

ABSTRACT

Globally, there is a severe problem with the introduction of organic and inorganic pollutants into water bodies. Diverse natural and synthetic colours are introduced into the aquatic system by the waste streams discharged by the textiles, plastics, leatherette, papers, pharmaceutical, and food sectors. The photocatalytic breakdown of wastewater dyes relies heavily on nanomaterials. Due to their enhanced physical and chemical characteristics, metal oxide nanoparticles have garnered a lot of interest in photocatalytic processes. Due to several anthropogenic activities, dyes were released into our aquatic ecosystems, which resulted in potentially fatal issues.

The photocatalytic process is one of the most effective and economical conventional ways for removing colours from water and wastewater. In the current review article, photocatalysis is covered in great length. Graphene oxide (GO nanoparticles, NPs) was produced in the current investigation using a modified Hummer's method. And using a hydrothermal technique, cerium-based nanocomposites Ce/MnO₂/GO were created. UV-Vis, XRD, FT-IR, and SEM methods were used to analyse the produced graphene oxide nanoparticles. Using finished Ce/MnO₂/GO products, the photocatalytic degradation of MB dye under UV light has been studied. It was discovered that this final product has a maximum degrading efficiency of 71%.