Surface Characteristics and Electrochemical Performance of Activated Carbons from *Schinus molle* Stones Prepared by Hydrothermal Carbonization and KOH Activation

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Schinus molle (SM) stones contain *ca.* 47 % C and 1 % N and are therefore a potential raw material for the preparation of activated carbons (ACs) with N functionalities. In this study, we investigated the usefulness of SM stones to prepare ACs by hydrothermal carbonization (HTC) followed by KOH activation. For comparison purposes, ACs were also prepared by direct KOH activation of pristine SM stones. The objective was to study the effects of each preparation method on the physico-chemical surface and electrochemical performance of the ACs obtained. Ash content was lower and N content higher in ACs produced by HTC-KOH activation (HSM series) *versus* direct KOH activation (SM series). All ACs, except the most highly activated sample from the HSM series, had narrow micropores or constricted micropore entrances. The highest surface area and mesopore volume obtained were 1464 m² g⁻¹ and 0.29 cm³ g⁻¹, respectively. Examination of AC porosity and surface area indicated that SM stones were more reactive to KOH activation after HTC. AC HSM200-2 had the largest capacitance, 235 F g⁻¹ at 0.5 A g⁻¹, and the highest energy density, 7.83 Wh kg⁻¹, at a power density of 400 W kg⁻¹. The electrochemical performance of this sample was comparable to that recently reported for a wide variety of biomass-based ACs.

Keywords: Activated carbons; *Schinus molle* stones; Hydrothermal carbonization; Surface characteristics; Electrochemical performance.

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