

Supplementary material

Novel highly stable β -Cyclodextrin Fullerene mixed valent Fe-metal framework for quick Fenton degradation of alizarin

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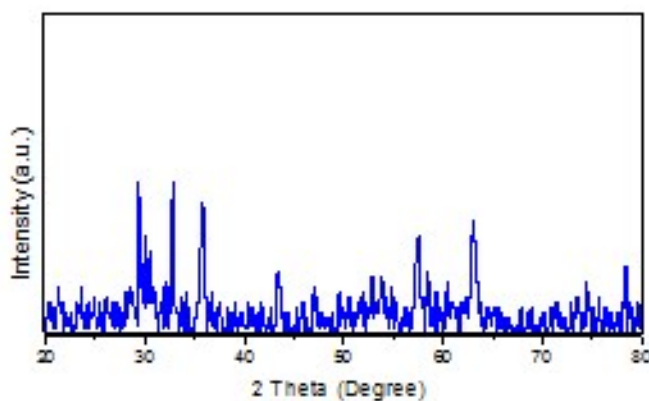


Fig.S1. XRD pattern of Fe₃O₄ nanoparticle

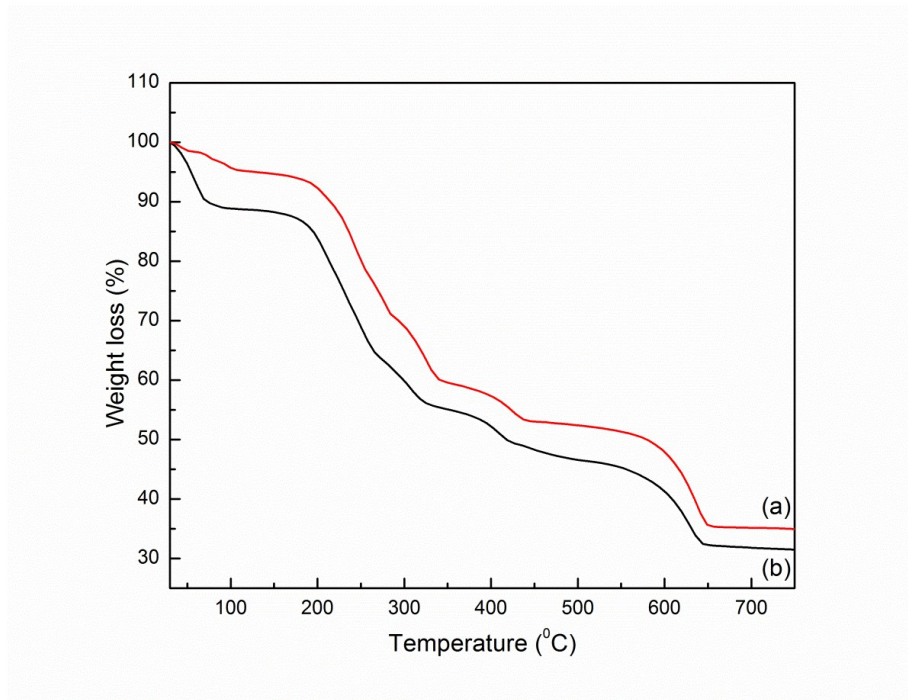


Fig. S2: TGA of (a) Fullerene/ Fe_3O_4 (FMNPs) and (b) β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) nanocomposite

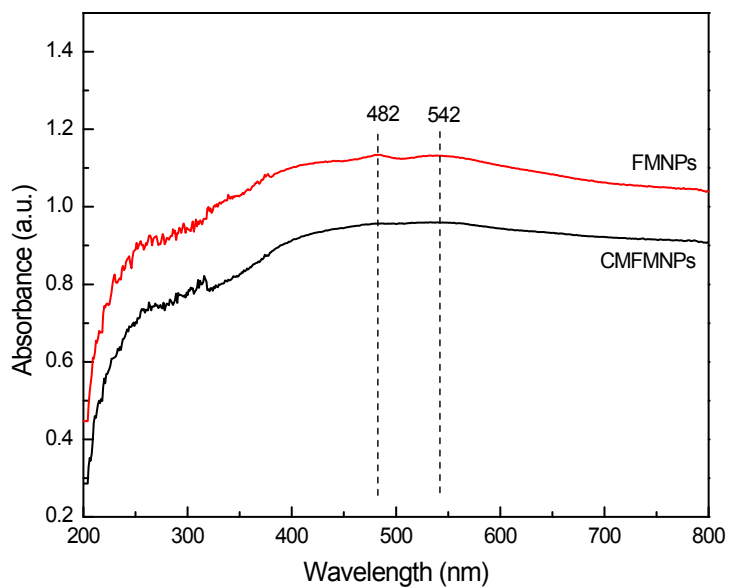


Fig. S3: UV-VIS- DRS study of (a) β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) and (b) Fullerene/ Fe_3O_4 (FMNPs) nanocomposite.

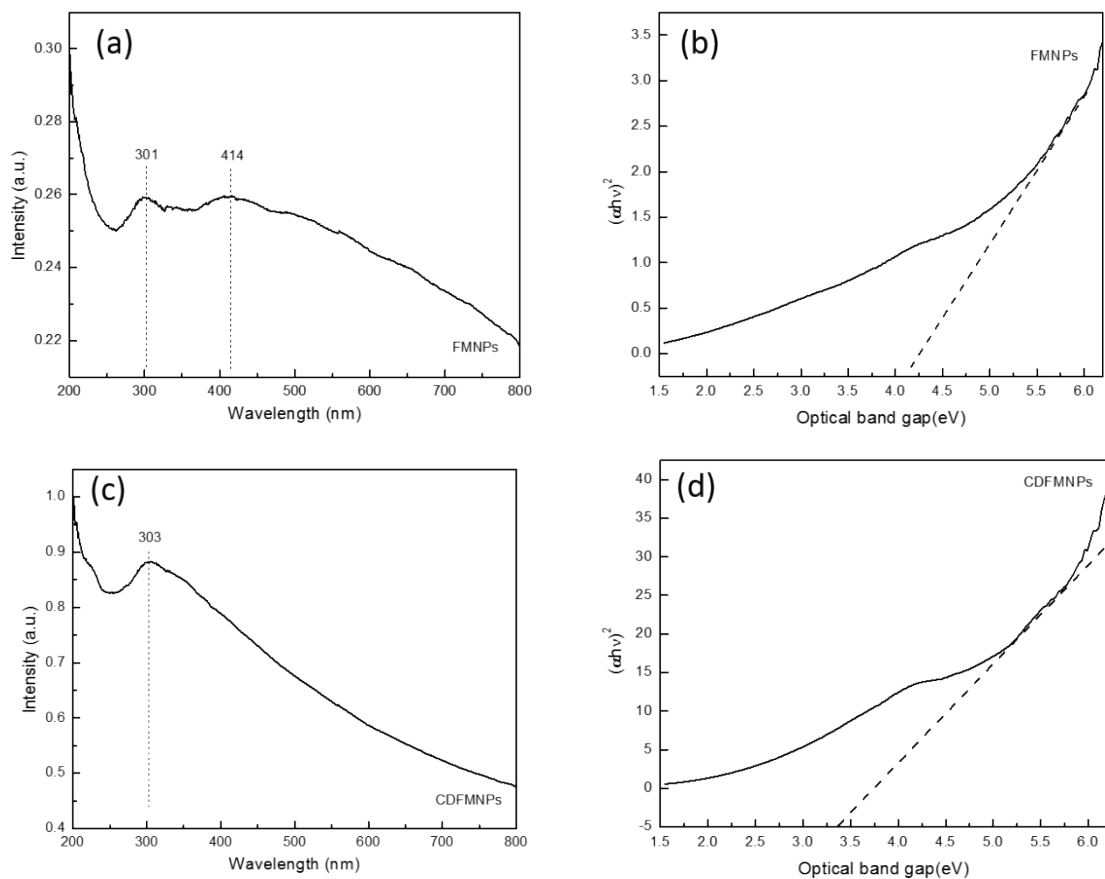


Fig. S4: UV-VIS study of (a) β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) and (b) Fullerene/ Fe_3O_4 (FMNPs) nanocomposite. (c) plot of $(\alpha h\nu)^2$ vs $h\nu$ for β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) (d) plot of $(\alpha h\nu)^2$ vs $h\nu$ for Fullerene/ Fe_3O_4 (FMNPs)

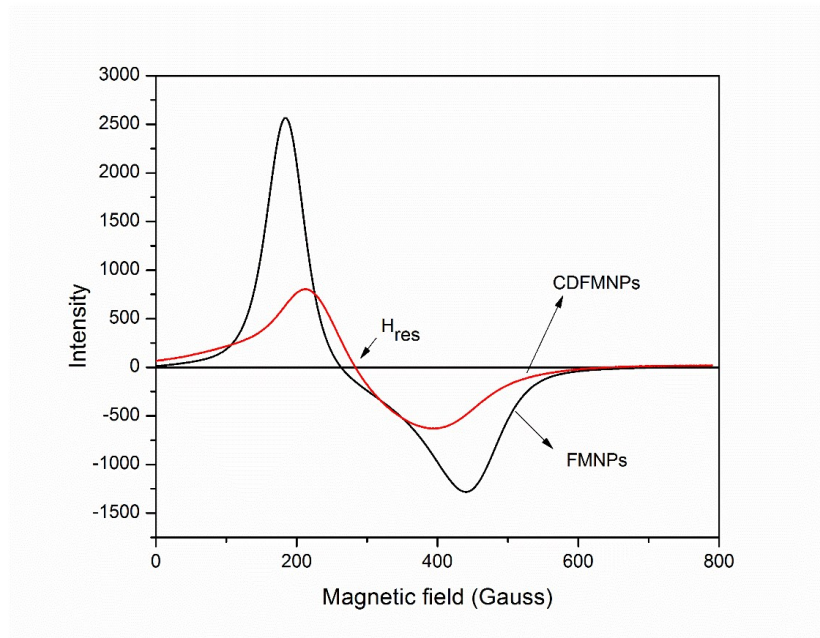


Fig. S5: EPR study of (a) β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) and (b) Fullerene/ Fe_3O_4 (FMNPs) nanocomposite.

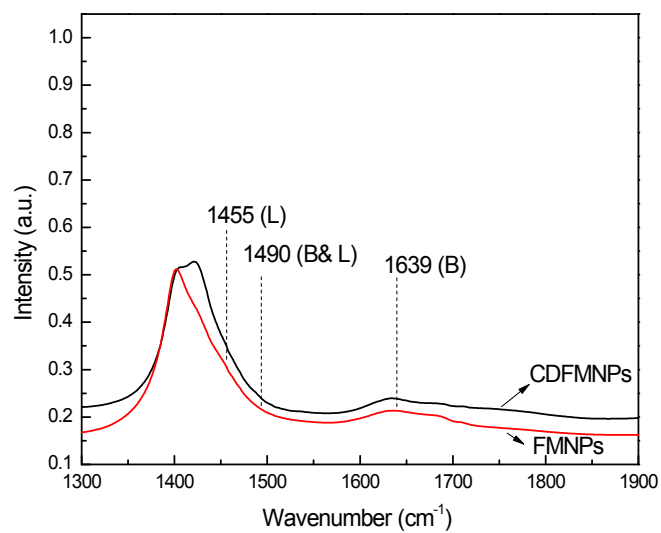


Fig. S6: Pyridine FT-IR study of (a) β -CD-Fullerene/ Fe_3O_4 (CDFMNPs) and (b) Fullerene/ Fe_3O_4 (FMNPs) nanocomposite.

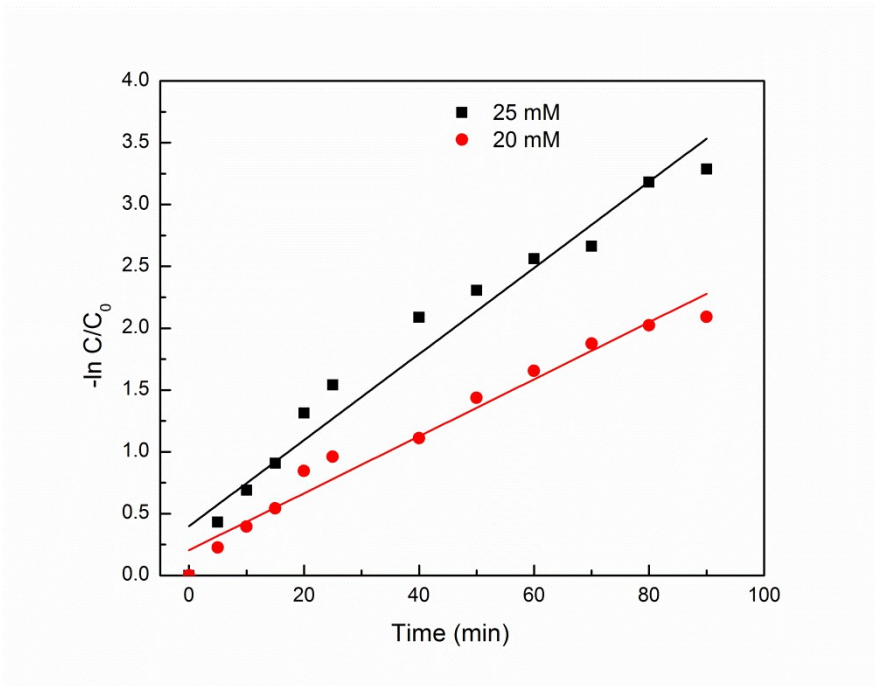


Fig. S7: Effect of H₂O₂ on rate of alizarin degradation by CDFMNPs, Reaction conditions: Catalyst = 2.0 g/ L, pH= 3, [Alizarin] = 10 mM at room temperature.

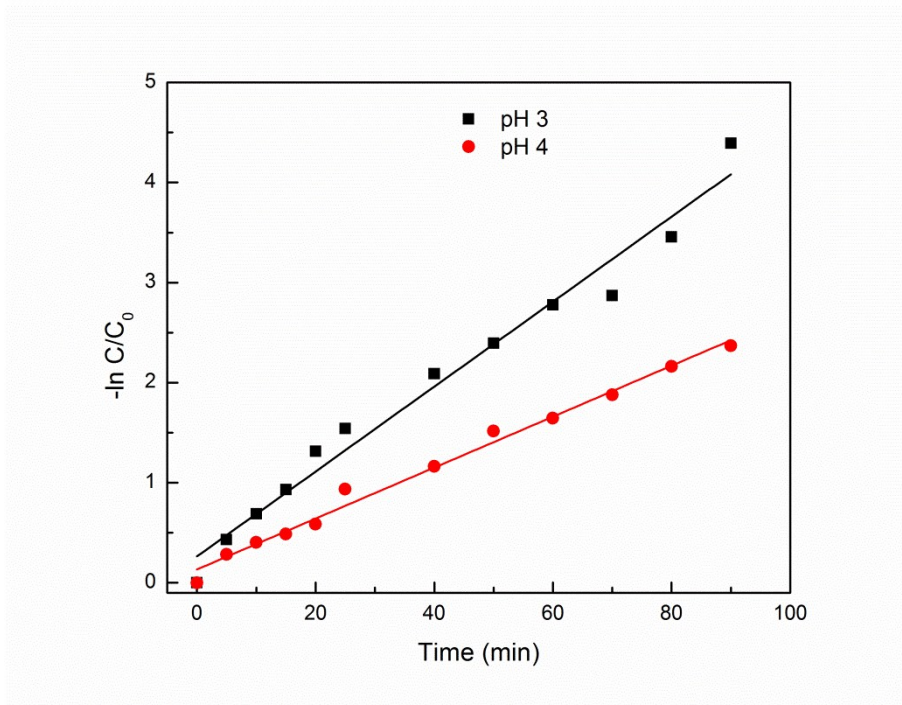


Fig. S8: Effect of pH on rate of alizarin degradation by CDFMNPs, Reaction conditions: [H₂O₂] = 25 mM, Catalyst = 2.0 g/ L, [Alizarin] = 10 mM at room temperature.

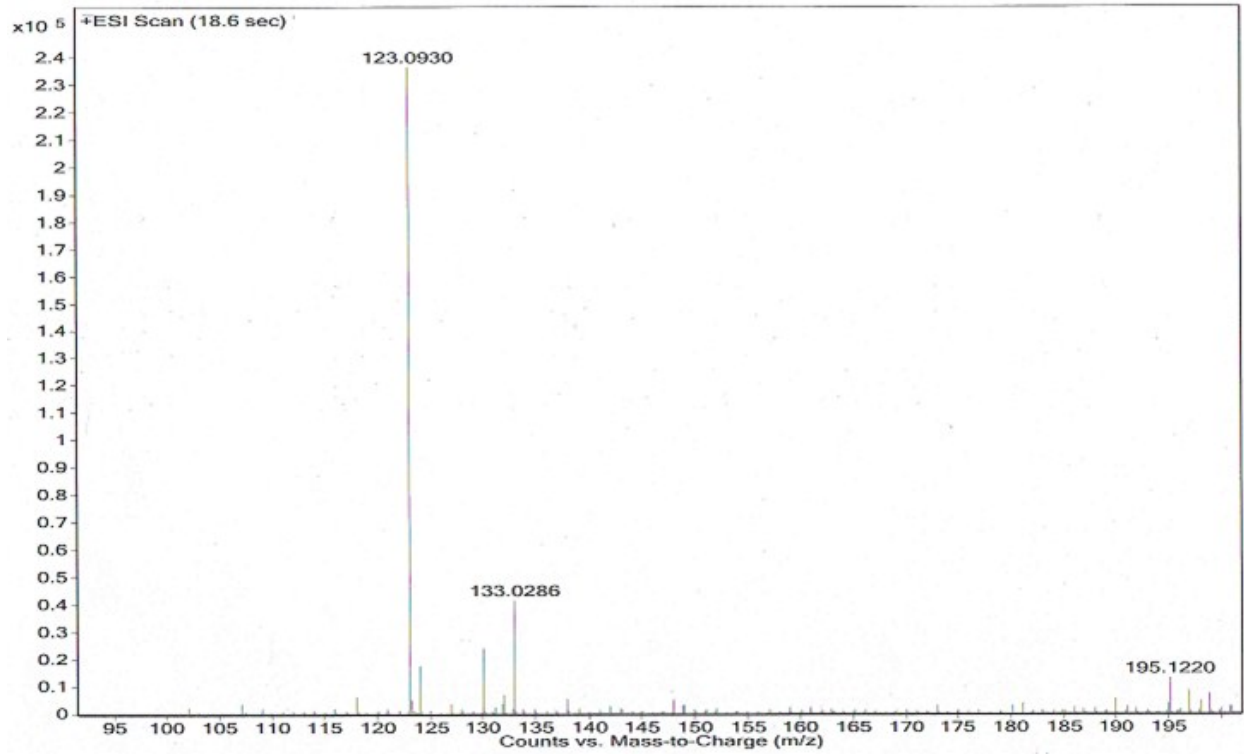


Fig. S9: [ESI (+) ve mode] mass spectra of degraded alizarin by β -CD-Fullerene/ Fe_3O_4 (CDFMNPs).