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Photocatalytic Degradation of Malachite Green over CuO/Al_2O_3Composite

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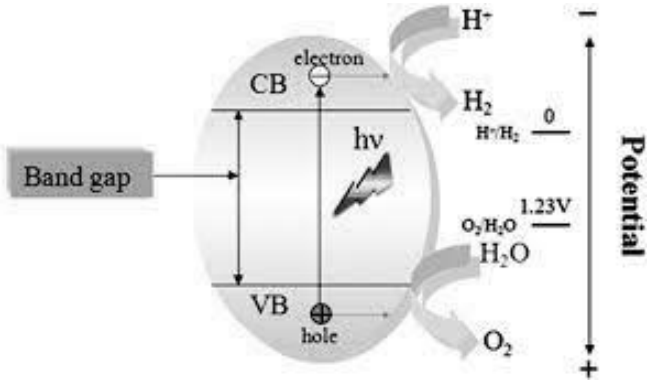
ABSTRACT

Waste water containing dyes emanating from textile mills is strongly coloured and it is carcinogenic in nature. In order to reduce pollution load, it is desirable to degrade the dye into nontoxic form before it is discharged into the main stream. Malachite green is used as dye material like silk, paper and leather industries. Degradation of malachite green was investigated using CuO/Al_2O_3 composite as a semiconductor. Decolourization assay was performed by monitoring the programs of the reaction spectrophotometrically.The optimum conditions were obtained as;pH = 9, dye concentration = 1.0×10^{-5}M, amount of composite (CuO/Al_2O_3) = 0.1g and light intensity = 60.0 $mWcm^{-2}$where the rate constant was found as 2.43×10^{-4} sec^{-1}.

Graphical Abstract:



Keywords: Photocatalysis, Malachite green,CuO/Al_2O_3 composite.