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## COMPOSITE MATERIAL BASED ON SILVER-DOPED ZEOLITE AND MULTI-WALL CARBON NANOTUBES FOR HUMIC ACID REMOVAL

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### Abstract

In this paper the synthesis, characterization and testing of composite material based on multi-wall carbon nanotubes and silver-doped natural zeolite (MWCNT-ZAg) has been investigated for humic acid (HA) adsorption. The surface characterization of the composite material has been investigated by X-ray diffraction (XRD) and scanning electron microscopy (SEM/ EDX) analysis. The Langmuir and Dubinin-Radushkevich (D-R) models fitted the best experimental data informing that adsorption process of HA onto MWCNT-ZAg is heterogeneously and well described by the pseudo-second-order kinetics. The adsorption results confirmed that MWCNT-ZAg composite can be used as a promising sorbent for the adsorptive HA removal in water treatment process.

*Key words:* adsorption, humic acid removal, multi-wall carbon nanotubes composite materials

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