EFFECT OF ANNEALING TEMPERATURE ON PARTICLE SIZE OF ZINC FERRITE NANOPARTICLES AND THEIR PHOTOCATALYTIC STUDY.

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**Abstract**

Zinc ferrite (ZnFe2O4) nanoparticles have been synthesized by Microemulsion method from Fe(NO3)3.9H2O and Zn(NO3)2.6H2O. C-TAB was used as surfactant and the reaction was carried out in basic medium by using Ammonium hydroxide solution. The synthesized materials were annealed at different temperatures, such as 500, 600 and 750 and the product was characterized by using XRD, FTIR and photocatalysis. X-ray diffraction pattern confirmed the formation of single-phase nanoparticles of zinc ferrite and the particle size and the X-ray density of the annealed ZnFe2O4 nanoparticles linearly increased with the increase in temperature and decrease in lattice parameter was noticed. FTIR study confirms the presence of zinc ferrite nanoparticles and supported the trend of increasing size as revealed by XRD results. Photocatalytic degradation of Congo red was done by zinc ferrite nanoparticles. Zinc ferrite nanoparticles completely degrade the organic pollutant in the presence of Uv-visible light. The result shows that dye is effectively degraded with in short period of time.