

New environmentally friendly adsorbents used for petrochemical wastewater treatment

Petre CHIPURICI^{a*}, Ioan CALINESCU^a, Adina Ionuta GAVRILA^a, Radu AVRAM^a, Adrian TRIFAN^a,
Georgeta PREDEANU^b, Silviu LAMBESCU^b and Valerica SLAVESCU^b

^a *Department of Organic Technology and Macromolecular Compounds, Faculty of Applied Chemistry and Science Materials, University Politehnica of Bucharest, 149 Calea Victoriei, 1st district, Bucharest, Romania*

^b *ICEM SA, 39 Mehadia, 6th district, Bucharest, Romania*

Abstract. This paper presents the studies realized for adsorption of organic pollutants from water in dynamic conditions, on multipurpose carbon materials (MCM) prepared from vegetable wastes.

As pollutant solutions were used two aqueous solutions: first solution contains aromatic hydrocarbons (benzene, toluene, xylene) and the second one phenol in concentration of 120 mg/L. The adsorptive properties of MCM obtained from different sources – agricultural waste (peach and plum kernels, soybean hulls) and industrial waste (particleboard PAL, xylite) - were studied by comparison with a commercial active charcoal.

All the analyzed MCM have lower adsorption capacities for each studied pollutant as compared to the commercial active carbon (AC) taken as reference material. The adsorption capacities for different pollutants are greater when their water solubility is lower: xylene>toluene>benzene>phenol.

Keywords: activated carbon; multipurpose carbon materials, aromatic hydrocarbons; phenol; adsorption
