

Supplementary Material

Magnetite-Supported Gold Nanostars for the Uptake and SERS Detection of Tetracycline

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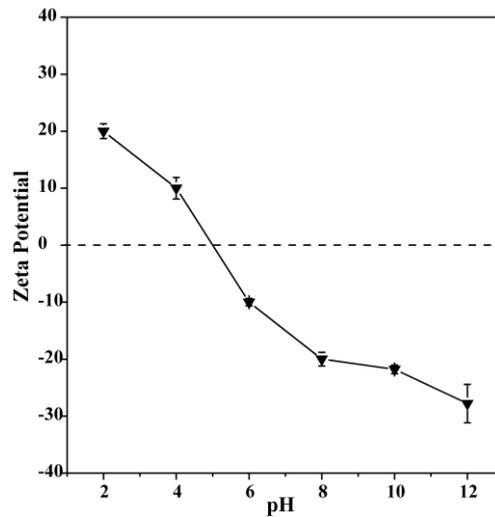


Figure S1. Zeta potential measurements of cubic shape magnetite particles in function of pH.

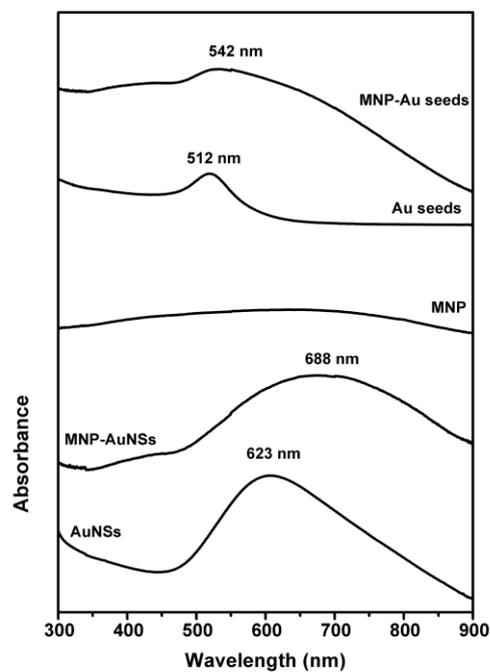


Figure S2. Optical spectra of MNP-Au seeds, Au seeds, MNP, MNP-Au NSs and Au NSs (supernatant).

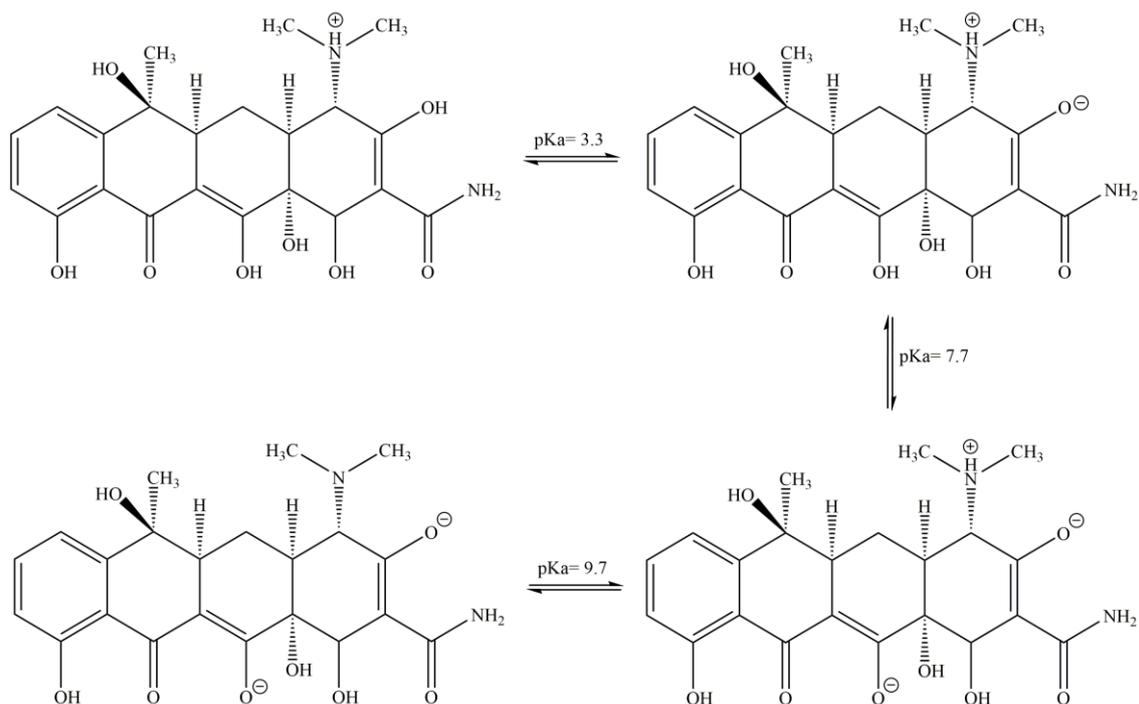


Figure S3. Structures and pKa values of tetracyclines.

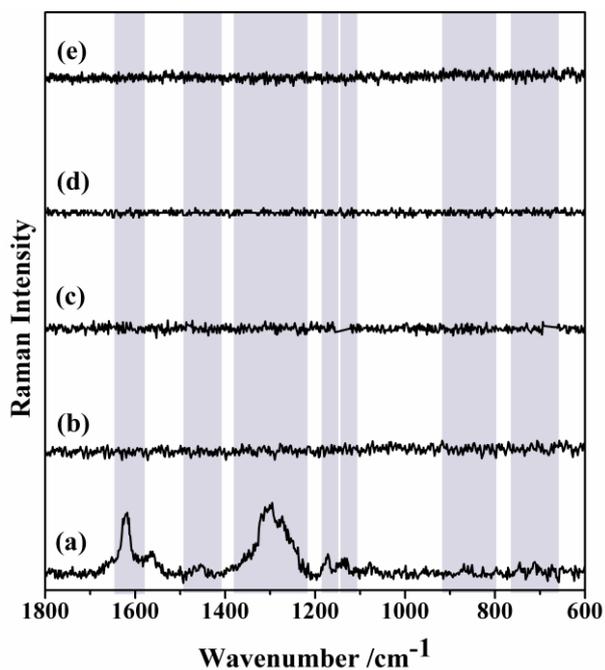


Figure S4. Raman spectra of (a) TC aqueous solution 0.1 M; (b) Tetracycline aqueous solution 10 μ M; (c) Mag-AuNS solid substrate; (d) Fe₃O₄ nanoparticles after contact with TC for 20 min at initial concentration 10 μ M; (e) Mag-AuSeeds nanoparticles after contact with TC for 20 min at initial concentration 10 μ M.

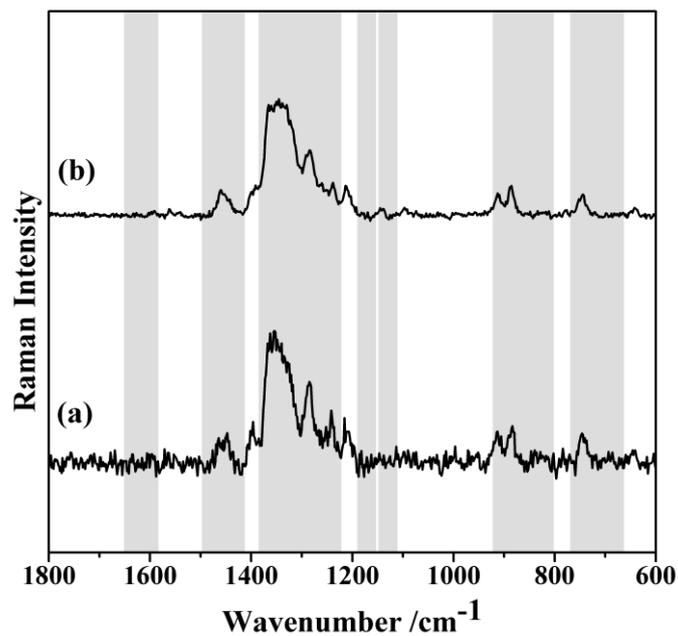


Figure S5. SERS spectrum for TC (10 μM) using Mag-AuNS (a) before and (b) after magnetic concentration (excitation at 633 nm, 0.2 mW laser power). Grey shadow: characteristic Raman bands for TC powder.

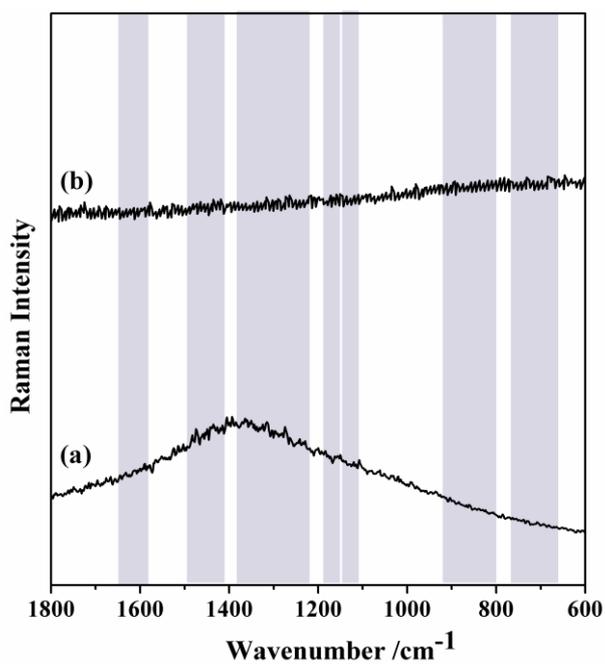


Figure S6. Average Raman spectra of Mag-AuNS substrate with (a) estuarine water from Aveiro lagoon (salty water) and (b) mineral water (excitation at 633 nm, 0.2 mW laser power, 22500 spectra, 0.1 s, 1 acquisition).

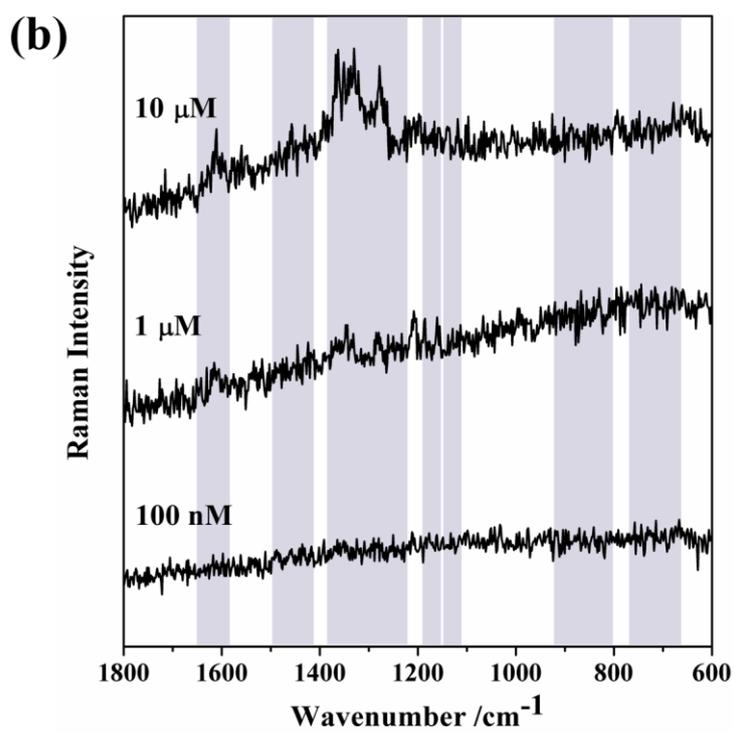
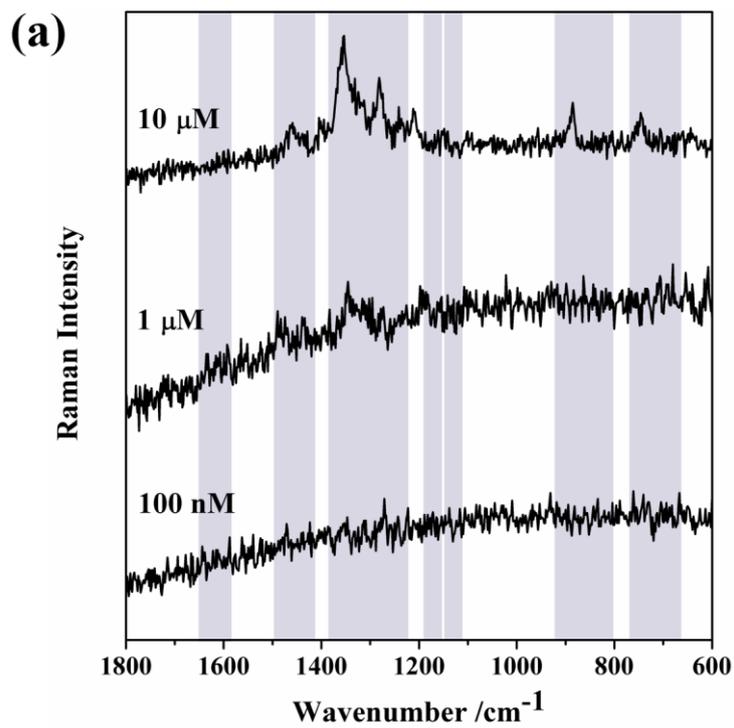


Figure S7. SERS spectra of TC at several concentrations using MNP-AuNS as the SERS substrate in (a) estuarine water from Aveiro lagoon and (b) mineral water.