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Rapid Visible Light Photo Catalytic Degradation of Eosin Y, Congo Red and Methyl Orange with $Fe_2Mo_3O_{12}$ and MoO_3

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ABSTRACT

$Fe_2(MoO_4)_3$ with excess MoO_3 has been prepared by combustion method using Ferric nitrate, MoO_3 and glycine. SEM studies revealed particle size in the µm region. The sample as prepared showed excellent photo catalytic activity for the degradation of Eosin Y, Congo red and Methyl orange in presence of H_2O_2 under visible light irradiation. Photo catalytic studies on 100 ml aqueous dye solutions with 100 mg of dispersed catalyst showed degradation of 96.6% of 20 ppm Eosin Y, 100% degradation of 10ppm of Congo red and 97.4% degradation of 10 ppm of Methyl Orange in 120 min, 45 min and 45 min respectively under visible light irradiation.

Keywords: $Fe_2(MoO_4)_3$, Eosin-Y, Congo Red, Methyl Orange, Photo catalytic degradation, Combustion synthesis.