ABSTRACT BOOK

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➢ **ORAL PRESENTATION**

The Synthesis of Ag/TiO_2 Catalyst Using Water/Oil Microemulsion and Its Photocatalytic Activity

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Abstract

Traditional techniques can generally be used efficiently for dye removal from wastewaters. Nevertheless, they are nondestructive, do not degrade the pollutants but only transfer them to another phase or location and produce a potentially dangerous and secondary pollution. Advanced oxidation processes (AOPs) seem to be more promising for the degradation of dyes, because of the ability of these methods to completely mineralize the target pollutants. Photocatalysis is one of the diverse types of AOPs, environmentally friendly process has considerable advantages over some existing technologies; it destroys pollutants rather than transferring them to another phase without the use of potentially hazardous oxidants, that entails the activity of semiconducting metal oxides. TiO_2 is commonly used as photocatalyst for different contaminant degradation from environmental media. Moreover, to increase its activity under different lights, photocatalysts have been doped with many metals, non-metals, and noble metals. Through a different metal was used for this aim, silver (Ag) was suggested to be the most attractive in relations of photocatalytic production. In this study, Ag/TiO_2 photocatalyst was synthesized using water-oil microemulsion. The physical and chemical properties of the catalyst were characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM) techniques. The photocatalytic activity of material was investigated for reactive red 195 (RR195) dye used commonly in the textile industry with different light source types such as UV-A and visible light. The photodegradation of Ag/TiO_2 material was found 60% at 120 min irradiation of visible light and 73% at 30 min irradiation of UV-A light, for constant conditions (27 W light intensity, 25 mg/L initial RR195 concentration, pH 6 and 0.05 g/L catalyst dose).

Keywords: Ag/TiO_2 catalyst, water/oil microemulsion, dye removal, photocatalysis.

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