

Supplementary Material

Mesoporous Fe₃O₄/SiO₂/poly(2-carboxyethyl acrylate) composite polymer particles for pH-responsive loading and targeted release of bioactive molecules

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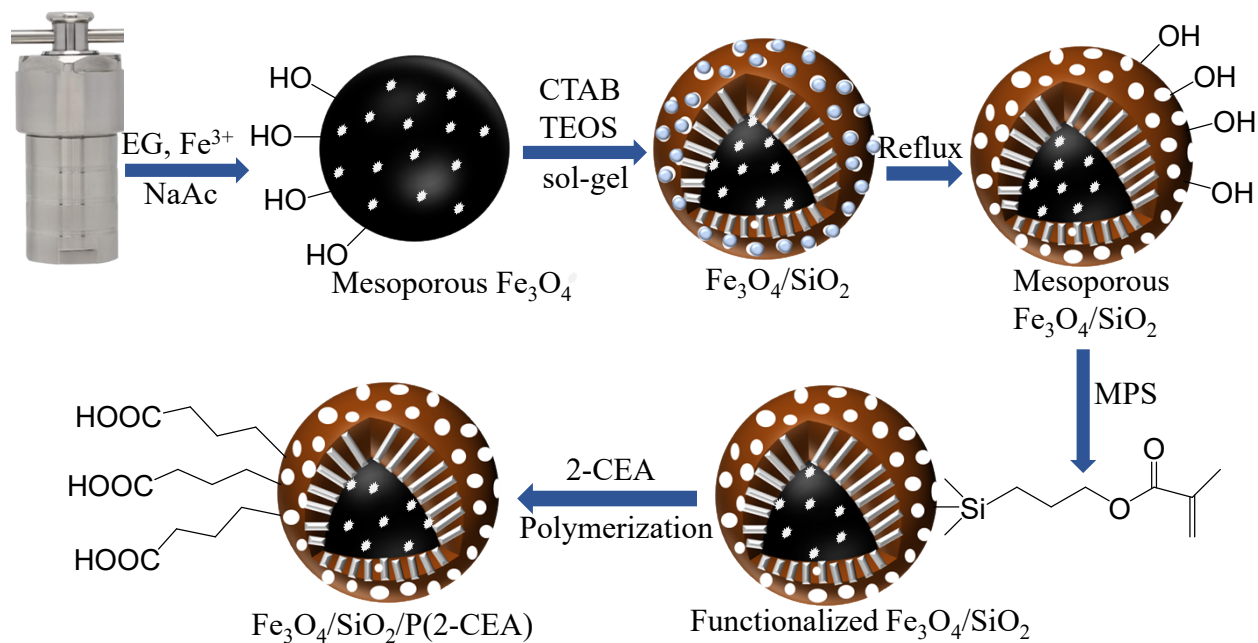
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Scheme S1 Preparation protocol of $\text{Fe}_3\text{O}_4/\text{SiO}_2/\text{P}(2\text{-CEA})$ composite polymer particles.

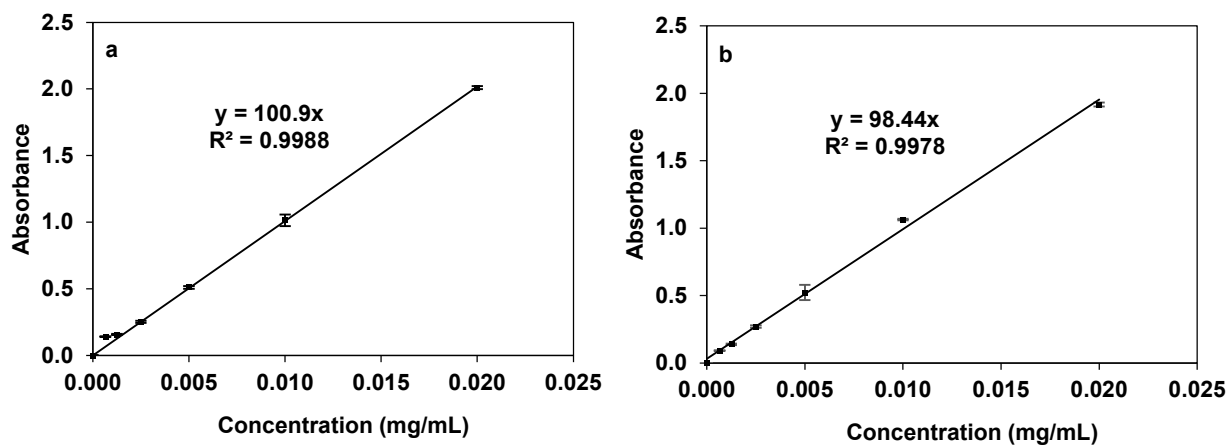


Fig. S1 Calibration curves of cationic MB at pH values of (a) 4.0 and (b) 10.0 recorded by a UV-visible spectrophotometer at the wavelength of 662 nm.

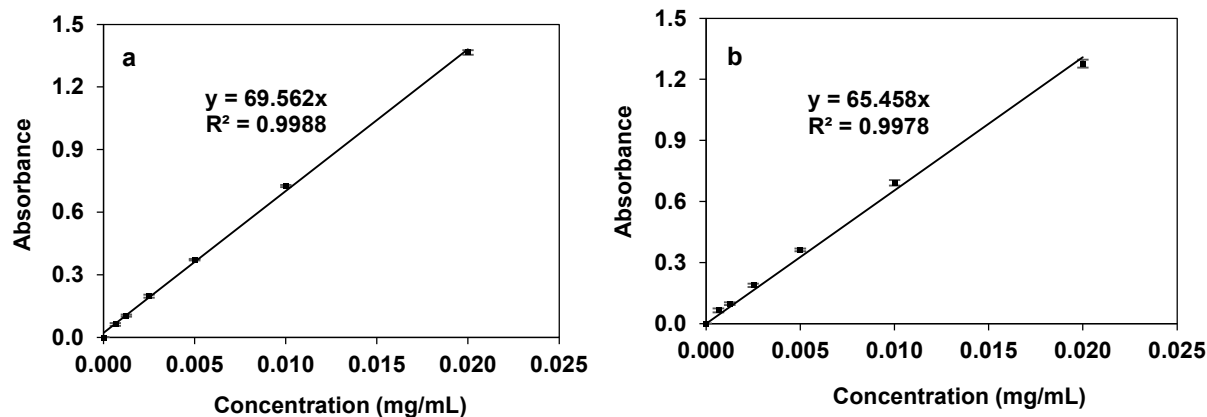


Fig. S2 Calibration curves of anionic MO at pH values of (a) 4.0 and (b) 10.0 recorded by a UV-visible spectrophotometer at the wavelength of 465 nm.

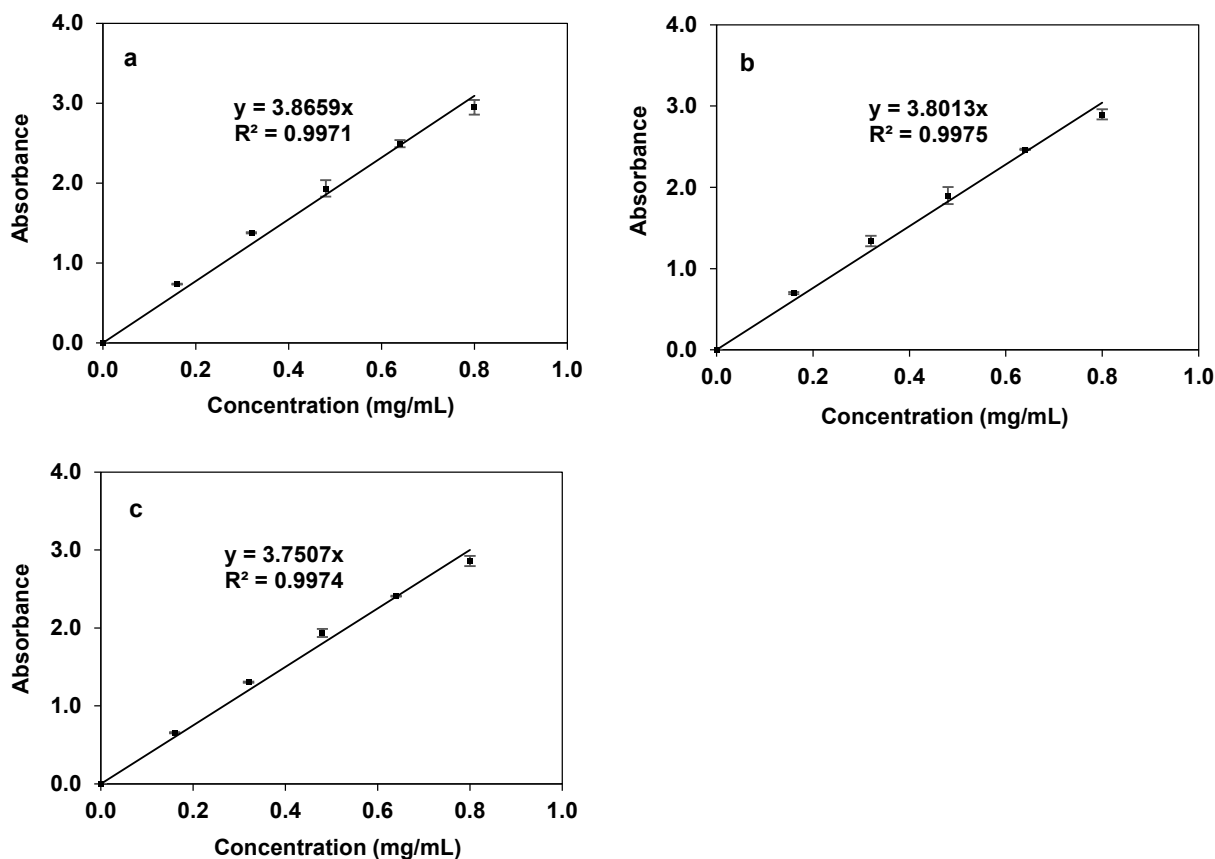


Fig. S3 Calibration curves of vancomycin at pH values of (a) 4.0, (b) 8.0 and (c) 10.0 recorded by a UV-visible spectrophotometer at the wavelength of 280 nm.

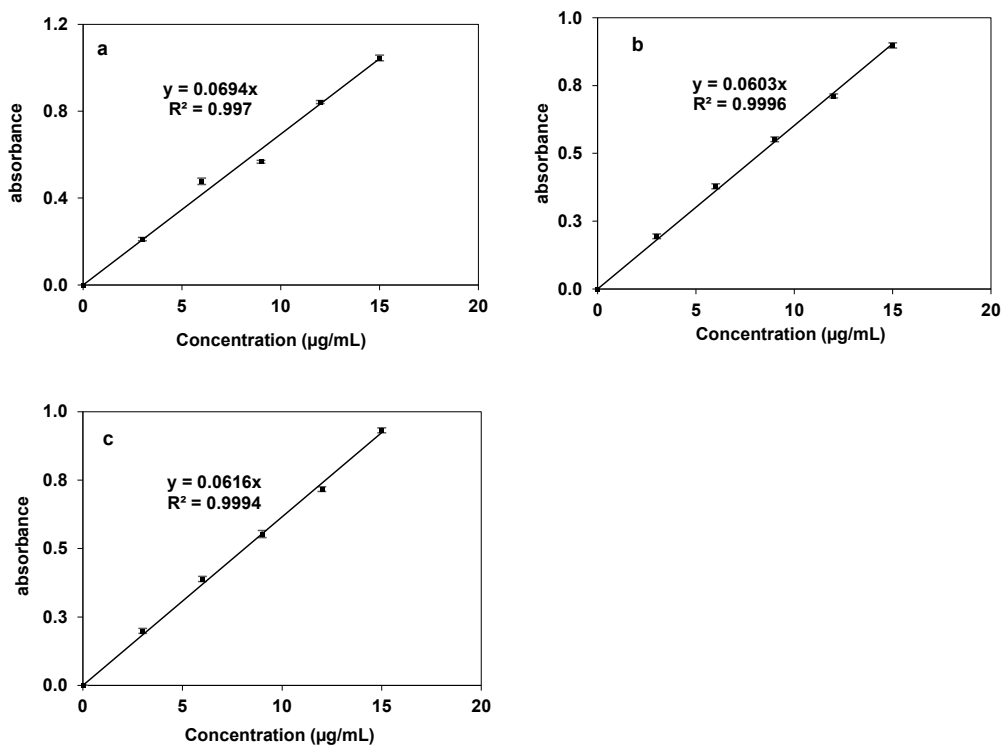


Fig. S4 Calibration curves of *p*-AP at pH values of (a) 4.0, (b) 8.0 and (c) 10.0 recorded by a UV-visible spectrophotometer at the wavelength of 243 nm.

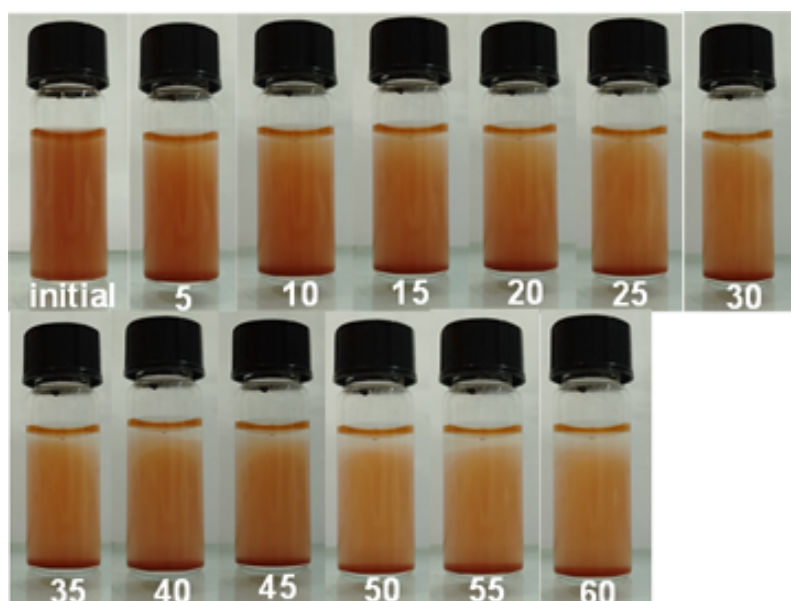


Fig. S5 Time (min) dependent digital images of washed aqueous $\text{Fe}_3\text{O}_4/\text{SiO}_2/\text{P}(2\text{-CEA})$ composite polymer suspension.

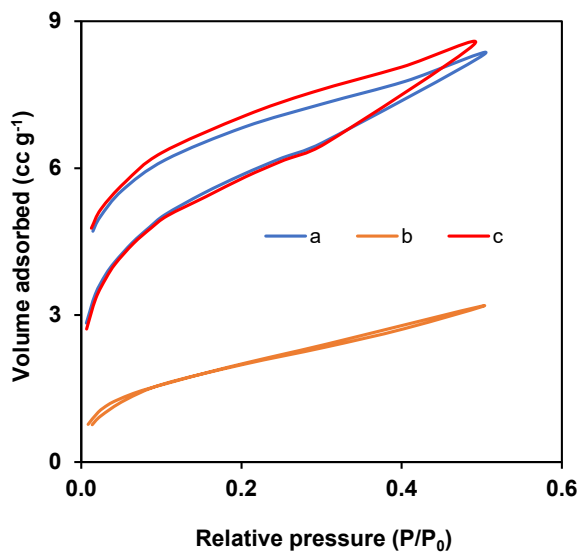


Fig. S6 N₂ adsorption-desorption isotherms of (a) Fe₃O₄ core-particles, (b) Fe₃O₄/SiO₂ composite seed particles and (c) Fe₃O₄/SiO₂/P(2-CEA) composite polymer particles.

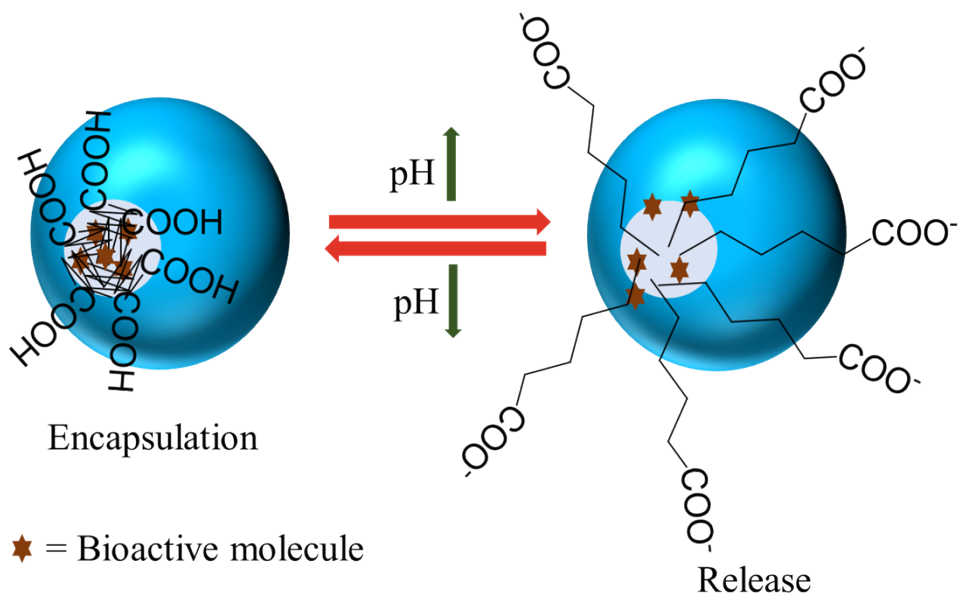


Fig. S7 Mechanism of drug loading and release from Fe₃O₄/SiO₂/P(2-CEA) composite polymer particles.

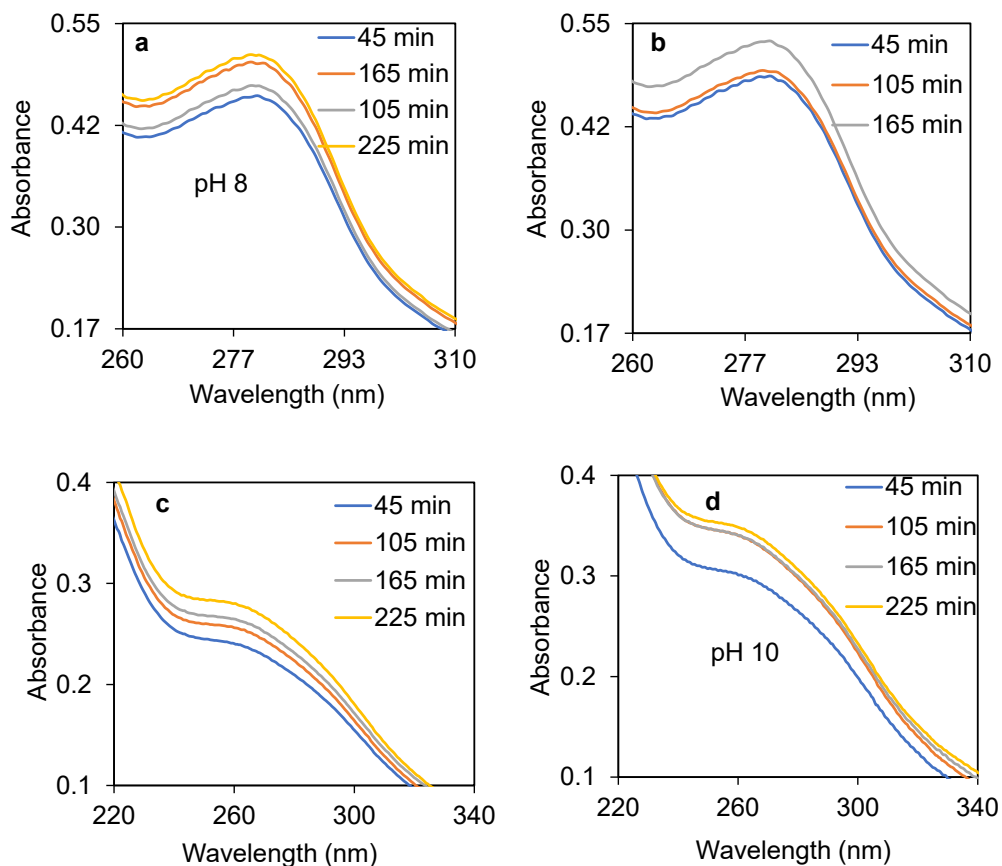


Fig. S8 Time dependent release profiles of (a, b) vancomycin and (c, d) *p*-AP from $\text{Fe}_3\text{O}_4/\text{SiO}_2/\text{P}(2\text{-CEA})$ composite polymer particles at pH (a, c) 8.0 and (b, d) 10.0.

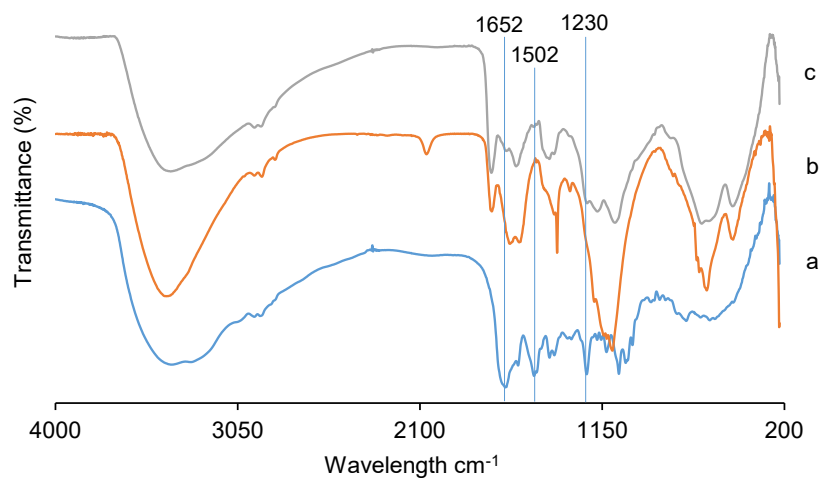


Fig. S9 FTIR spectra of (a) vancomycin, (b) $\text{Fe}_3\text{O}_4/\text{SiO}_2/\text{P}(2\text{-CEA})$ composite polymer particles and (c) vancomycin loaded composite polymer particles.

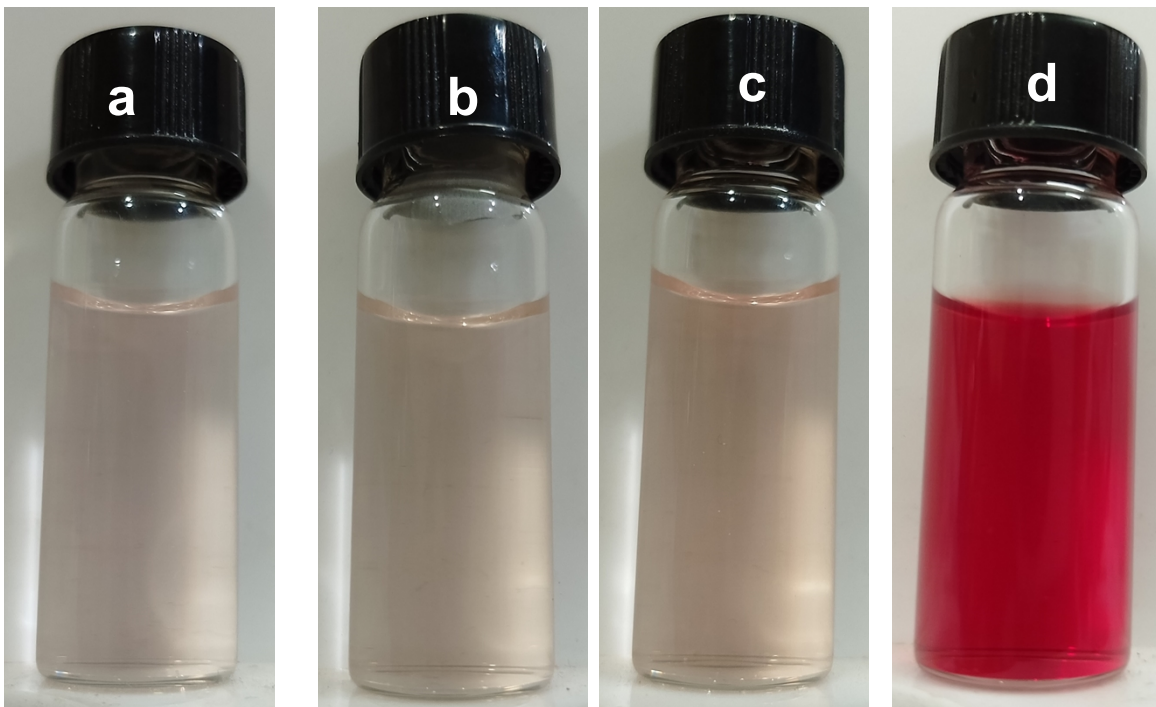


Fig. S10 Digital images of supernatants of human RBCs incubated with (a) no particle: negative control, (b) $\text{Fe}_3\text{O}_4/\text{SiO}_2$ composite seed, particles (c) $\text{Fe}_3\text{O}_4/\text{SiO}_2/\text{P}(2\text{-CEA})$ composite polymer particles and (d) triton X-100. Conditions: composite particles 0.6 mg mL^{-1} ; pH, 7.4; temperature, $37 \text{ }^\circ\text{C}$ and incubation time, 1 h.