PHOSPHORIC ACID ACTIVATION OF DOGWOOD STONE USING MICROWAVE HEATING

Natalia Sych *, Svitlana Trofymenko, Mykola Tsyba, Valentyna Vikarchuk

Institute for Sorption and Problems of Endoecology, National Academy of Sciences of Ukraine, 13, General Naumov Str., Kiev 03164, Ukraine
**e-mail: nataliya_sych@ukr.net; phone: (+38044) 452 93 27; fax: (+38044) 452 93 28*

Abstract. High porous activated carbons were prepared using phosphoric acid activation of dogwood stone in microwave furnace. Porous structure features and sorption characteristics have been investigated. It was shown that maximum values are reached under 3-5 min duration of the microwave treatment. Wherein maximum BET surface area reach 1085 m^2/g, total pore volume – 0,7 cm^3/g. Pore size distributions indicates that carbons consists of micropores (0.9-1.1 nm) and mesopores with size 4 nm. Obtained carbons have high adsorption capacity towards copper ions from aqueous solutions at pH ≤4.The results proved that this process is rapid, power-efficient and economic.

Keywords: lignocellulosic feedstock, microwave heating, phosphoric acid activation, surface area, pore size distribution.