

PHOTODEGRADATION OF 2,4,5-TRICHLOROPHENOXYACETIC ACID IN AQUEOUS MEDIUM BY ZNP/BIP COMPOSITE CATALYST

Ezahri M.^{1*}, Naciri Y.¹, Bakiz B.¹, Taoufyq¹ and Benlhachemi A.¹

*Materials and Environment Laboratory LME, Faculty of Sciences, Ibn Zohr University,
BP 8106, Cité Dakhla, Agadir, Morocco*

**Corresponding author: m.ezahri @edu.uiz.ac.ma*

Due to the worldwide general application of intensive agricultural methods during the last few decades because of the large-scale development of the agrochemical industry, the variety and quantities of agrochemicals present in continental and marine natural waters have dramatically increased. In recent years, the scientific community has shown a great concern about the possible adverse effects that the presence of these pesticides in water and food [1] may have on human health and on the equilibrium of ecosystems such concern.

The conventional chemical or biological treatment are often slow or non-effective to eliminate pesticides. Photocatalysis, a new method for air and water purification, is advantageous to the treatment of refractory pollutant in low concentration. Application of photocatalysis to pesticide degradation has been studied intensively.

In this regard, ZnP/BiP composite has been successfully fabricated by a simple co-precipitation method. Scanning Electron Microscopy (SEM), X-ray Diffraction (XRD), X-ray photoelectron spectroscopy (XPS) have been used to study the structural and physicochemical characteristics of the ZnP/BiP composite. The photocatalytic experiment for this heterojunction, which was conducted under UV light illumination using 2,4,5-trichlorophenoxyacetic acid, indicate that ZnP/BiP exhibited higher photocatalytic activity compared to pure ZnP or BiP. Moreover, superior stability was also observed by recycling experiments indicating that heterostructured ZnP/BiP is highly desirable for the remediation of organic waste contaminated wastewaters.

Keywords: Pesticide; 2, 4, 5-T, Photocatalytic activity, Photodegradation, heterojunction.

Acknowledgements: This work was carried out in the framework of the PPR project financed by the CNRST under number PPR / 2015/32.

References:

[1] Muszkat, L, Feigelson, L. (1995). Solar photocatalytic mineralization of pesticides in polluted waters. Journal of photochemistry and photobiology A: chemistry, 87(1), 85-88.