

## **Doping ZnO with Bi through Synthesis of Layered Double Hydroxide Application of Photo-Catalytic Degradation of Indigoid Dye in the Visible Light**

**Authors :** I. Benyamina, B. Benalioua, M. Mansour, A. Bentouami

**Abstract :** The aim of this study is to use a synthetic of the layered double hydroxide as a method of doping of zinc by transition metal. The choice of dopant metal being bismuth. The material has been heat treated at different temperatures then tested on the Photo discoloration of indigo carmine under visible irradiation. In contrast, the diffuse reflectance spectroscopic analysis of the UV-visible heat treated material exhibits an absorbance in the visible unlike ZnO and TiO<sub>2</sub> P25. This property let the photocatalytic activity of Bi-ZnO under visible irradiation. Indeed, the photocatalytic effectiveness of Bi-ZnO in a visible light was proved by the total discoloration of indigo carmine solution with intial concentration of 16 mg/L after 90 minutes, whereas the TiO<sub>2</sub> P25 and ZnO their discolorations are obtained after 120 minutes.

**Keywords :** photo-catalysis, doping, AOP, ZnO

**Conference Title :** ICEPTT 2015 : International Conference on Environmental Pollution and Treatment Technology

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** January 26-27, 2015