an alternative sorbent to remove Cr(VI) ions from aqueous medium while evaluation of a biomass as a high-potential sorbent should be mentioned instead of disposal of such an agricultural waste.

Keywords: olive stone, charcoal, modification, Cr (VI), chitosan, isotherm