



DECONTAMINATE EFFECT OF THE FUNCTIONALIZED MATERIALS WITH UNDOPED AND DOPED (Ag) TiO₂ NANOCRYSTALS

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Abstract

This paper presents the preliminary results of photocatalytic oxidation of humic acid from water using two types of catalysts, i.e., TiO₂ and Ag-doped TiO₂ modified zeolite (TMZ and Ag-TMZ). TMZ and Ag-TMZ, with zeolite granulation of 315-500 μm was synthesized by sol-gel method, and the morphology and composition of the unmodified/modified zeolite were characterized by BET (Brunauer–Emmet–Teller) method, X-ray Diffraction (XRD), scanning electron microscopy (SEM) and energy dispersive X-ray analysis (EDAX). The sorption process played a major role in photooxidation process, and a slight higher photodegradation rate of humic acid from water was obtained for TiO₂ modified zeolite. The photodegradation process of humic acid from water by using catalysts of TiO₂ and Ag-doped TiO₂ led to a complete mineralization.

Key words: Ag-doped TiO₂-modified zeolite, humic acid removal, photocatalytic oxidation process, TiO₂-modified zeolite

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