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MEENAKSHI COLLEGE FOR WOMEN
(Autonomous)

Kodambakkam, Chennai - 600024, India

BOOK OF ABSTRACTS

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Photocatalytic Degradation of Methylene Blue Dye by ZnO-Cu_xO Nanocomposites under Sunlight

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Abstract

Photocatalysis^[1,2] is expected as a highly promising strategy for both harvesting solar energy and decomposing unwanted organics in water and air by solar light irradiation. Metal oxides like ZnO, CuO act as very good catalysts. Methylene blue is a dye, when it contaminates water it may cause soil pollution. When the Methylene blue dye is treated with combination ratio of ZnO-CuO samples photocatalytic drug degradation^[3] takes place under sunlight irradiation. In this present work, we have prepared different combination ratio of ZnO-Cu_xO based nanocomposites by thermal annealing method with 500°C and used for photocatalytic applications. The structural properties of the nanocomposites were examined using XRD analysis and the results are in good agreement combination of ZnO-Cu_xO with 1:1, 5:1 and 10:1 ratios. In the photocatalytic activity studies, ZnO-Cu_xO ratio of 5:1 and 10:1 samples were attained fast degradation efficiency with a short interval of irradiation time than 1:1 ratio of ZnO-Cu_xO. Among all the nanocomposites samples exhibits the optimal photocatalytic activity under the sun-light with methylene blue dye degradation efficiency of 76, 97, 98 % at 60 min for 1:1, 5:1 and 10:1 of ZnO-Cu_xO.

Keywords: nanocomposites; Methylene blue; photocatalytic degradation

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