

**SOLAR PHOTOCATALYTIC DEGRADATION OF ORANGE G
DYE BASED ON ZINC OXIDE**

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ABSTRACT

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Solar photocatalytic was a widely used of energy sources that combine the solar or sunlight and chemical to acquire the chemical reaction. The objective of the study are to investigate the degradation of OG under different condition with sunlight and without sunlight as the irradiation sources. It also to evaluate the efficiency of solar photocatalytic degradation in the presence of radical scavengers and in the presence of co – catalyst. . Based on this study, to remove the color of wastewater pollution, a photocatalytic process was used to examine the rate of Orange G (OG) degradation efficiency by using a zinc oxide (ZnO) as semiconductor and illuminated by solar light. The OG was used as an example of dye and the degradation process are totally depends on the OG decreasing color. From this degradation, the chemical reaction between the semiconductor and dye can be illustrated and it undergoes the definition of solar photocatalytic itself. The chemical reaction was formed when $\cdot\text{OH}$ radical was attacked towards the OG or heteropolyaromatic and leading to hydroxylated metabolites. The reaction also involved when the ZnO semiconductor reacts with addition of energy such as solar irradiation to release heat. At this time, the holes of semiconductor trapped the $\cdot\text{OH}$ radical to form a simple compound. According to the observation of experiment, the OG solution was almost completely degraded by the solar irradiation, but the OG slightly degraded when the solar light was absence. In the presence of radical scavengers, the inhibition of degradation of OG process are failed to occurs. It is the same with the presence co – catalyst, the speed up degradation process are failed to occurs.

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