

## Graphitic Carbon Nitride-CeO<sub>2</sub> Nanocomposite for Photocatalytic Degradation of Methyl Red

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**Abstract :** Nanosized ceria (CeO<sub>2</sub>) and graphitic carbon nitride-loaded ceria (CeO<sub>2</sub>/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<sub>2</sub>) is properly supported on the surface of GCN. Ceria nanoparticles and CeO<sub>2</sub>/GCN nanocomposite were confirmed by transmission electron microscopy technique. The particle size of the CeO<sub>2</sub>, CeO<sub>2</sub>/GCN nanocomposite is in the range of 10-15 nm. Photocatalytic activity of the CeO<sub>2</sub>/g-C<sub>3</sub>N<sub>4</sub> composite was improved as compared to CeO<sub>2</sub>. 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<sub>2</sub>

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