

## **Evaluation on the molecular structure of azo dye in photocatalytic mineralization under solar light irradiation**

### **Abstract**

The aim of this study was to investigate the effects of number of sulphonic groups on solar photocatalytic degradation of Acid Orange 7 (AO7), Orange G (OG), New Coccine (NC), Reactive Black 5 (RB5) and Reactive Green 19 (RG19) in aqueous solution. The data obtained for photocatalytic degradation of AO7, OG, NC, RB5 and RG19 were well fitted with the Langmuir–Hinshelwood kinetic model. The pseudo-first-order rate constant of RG19 with six sulphonic groups was the highest among the dyes in this study. Results showed that photocatalytic degradation rate of the azo dyes increased following the increase of the number of sulphonic groups of the dyes in the sequence of: AO7 < OG < NC < RB5 < RG19.

### **Keywords**

Azo dye; Mineralization; Photocatalytic; Solar light irradiation; Sulphonic group