EFFECT OF CALCINATION TEMPERATURE ON THE PHOTOACTIVITIES OF ZnO NANOPARTICLES FOR DEGRADATION OF THE HERBICIDE CLOMAZONE

Vesna Despotović[1], Daniela Šojić Merkulov[1], Nina Finčur[1], Marina Lazarević[1], Goran Bošković[2], Sanja Panić[2], Biljana Abramović[1]

[1]University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Trg Dositeja Obradovića 3, 21000 Novi Sad, Serbia
[2]University of Novi Sad, Faculty of Technology, Bulevar Cara Lazara 1, Novi Sad, Serbia
e-mail: vesna.despotovic@dh.uns.ac.rs

Abstract

The introduction of huge amount of organic pollutants such as dyes, pharmaceuticals, pesticides, etc. to the environment has caused many diseases to both aquatic and terrestrial lives due to their carcinogenic, toxic, and mutagenic poisonous nature. As environmental friendly and easy operational techniques, photocatalysis with semiconductors has been regarded as the most advanced and effective technique to replace the traditional methods used for the removal of organic pollutants [1-4]. Calcination temperature plays a key role in the crystallinity and photocatalytic activities of semiconductor photocatalysts [1]. The aim of this work was to investigate removal of the herbicide clomazone from double distilled water in the presence of novel ZnO nanoparticles under simulated sunlight. The ZnO photocatalysts were synthesized by precipitation method from the water and ethanol solutions of the acetate precursor and calcinated at 300–700 °C. The performances of the applied photocatalysts were correlated with their physic chemical properties. The efficiency of elimination the herbicide from double distilled water was monitored by UFLC–DAD technique.

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