

## Abstract

The objective of this work was to study the efficiency of activated carbon prepared from agricultural waste (olive stones; OS) on diclofenac (DCF) adsorption in aqueous solutions. The prepared charcoals were characterized by Fourier transform infrared (FTIR), scanning electron microscopy (SEM)/Energy Dispersive X-Ray Analyser (EDX), and Brunauer–Emmett–Teller (BET) analysis techniques. The results show that DCF adsorption is favorable in acid medium and low temperature. The adsorption kinetics follows a pseudo-second-order kinetic model. The adsorption was found to be spontaneous ( $\Delta G^\circ < 0$ ) for OS600°C, whereas the negative values of the enthalpy ( $\Delta H^\circ$ ) suggest an exothermic adsorption for both adsorbents.