



Photocatalytic Degradation of Azure B by Reduced Graphene Oxide-Copper Sulphide Composite (rGO-CuS): A Green Approach Towards Environmental Remediation

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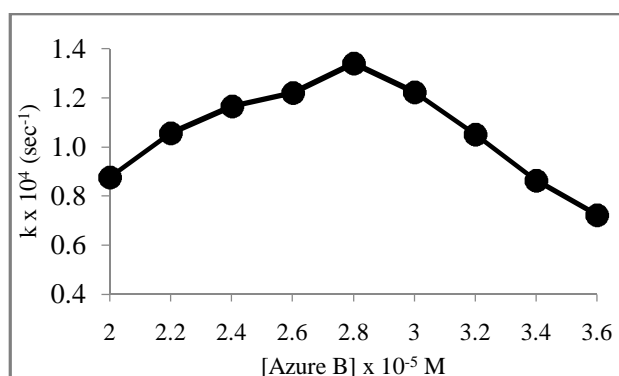
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ABSTRACT

Nanotechnology is an emerging field that covers a wide range of technologies which are presently under development in nanoscale. It plays a major role in the development of innovative methods to produce new products, to substitute or reformulate new nanomaterials and chemicals with improved performance to reduced harm to the environment as well as environmental remediation. Graphene, an atomically thin two-dimensional hexagonal array of carbon atoms, and its analogues have been visualized as ultimate materials for the separation of pollutants from water. In this paper, photocatalytic performance of rGO/CuS composite, rGO and CuS was evaluated by using a model system of azure B. Optimum conditions obtained for photocatalytic degradation of azure B are: pH = 8.5, [Azure B] = 2.80×10^{-5} M, amount of composite = 0.10 g and light intensity = 50.0 mW cm^{-2} . It was concluded that composite showed good photocatalytic activity as compared to individual CuS and rGO.

Graphical Abstract



Effect of concentration of Azure B.

Keywords: Photocatalysis, wastewater, reduced graphene oxide (rGO), copper sulfide, Azure B.