

# Photocatalytic degradation of reactive black 5 by fish scale-loaded TiO<sub>2</sub> composites

## Abstract

Titania and TiO<sub>2</sub>/fish scale composites at different mass ratios (90:10, 70:30, and 50:50) were prepared by sol-gel method for application as photocatalysts in this study. Fish scale, synthesized TiO<sub>2</sub>, and TiO<sub>2</sub>/fish scale composites were characterized by using X-ray diffraction (XRD), scanning electron microscope (SEM), and nitrogen sorption. Their photocatalytic activities were evaluated through the degradation of Reactive Black 5 (RB 5) under solar light irradiation. The effects of irradiation time, catalyst loading, and mass ratios of TiO<sub>2</sub>/fish scale composites on the photocatalytic degradation of RB 5 were investigated. The results revealed that the photocatalytic activity of TiO<sub>2</sub>/fish scale composites showed compatible and enhanced degradation compared to the synthesized titania.