



A Facile, One-Pot and Eco-Friendly Synthesis of V_2O_5 Nanoparticle for Enhanced Catalytic Reduction of Celestine Blue

C. Sudhakar¹, B. Tamil selvi², A. Karthika²,
A. Suganthi² and M. Rajarajan^{1*}

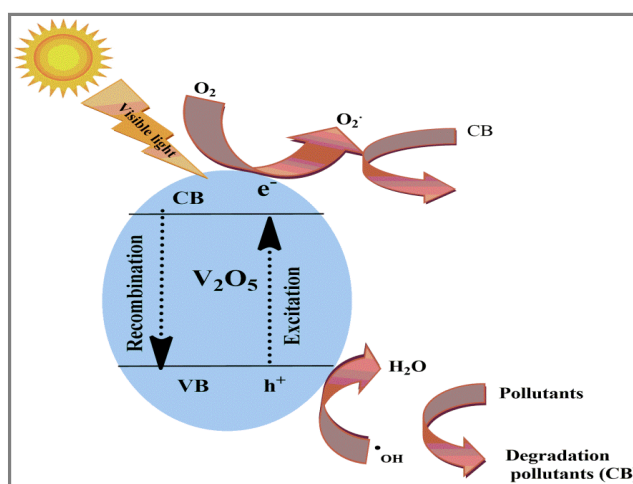
1. Madurai Kamaraj University, Madurai-625 021, Tamilnadu, **INDIA**
2. PG and Research Department of Chemistry, Thiagarajar College, Madurai-625009, Tamilnadu, **INDIA**
Email: suganthiphd09@gmail.com, rajarajan1962@yahoo.com

Accepted on 20th January, 2020

ABSTRACT

A one-pot synthesis of V_2O_5 nanoparticle using Image result for eucalyptus tree Eucalyptus leaf extracts (G- V_2O_5) as a reducing and stabilizing agent is reported herein. The G- V_2O_5 was synthesized by the co-precipitation method and characterized by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), Field emission scanning electron microscopy (FE-SEM), elemental analysis (EDX) and photocatalytic degradation. The prepared nanoparticles were tetragonal and monoclinic in structure and confirmed by the XRD patterns. The photocatalytic activity of the mixture of 2% G- V_2O_5 , 3% G- V_2O_5 and 5% G- V_2O_5 were studied in Celestine Blue degradation reaction. 3% G- V_2O_5 showed the highest photocatalytic activity among the mixtures. The dye Celestine Blue (CB) showed 89 percentage of degradation obtained in 180 min with the mixture of G- V_2O_5 .

Graphical Abstract



Keywords: Celestine Blue, G- V_2O_5 , Photocatalytic activity, Degradation.