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Graphitic Carbon Nitride-CeO_2 Nanocomposite for Photocatalytic Degradation of Methyl Red

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Abstract : Nanosized ceria (CeO_2) and graphitic carbon nitride-loaded ceria (CeO_2/GCN) nanocomposite have been synthesized by the coprecipitation method and studied its photocatalytic activity for methyl red degradation under Visible type radiation. A phase formation study was carried out by using an x-ray diffraction technique, and it revealed that ceria (CeO_2) is properly supported on the surface of GCN. Ceria nanoparticles and CeO_2/GCN nanocomposite were confirmed by transmission electron microscopy technique. The particle size of the CeO_2, CeO_2/GCN nanocomposite is in the range of 10-15 nm. Photocatalytic activity of the CeO_2/g-C3N4 composite was improved as compared to CeO_2. The enhanced photocatalytic activity is attributed to the increased visible light absorption and improved adsorption of the dye on the surface of the composite catalyst.

Keywords : photodegradation, dye, nanocomposite, graphitic carbon nitride-CeO_2
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