One-pot synthesis of carbon dots from neem resin and their selective detection of Fe(II) ions and photocatalytic degradation of toxic dyes

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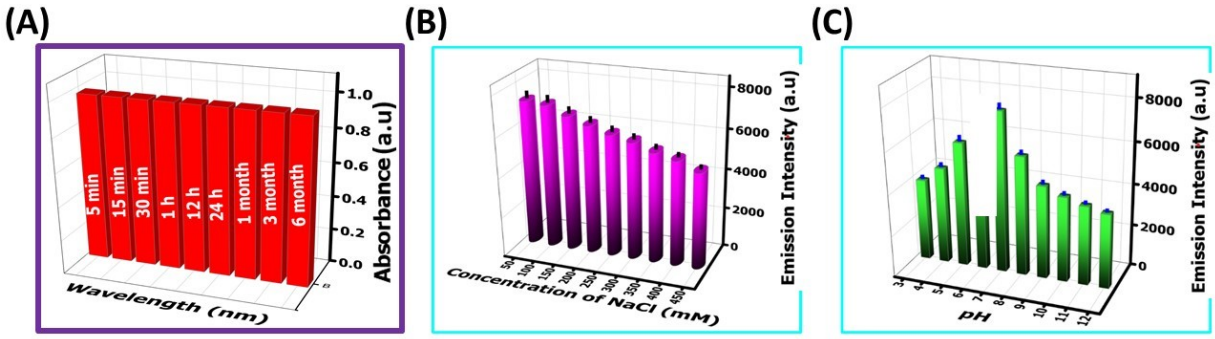

Figure S1. (A) the proposed probe of (RCDs) fluorescence intensity for stability studies behavior; **(B)** Plot of emission intensity against various concentration of NaCl (ionic strength); **(C)** The pH study against fluorescence emission intensity with different pH.

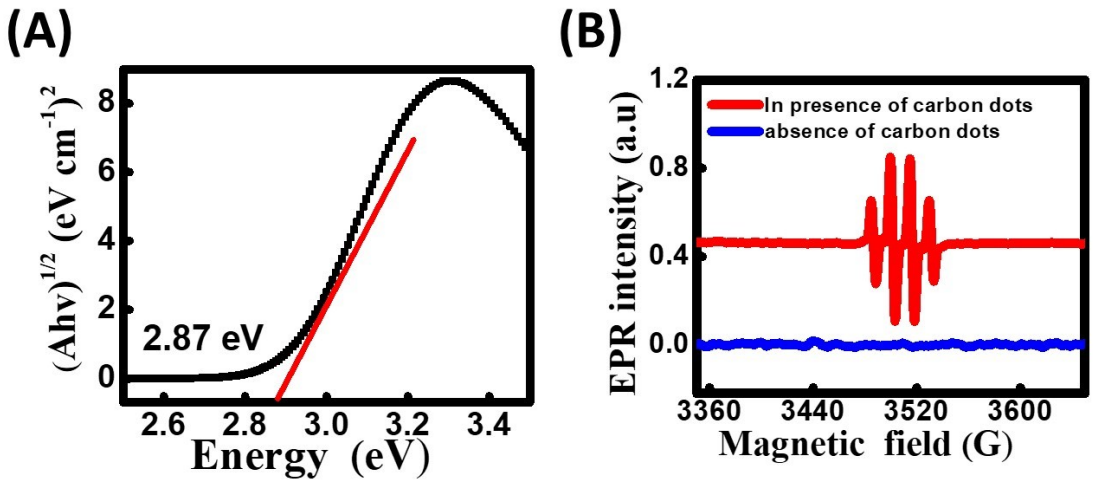

Figure S2. UV-Vis DRS spectra for in presence of NR-CDs nano-catalyst **(A)** Tauc plot, **(B)** EPR spectra of irradiation of visible light, a solution containing, in presence of 10 mM of DMPO dissolved in 25% of DMSO in addition with NR-CDs nano-catalyst (curve red line), absence of NR-CDs nano-catalyst (curve blue line).

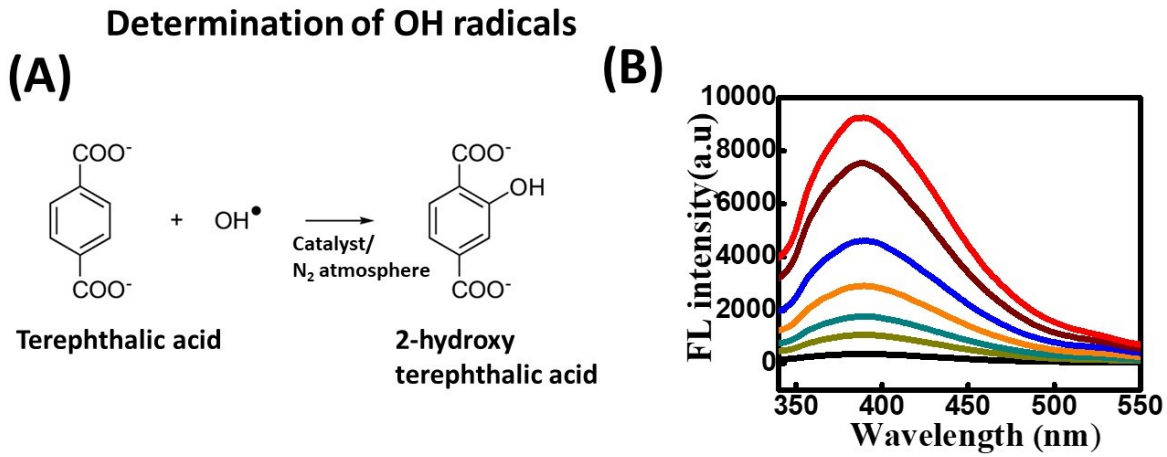

Figure S3. Fluorescence spectroscopy monitoring of the oxidation of tere-phthalic acid to 2-hydroxyterephthalic acid in the presence of NR-CDs nano-catalyst. **(A)** Reaction between terephthalic acid and $OH^{\bullet}$ radical **(B)** Fluorescence spectroscopy (FL spectra).