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Magnetic and photocatalytic response of Ag-doped ZnFeO nano-composites for photocatalytic degradation of reactive dyes in aqueous solution**Waheed A Al Masry and Asif Mahmood**
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To investigate the photocatalytic degradation of reactive dyes in aqueous solution, pure ZnO and Fe/Agdoped magnetic photocatalysts having nominal compositions of $Zn_{0.95-x}Fe_{0.05}Ag_xO$ ($x = 0.0, 0.05$ and 0.1) have been synthesized via self-consistent sol-gel based auto-combustion route. Thermally stable samples were subsequently confirmed to exhibit wurtzite type hexagonal structure, characteristic of ZnO. The nature of chemical bonding was elaborated by Fourier transform analysis. Electron microscopic techniques were employed to investigate the structural morphology and to evaluate the particle size. Ferromagnetic nature of the Fe/Ag doped samples was revealed by vibrating sample magnetometry, enabling the photocatalytic samples to be re-collected magnetically for repeated usage. The enhanced photocatalytic activity in the degradation of methylene blue under UV light irradiation with 5 and 10 wt.% Ag/ZnFeO has been observed validating the potential applications of these materials in the field of photo-degradation of organic pollutants

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