

Research Title	Au-doped TiO ₂ Catalyst for Photocatalytic Degradation of Dicrotophos in Water under Solar Light
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This research was to synthesize gold doped titanium dioxide (Au/TiO₂) catalyst for degradation of dicrotophos under nature solar light. The structural and chemical properties were characterized by X-ray diffraction (XRD), transmission electron microscopy (TEM) and inductively coupled plasma ionization spectroscopy (ICP-OES). The degradation kinetics of dicrotophos was monitored by high performance liquid chromatography. The result showed that, Au particle sizes of 0.93 % wt. Au/TiO₂ catalyst were calcined at 400, 600 and 700 °C were 5.02 ± 0.83 , 9.84 ± 1.43 and 11.17 ± 1.76 respectively and the rutile phase ratio were 14, 28 and 65 respectively. The photocatalytic activity of the prepared sample was investigated by degrading 20.00 mg L⁻¹ of dicrotophos with 0.5 g L⁻¹ of Au/TiO₂ under natural solar light. Photo-decomposition of dicrotophos followed (pseudo) first order kinetics. Compare efficiency, a half-life of photodegraded dicrotophos with Au/TiO₂ and TiO₂ (P25) catalysts were 25.76 and 47.0 mins respectively. Au/TiO₂ was better than TiO₂ (P25) at 1.88 time in the decomposition of dicrotophos in aqueous solution under natural solar light.