

## PHOTOCATALYTIC DEGRADATION OF INDUSTRIAL WASTEWATER AND ANTIBACTERIAL ACTIVITY

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Photocatalysts have been paid great attention owing to their excellent performance in the degradation of dangerous organic pollutants. A facile green route has been employed for the synthesis of un-doped ZnO, Ag-doped, Cu-doped, and Co-doped ZnO using curcuma (turmeric) root and moringa oleifera (drumstick) leaf extract as the reducing and stabilizing agent. These nanoparticles have been employed as photocatalytic agents to degrade the organic dyes present in the industrial wastewater under visible and ultraviolet irradiation. Herein, we compared the photocatalytic degradation activity of these nanoparticles using three industrial wastewater samples. We found that Ag-doped ZnO nanoparticles under UV-irradiation performed the best in comparison to the un-doped ZnO, Co-doped and Cu-doped ZnO nanoparticles for these samples. In addition, the antibacterial activities of the nanoparticles with moringa oleifera leaf extract were analyzed against different human pathogenic bacterial strains, *E. coli C* and *E. coli K-12* by the optical density method.