

# Influence of different capping agents on structural, optical, and photocatalytic properties of iron oxide nanoparticles

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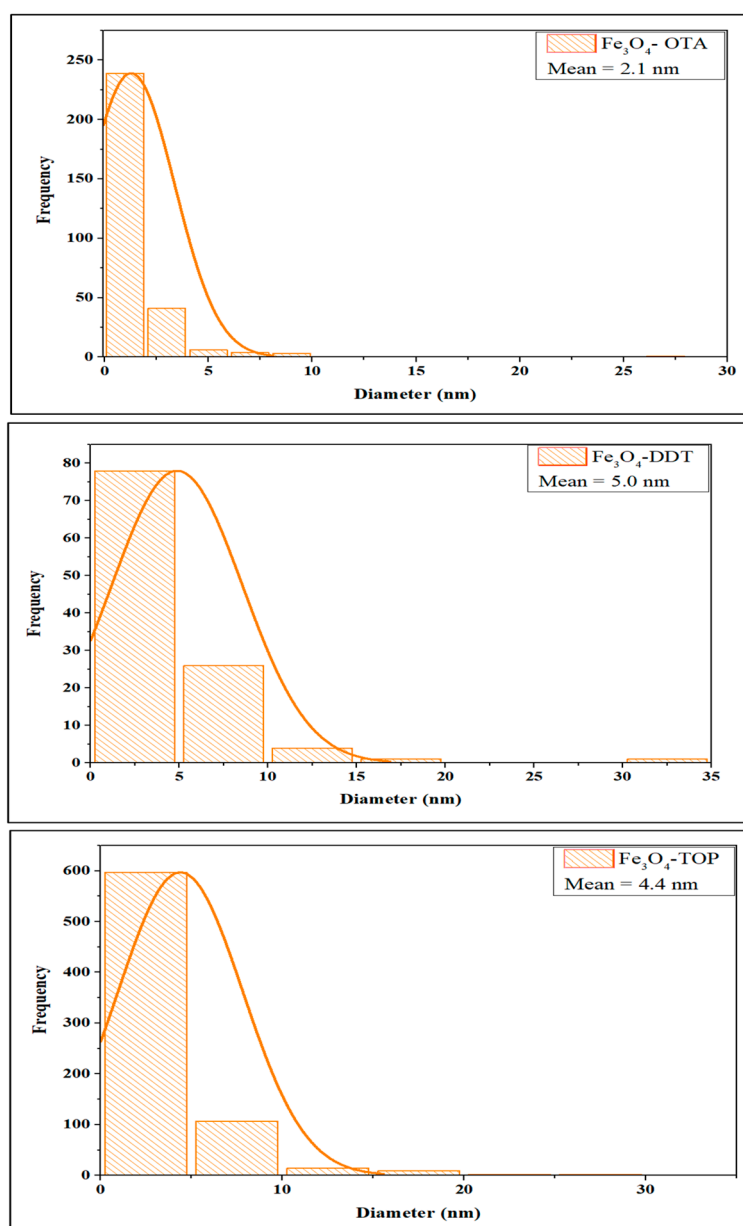
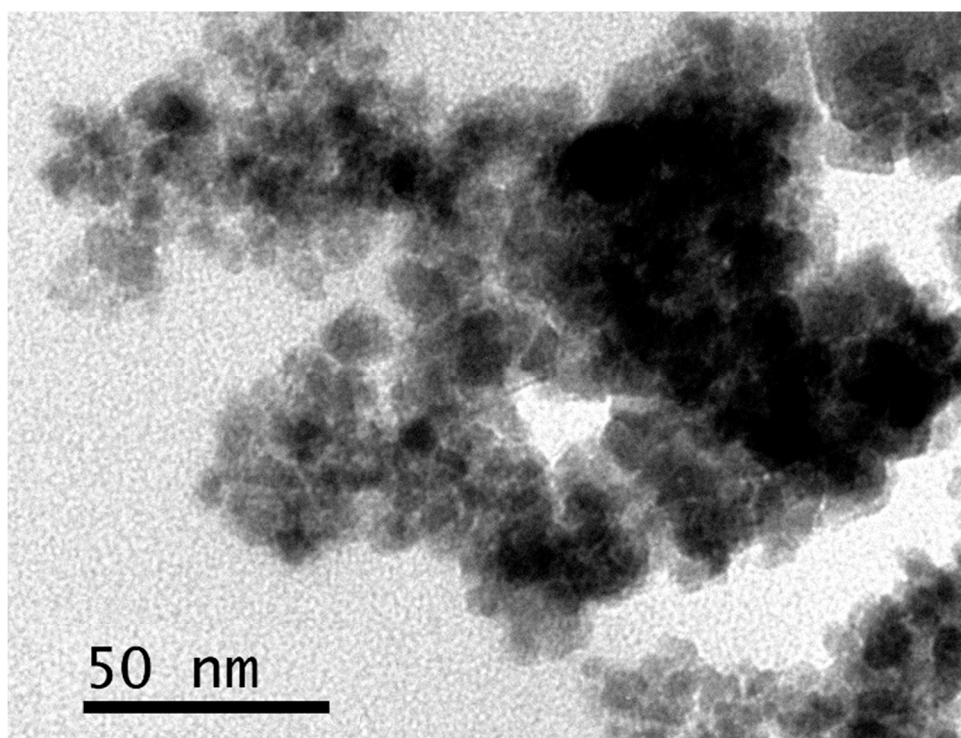
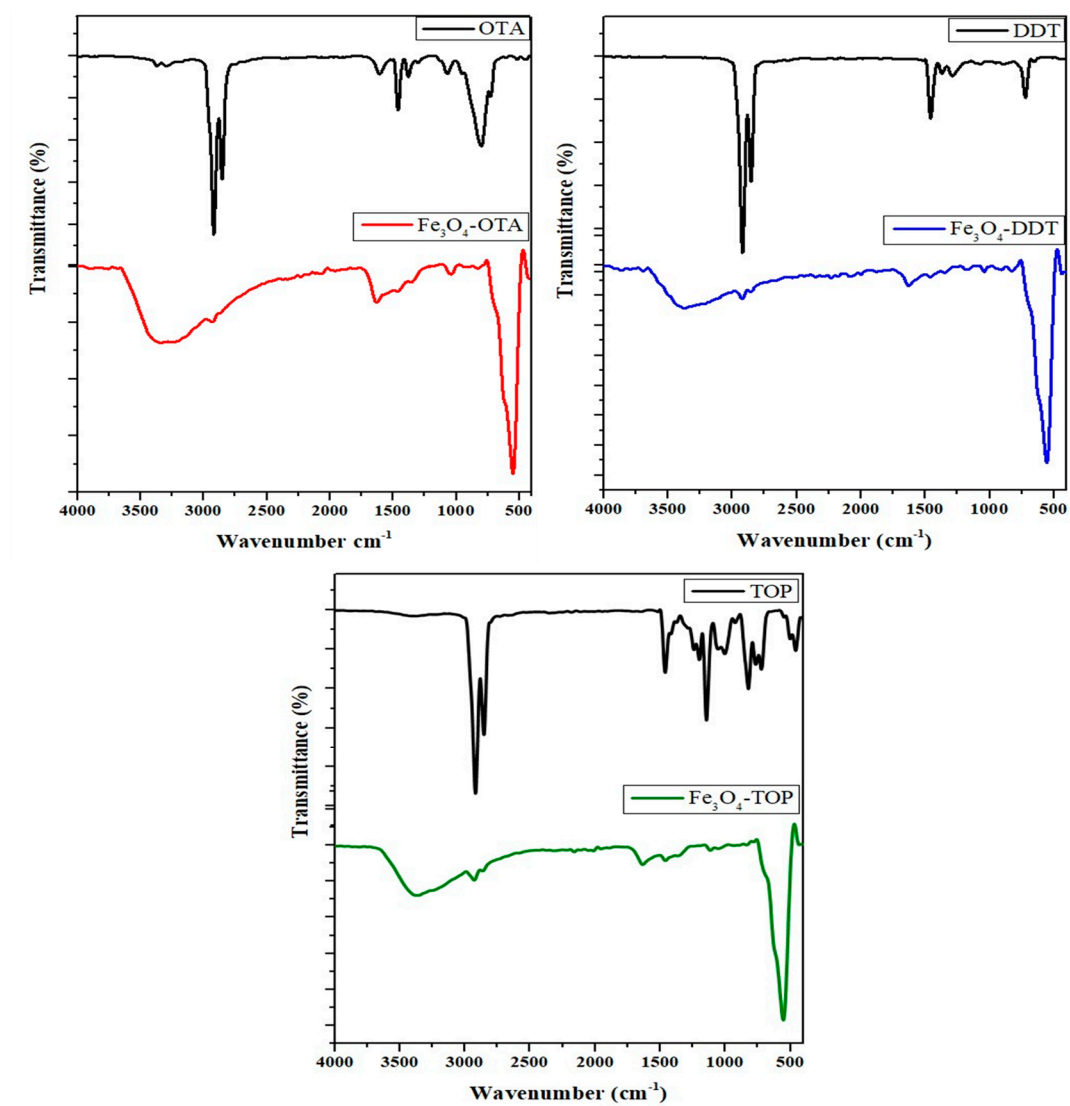


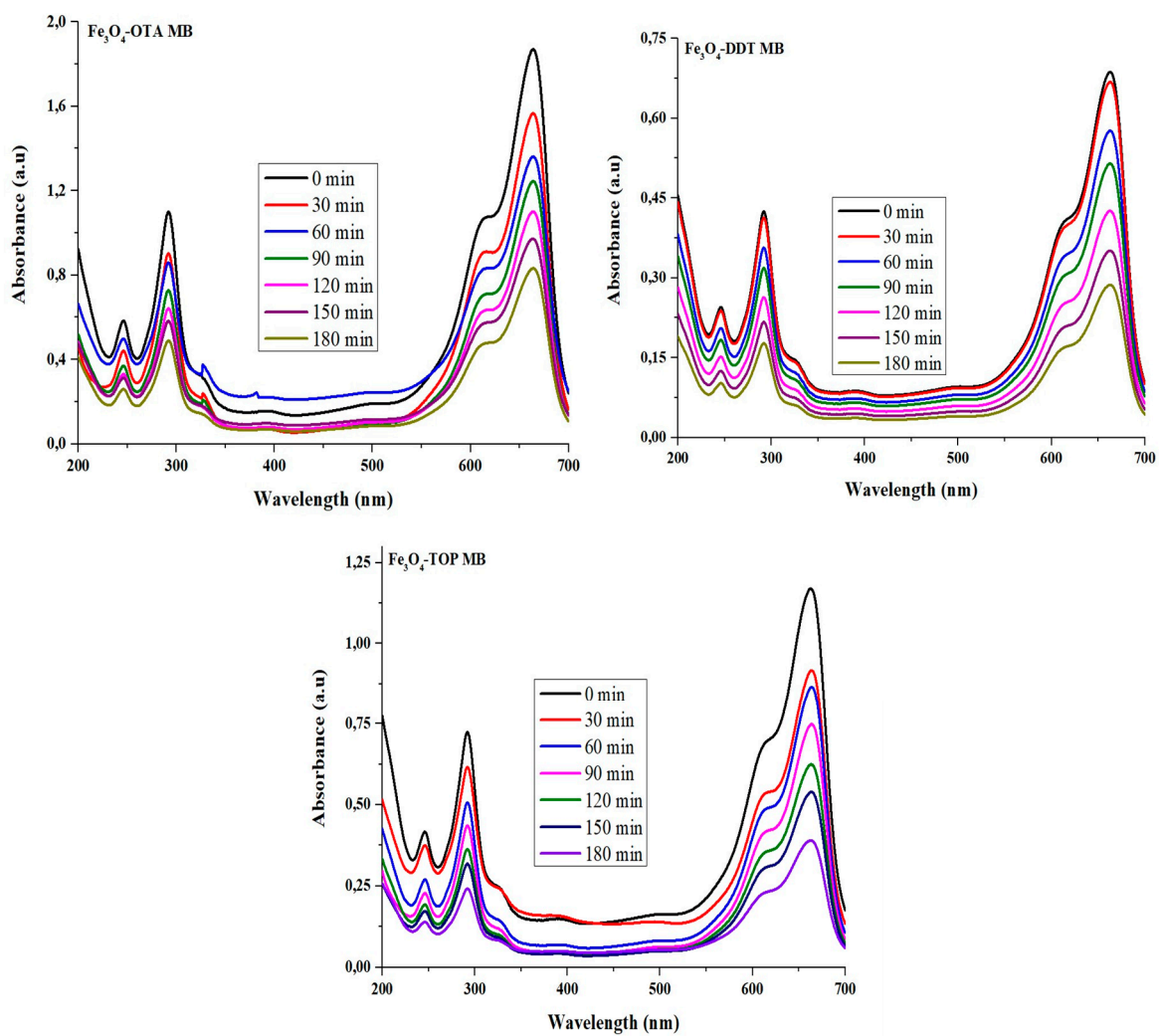
Figure S1. Size distribution histograms of OTA, DDT and TOP-capped iron oxide nanoparticles.



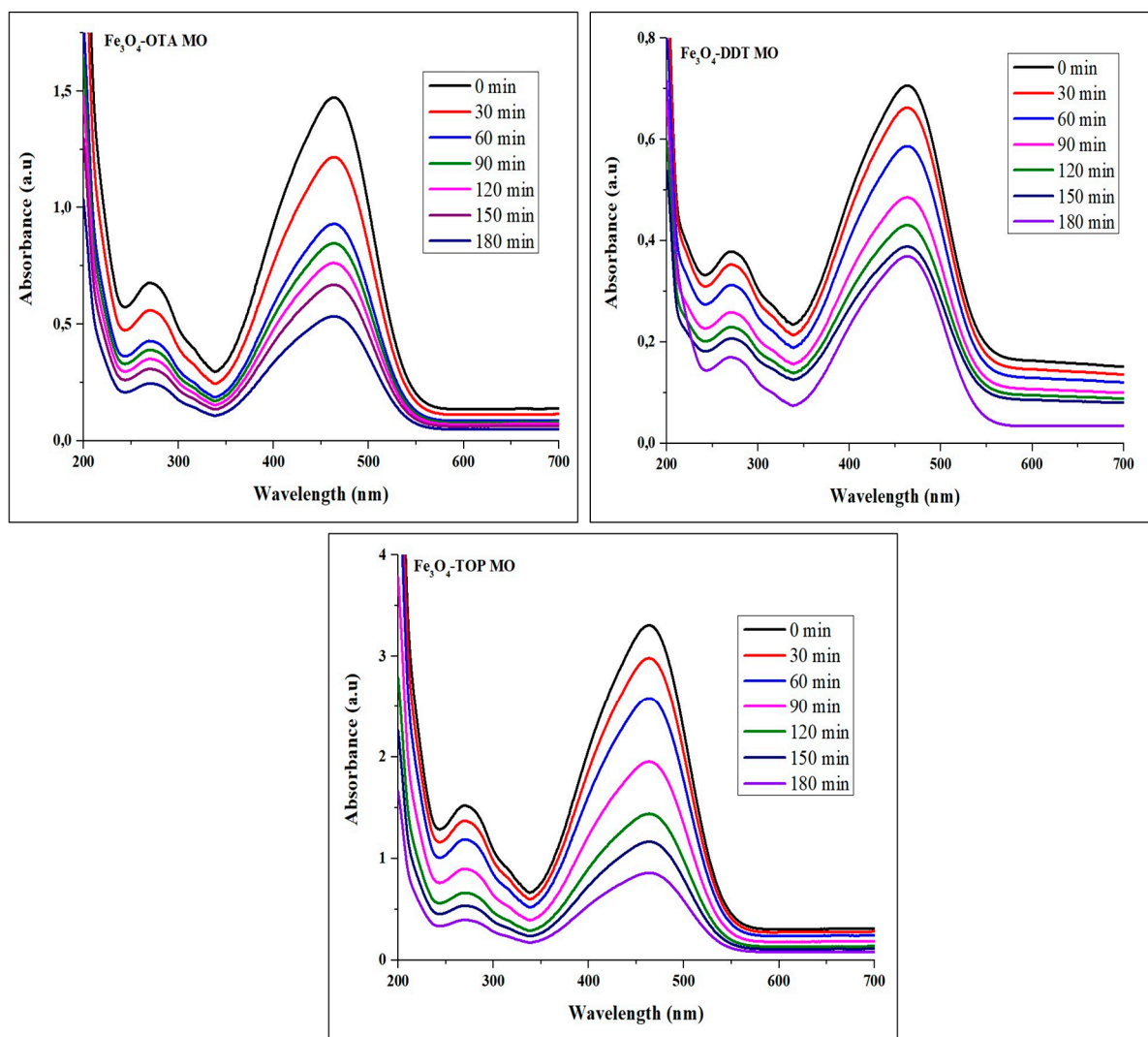
**Figure S2.** TEM image of uncapped iron oxide nanoparticles.



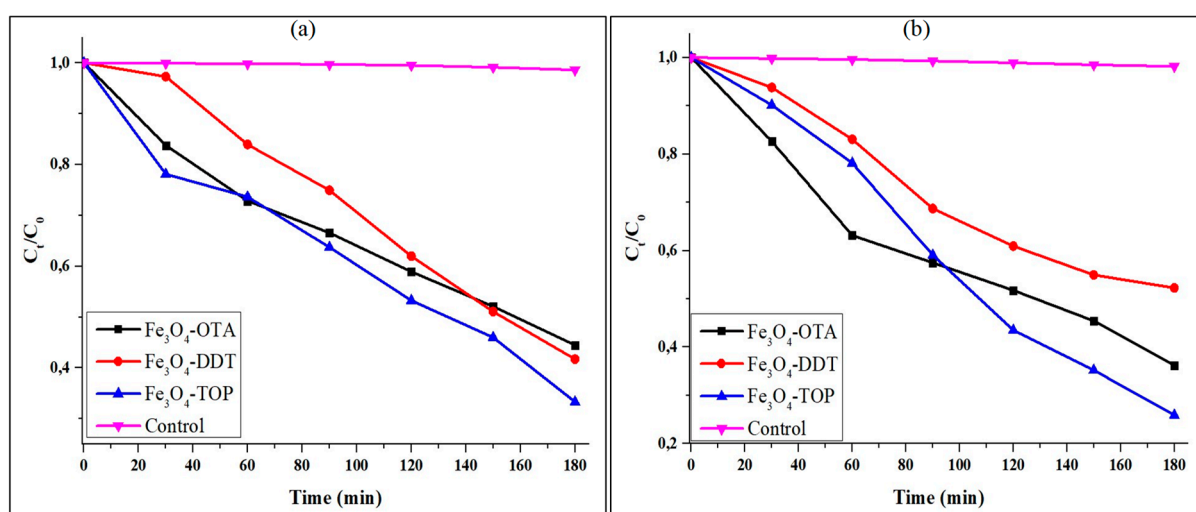
**Figure S3.** FTIR spectra overlay of octylamine, 1-dodecanethiol and tri-n-octylphosphine capped iron oxide nanoparticles.



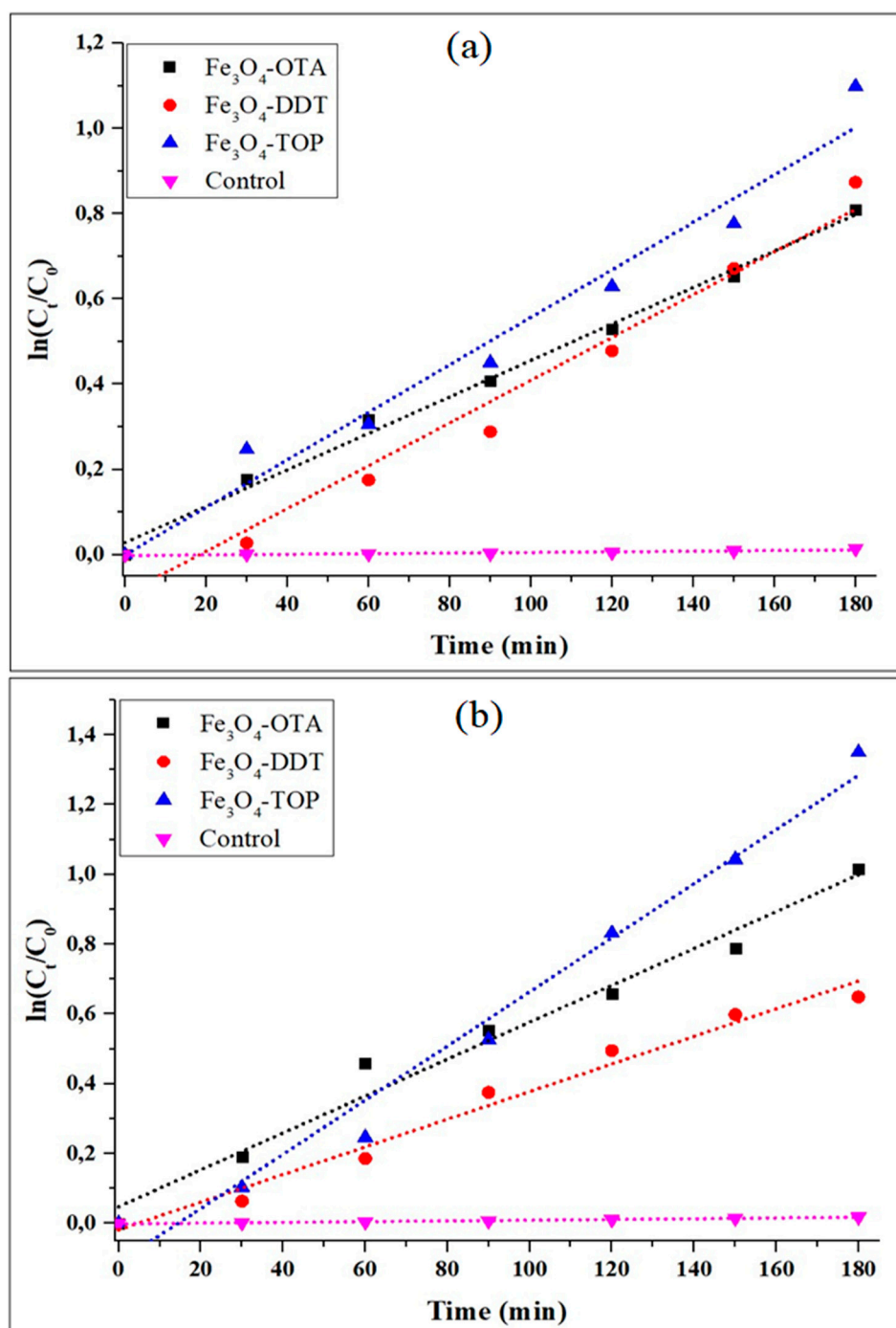
**Figure S4.** Absorption spectra of methylene blue (MB) over (a)  $\text{Fe}_3\text{O}_4$ -OTA, (b)  $\text{Fe}_3\text{O}_4$ -DDT and (c)  $\text{Fe}_3\text{O}_4$ -TOP nanoparticles



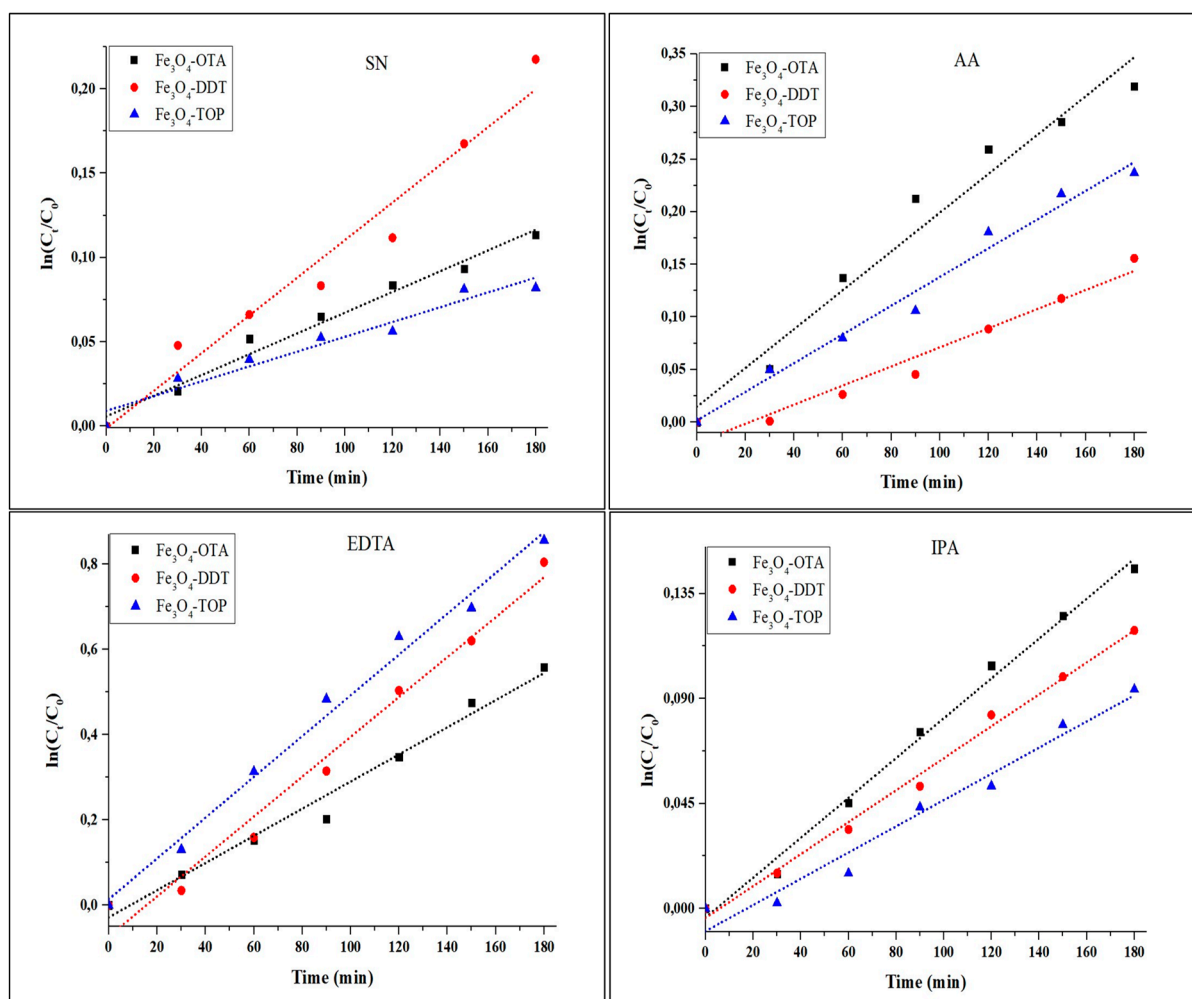
**Figure S5.** Absorption spectra of methyl orange (MO) over (a)  $\text{Fe}_3\text{O}_4$ -OTA, (b)  $\text{Fe}_3\text{O}_4$ -DDT and (c)  $\text{Fe}_3\text{O}_4$ -TOP nanoparticles



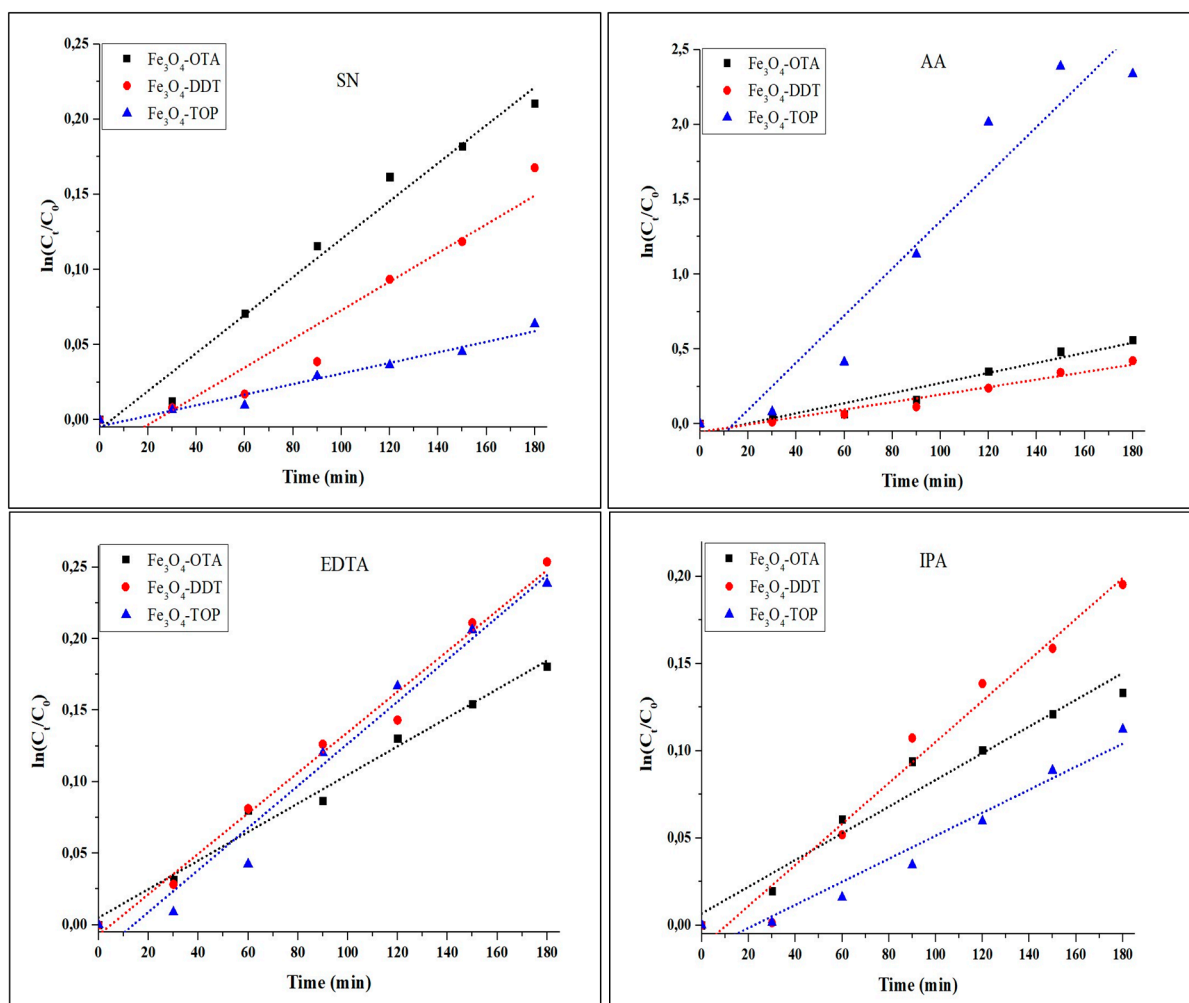
**Figure S6.** (a) MB and (b) MO  $C_t/C_0$  versus irradiation time plots.



**Figure S7.** Methylene blue (a) and methyl orange (b) photocatalytic degradation kinetics using iron oxide nanoparticles as photocatalysts.



**Figure S8.** Photodegradation kinetics plots of MB by iron oxide nanoparticles in the presence of scavengers



**Figure S9.** Photodegradation kinetics plots of MO by iron oxide nanoparticles in the presence of scavengers