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**PREPARATION OF NICKEL FERRITE/CARBON NANOTUBES COMPOSITE BY MICROWAVE IRRADIATION TECHNIQUE FOR USE AS CATALYST IN PHOTO-FENTON REACTION**

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Nickel ferrite/multi-walled carbon nanotubes (NiFe<sub>2</sub>O<sub>4</sub>/MWCNTs) composite has been rapidly synthesized via microwave irradiation technique. The structural properties of the formed product was investigated by X-ray diffraction (XRD), N<sub>2</sub> adsorption/desorption isotherms, thermogravimetric analysis (TGA), Raman spectroscopy and, scanning electron microscopy (SEM). The catalytic behavior of composite material was evaluated by the degradation of Amaranth dye in the photo-Fenton reaction under visible light irradiation. The overall results showed that the prepared composite was successfully synthesized, demonstrating good performance in the dye degradation, with higher degradation rate compared to the NiFe<sub>2</sub>O<sub>4</sub>. The high efficiency in dye degradation can be attributed to synergism between NiFe<sub>2</sub>O<sub>4</sub> and MWCNTs. Therefore, NiFe<sub>2</sub>O<sub>4</sub>/MWCNTs composite can be used as promising photo-Fenton catalyst to degrade Amaranth dye from aqueous solutions.