

## عنوان مقاله:

Photocatalytic removal of Acid Red 88 dye using zinc oxide nanoparticles fixed on glass plates

## محل انتشار:

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## خلاصه مقاله:

In this study, ZnO nanoparticles fixed on glass plates were employed as photocatalysts for the degradation of Acid Red 88 (AR88) dye in aquatic solution. ZnO nanoparticles were synthesized through coprecipitation method and fixed on glass plates. X-ray diffraction (XRD) and scanning electron microscopy (SEM) techniques were used for characterization of nanoparticle samples. A batch reactor equipped to UV lamps was used for photocatalytic experiments. The effect of pH, initial concentrations of AR88, radical scavengers, and enhancers were studied on photocatalytic removal efficiency of AR88. The results showed an increase in AR88 removal at the neutral pH of 7 (79%), but a decreased in acidic and alkaline pH values. It was also found that at lower initial concentration of dye the removal efficiency increases. Among different radical scavengers and enhancers, addition of CH<sub>4</sub>O as radical scavenger and ethylenediaminetetraacetic acid (EDTA) as enhancer had the greatest effect on degradation efficiency. The photocatalysis process using fixed ZnO nanoparticles was shown to have good efficiency for removal of AR88 from aqueous solution. Therefore, it can be concluded that the photocatalysis process using fixed catalyst could be a promising method for treating wastewater of dye industries.

## کلمات کلیدی:

Acid Red 88, Photocatalytic Process, Nanoparticles, Zinc Oxide

## لینک ثابت مقاله در پایگاه سیویلیکا:

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