

Supporting Information

Functionalized manganese iron oxide nanoparticles: a dual potential magneto-chemotherapeutic cargo in a 3D breast cancer model

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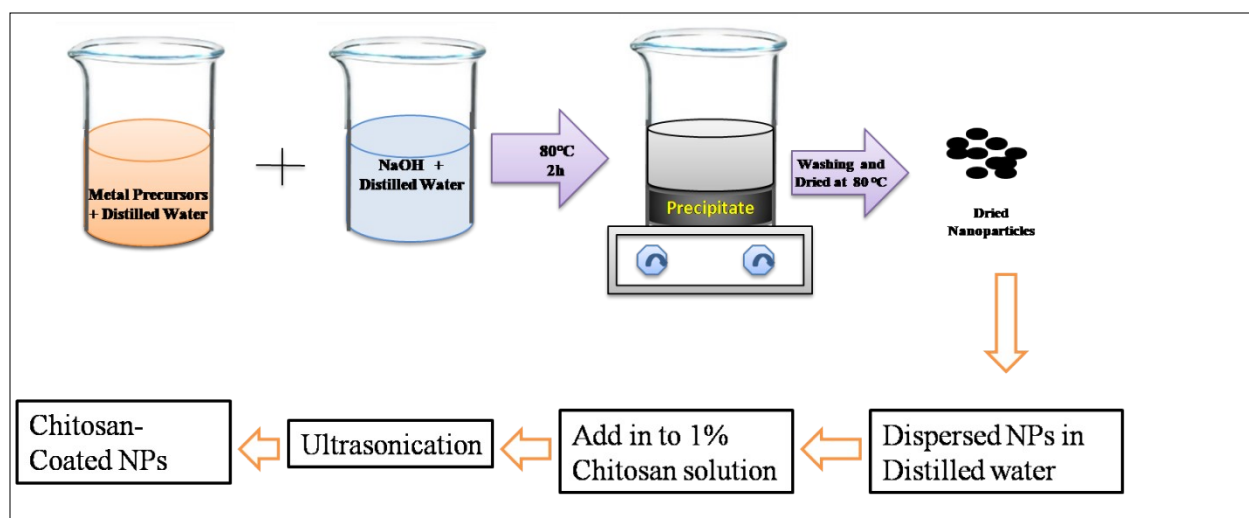


Fig. S1 Synthesis of maganese iron oxide NPs and their surface modification using CS.

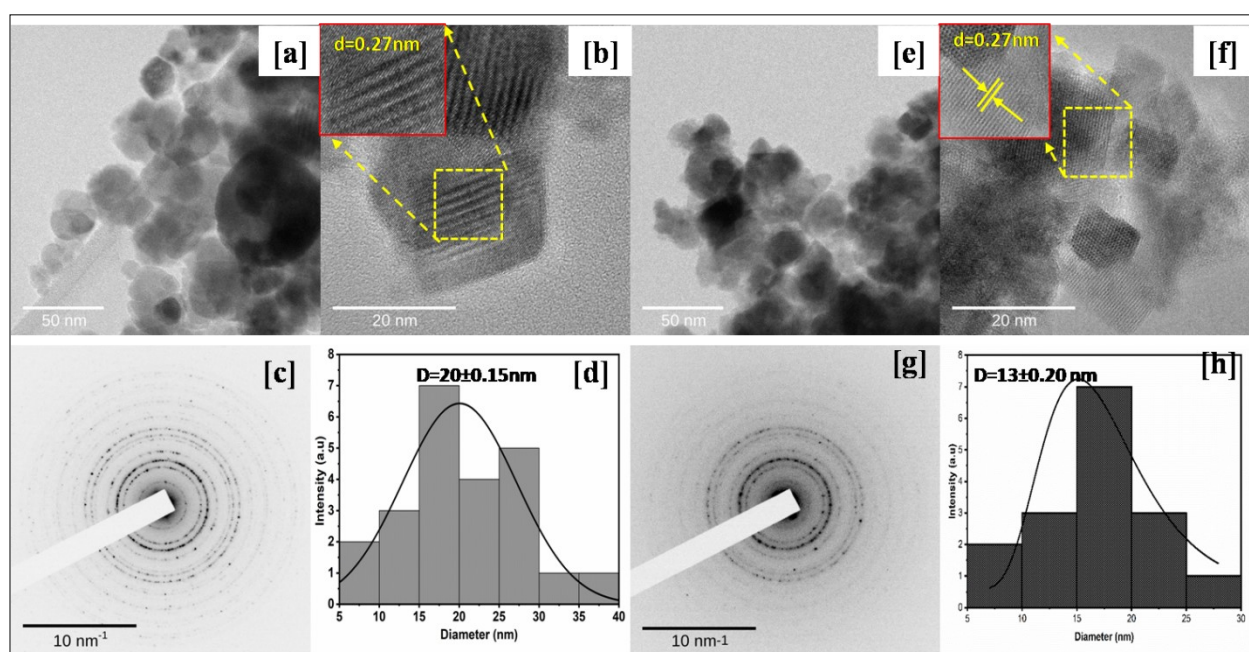


Fig. S2. (a, b, e, f) TEM image, (c, g) SAED pattern and Histogram (d, h) bare MIONPs and CS-MIONPs.

Table S1. Stoichiometry % concentration of the constituent elements of the MIONPs by EDX

Sample ($x=0.75$)	Mn	Fe	O
$\text{Mn}_x\text{Fe}_{1-x}\text{Fe}_2\text{O}_4$	9.02	25.07	65.90

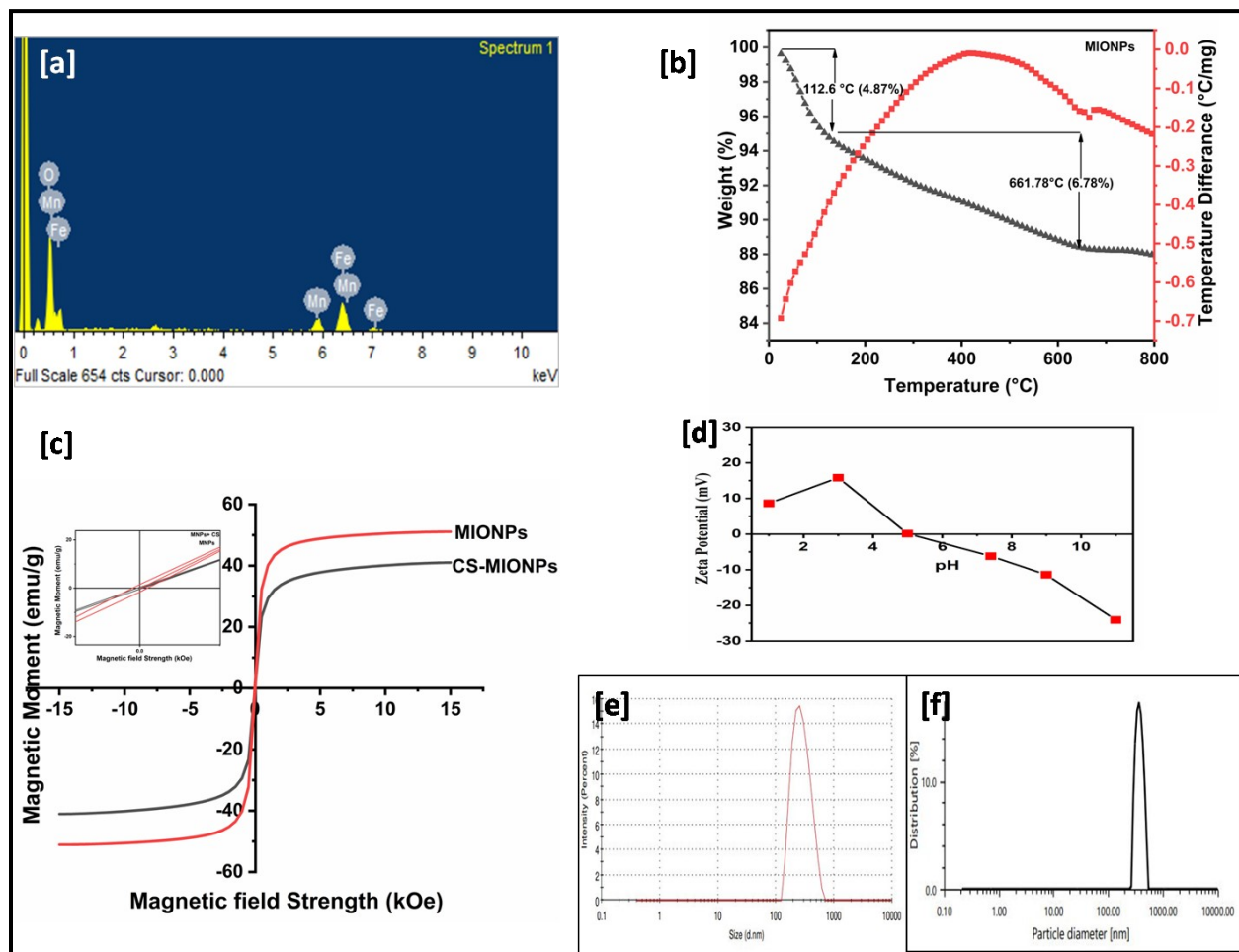


Fig. S3 (a) Stoichiometry % concentration of the constituent elements of the MIONPs by EDX, (b) Thermogravimetric spectra of MIONPs, (c) Magnetization (M) versus field curves of the bare MIONPs and CS-MIONPs, (d) Zeta potential studies of at various pH, (e, f) Hydrodynamic diameter of MIONPs and CS-MIONPs.

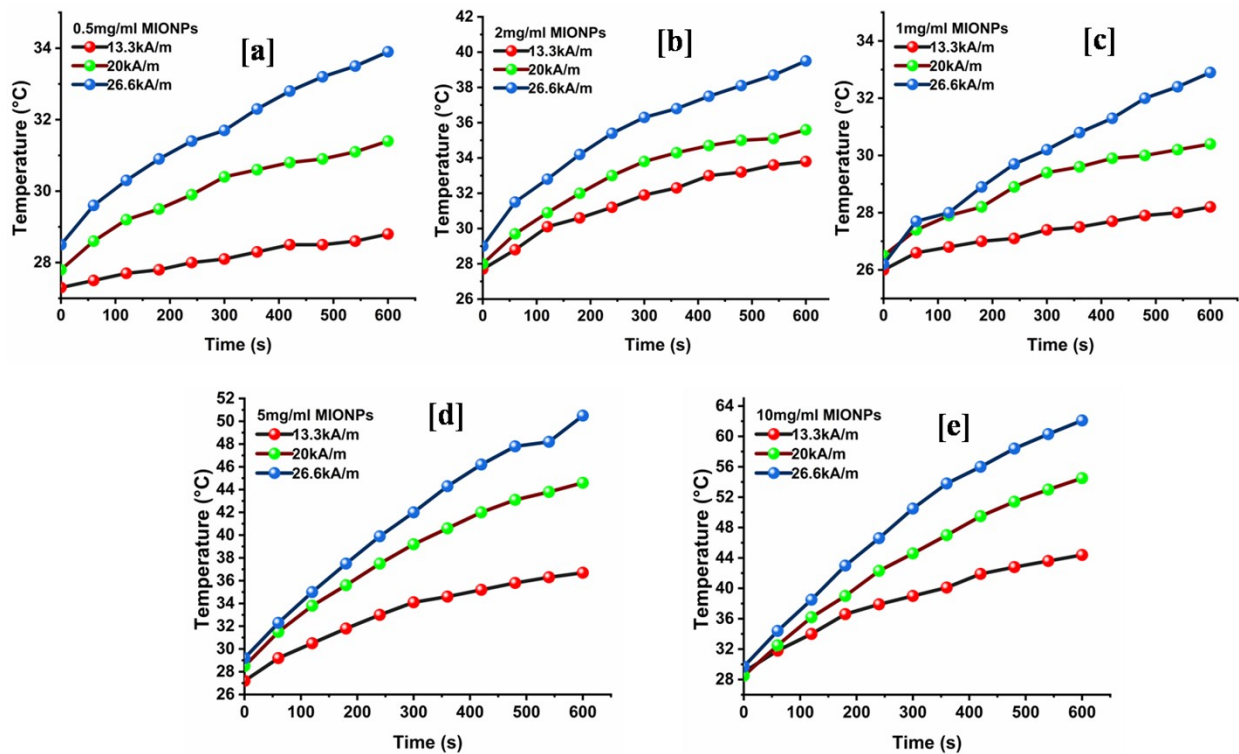


Fig.S4. Temperature achieved by MIONPs the samples after 10 min with different applied AC magnetic field for concentration (a) 0.5 mg/mL, (b) 1 mg/mL, (c) 2 mg/mL, (d) 5 mg/mL, (e) 10 mg/mL.

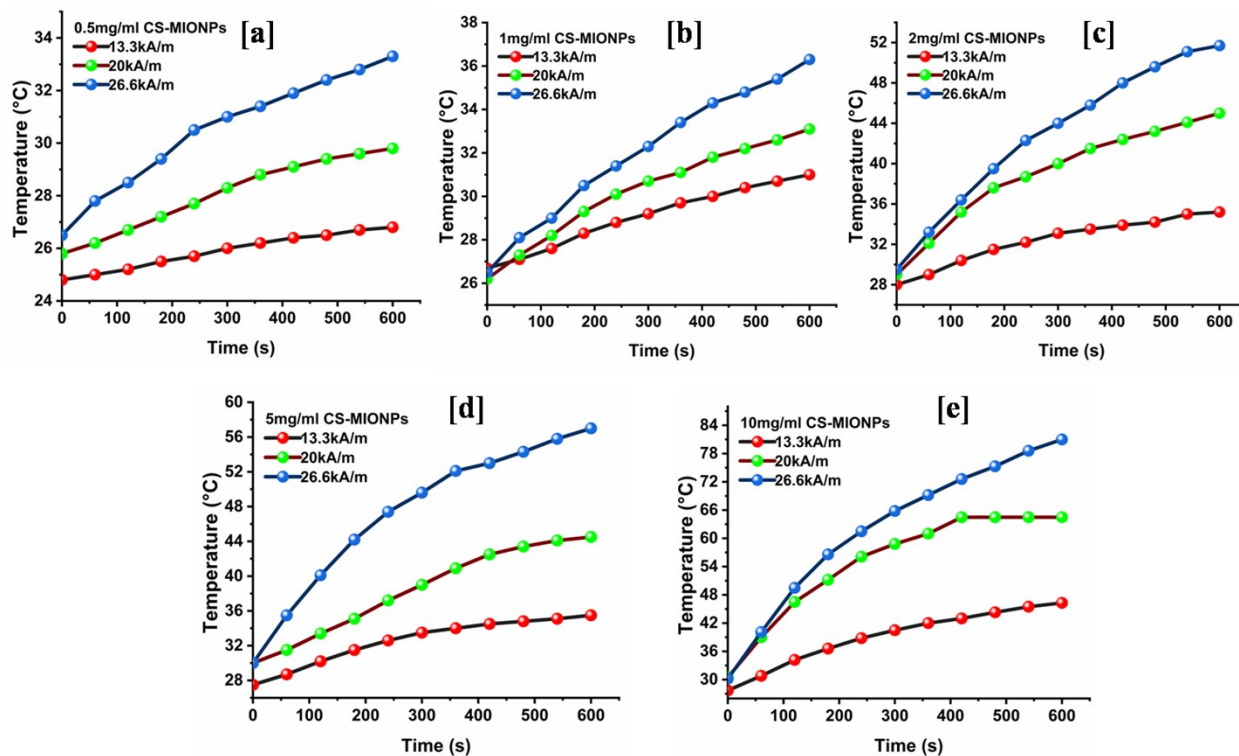


Fig.S5. Temperature achieved by CS-MIONPs the samples after 10 min with different applied AC magnetic field for concentration (a) 0.5 mg/mL, (b) 1 mg/mL, (c) 2 mg/mL, (d) 5 mg/mL, (e) 10 mg/mL.

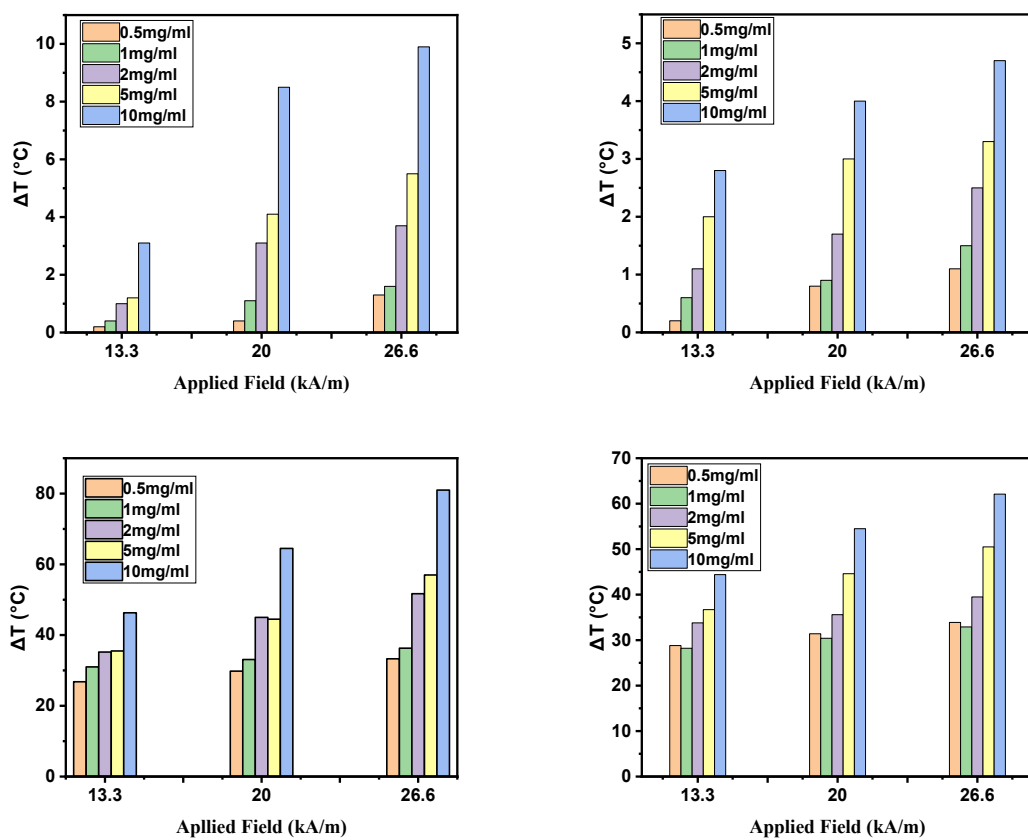


Fig. S6 Actual temperature rise ($\Delta T_{\max}$) for MIONPs and CS-MIONPs at field amplitudes 6.7 to 26.7 kA/m (at 277 kHz).