

Comparing the Efficiency of TiO_2/ZnO Catalysts in The Removal of Tetracycline from Aqueous Solution

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Abstract

Nowadays, the presence of antibiotics in the environment has been raised as one of the world's worries and the necessity to control their evacuation is also inevitable. By the same token for doing this research, the effectiveness of advanced oxidation processes in Tetracycline degradation was investigated by using TiO_2 and ZnO . This experimental study was conducted under UV irradiation and the efficacy of parameters such as pH, catalyst quantity, contact time, antibiotic concentration and the luminescence of UV irradiation were investigated.

The results unveiled that the photocatalytic process with an optimum amount of 2 g/L of TiO_2 or ZnO nanoparticles, an initial concentration of 15 mg / L, pH=5, time=45 min and In the case of exposure to radiation 18 watts UV irradiation could eliminate 100% of Tetracycline.

It was concluded photocatalytic process has a very efficacious impact on the decomposition of Tetracycline and makes it completely degrading.

Keywords: Photocatalyst, Titanium Dioxide, Zinc Oxide, Tetracycline