

Sensitive and selective colorimetric sensing of Fe^{3+} ion using *p*-amino salicylic acid dithiocarbamate functionalized gold nanoparticles

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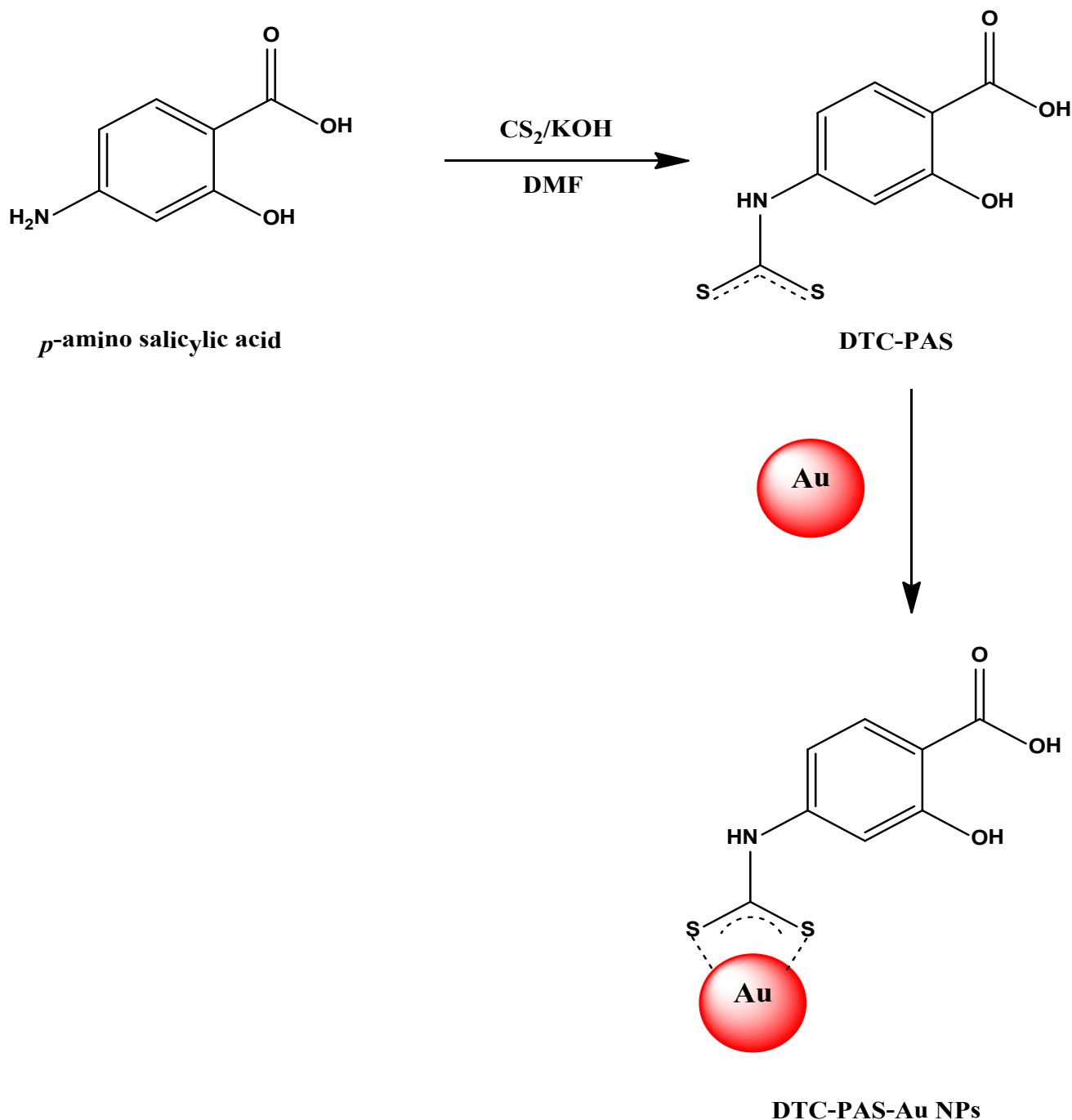


Figure S1. Schematic representation for synthesis of DTC-PAS ligand and DTC-PAS-Au NPs assemblies.

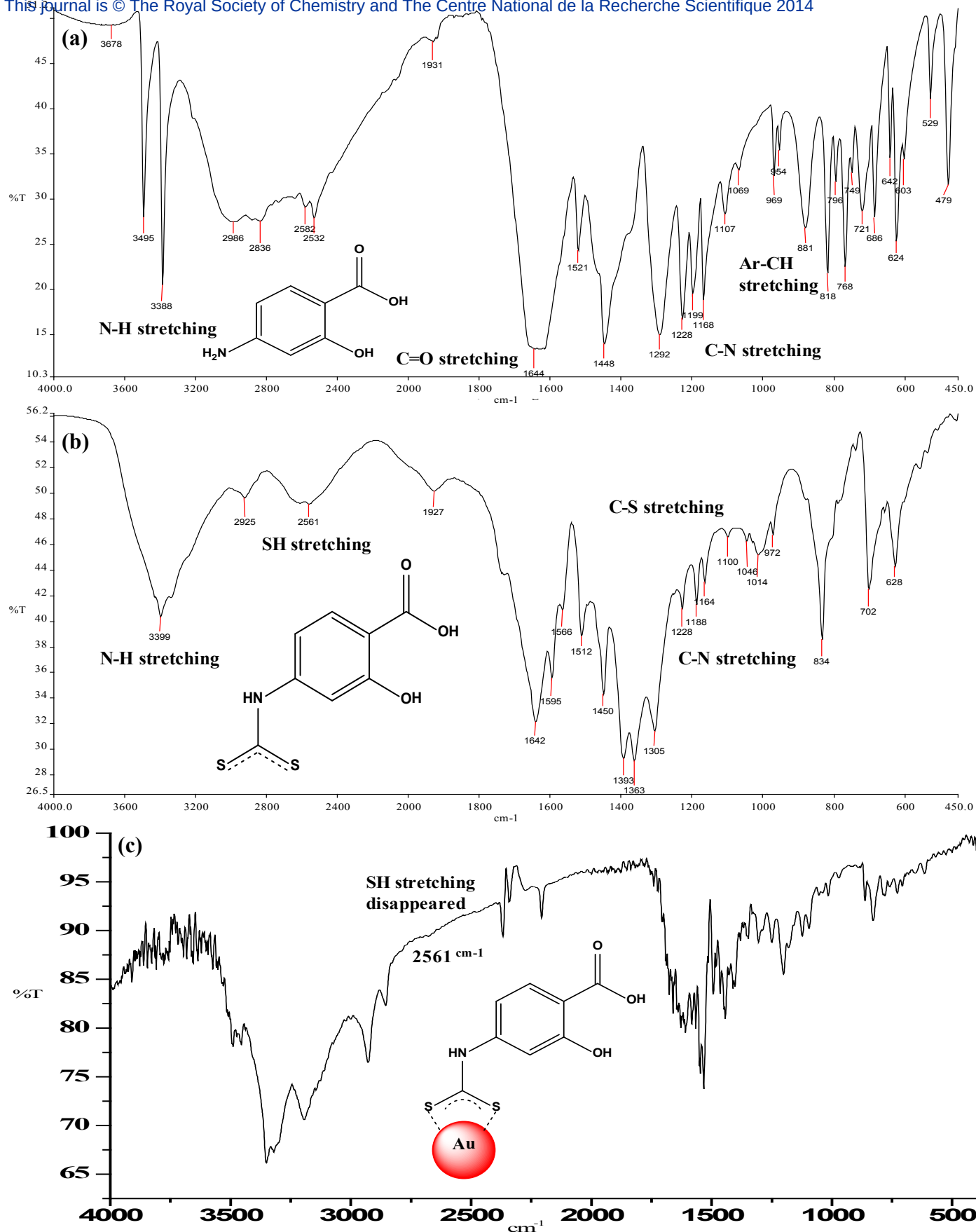


Figure S2. FT IR spectra of (a) pure *p*-amino salicylic acid (b) DTC-PAS and (c) DTC-PAS-Au NPs.

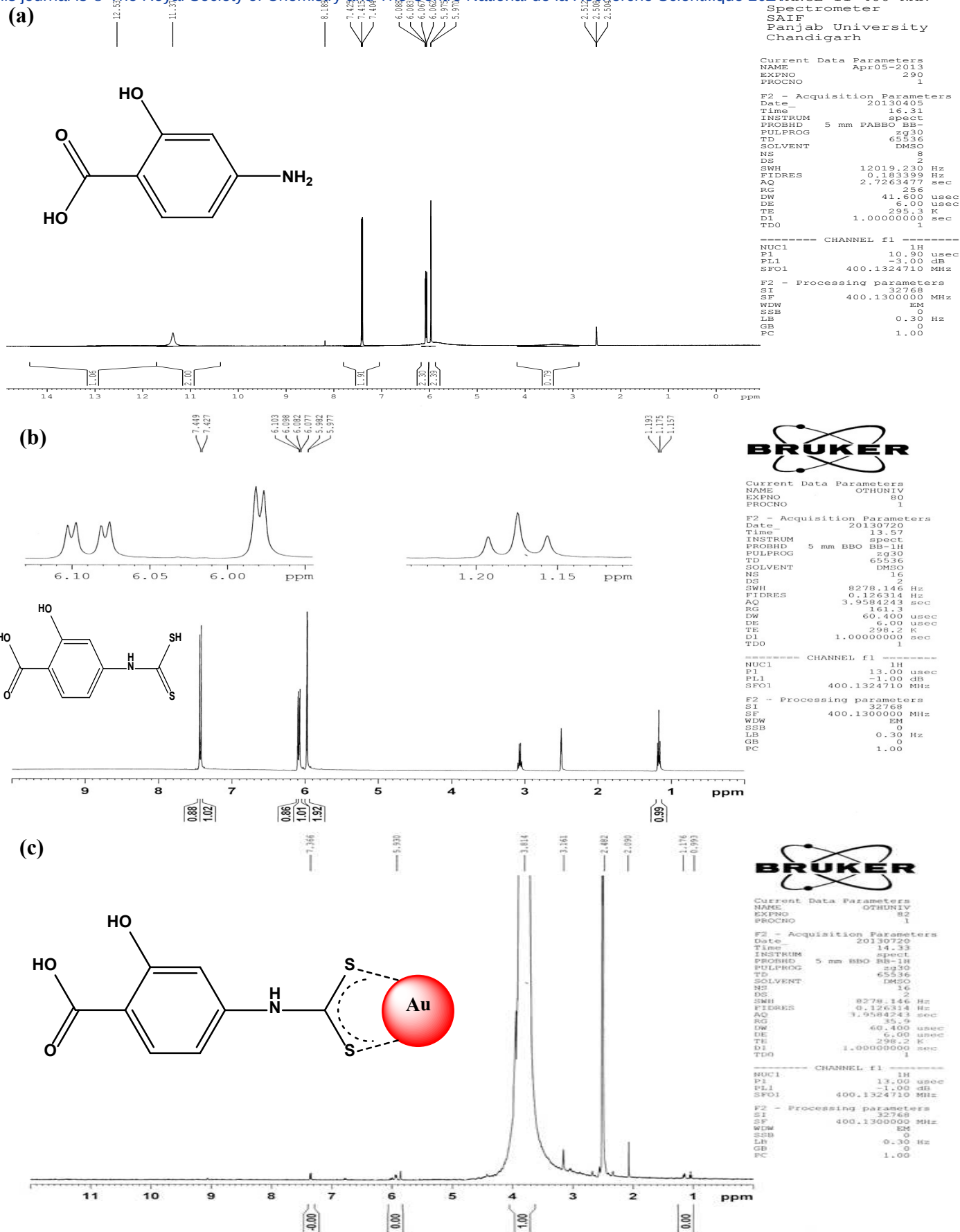


Figure S3. ¹H NMR spectra of (a) pure *p*-amino salicylic acid (b) DTC-PAS and (c) DTC-PAS-Au NPs.

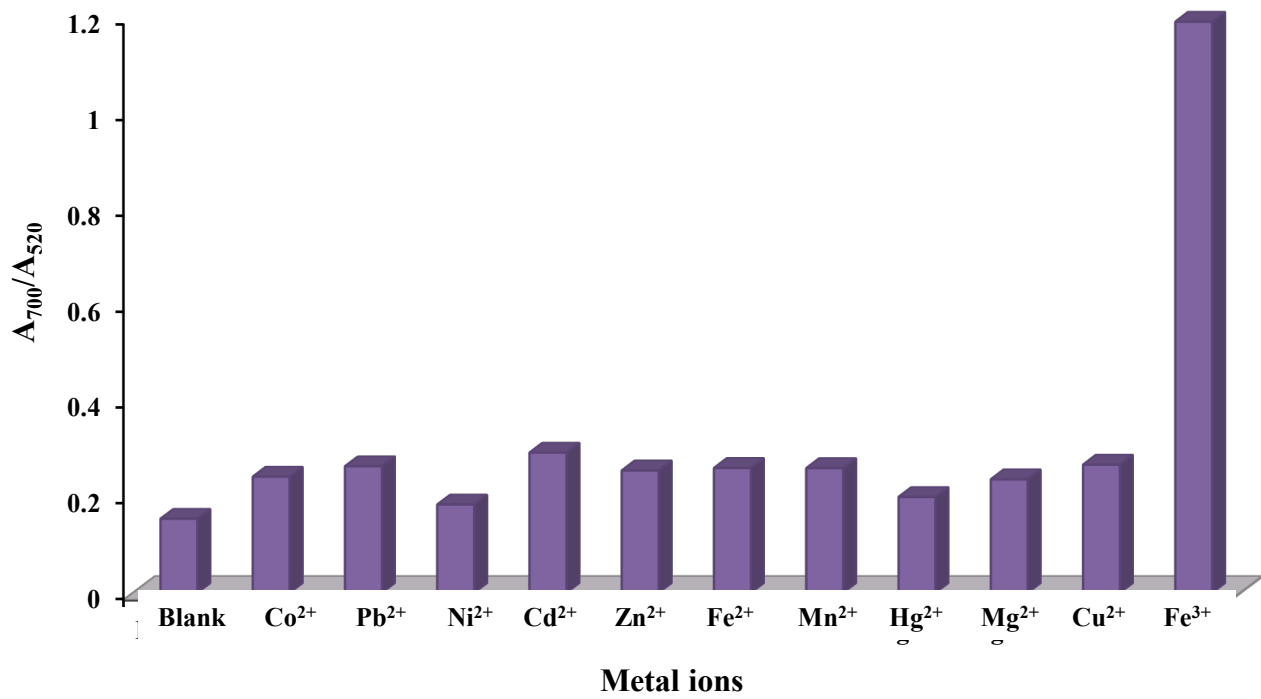


Figure S4 The relative extinction ratio of DTC-PAS-Au NPs at $A_{700\text{ nm}}/A_{520\text{ nm}}$ in the presence of Fe^{3+} ion over other metal ions (Cd^{2+} , Co^{2+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Hg^{2+} , Mg^{2+} , Mn^{2+} , Ni^{2+} , Pb^{2+} , Zn^{2+}).

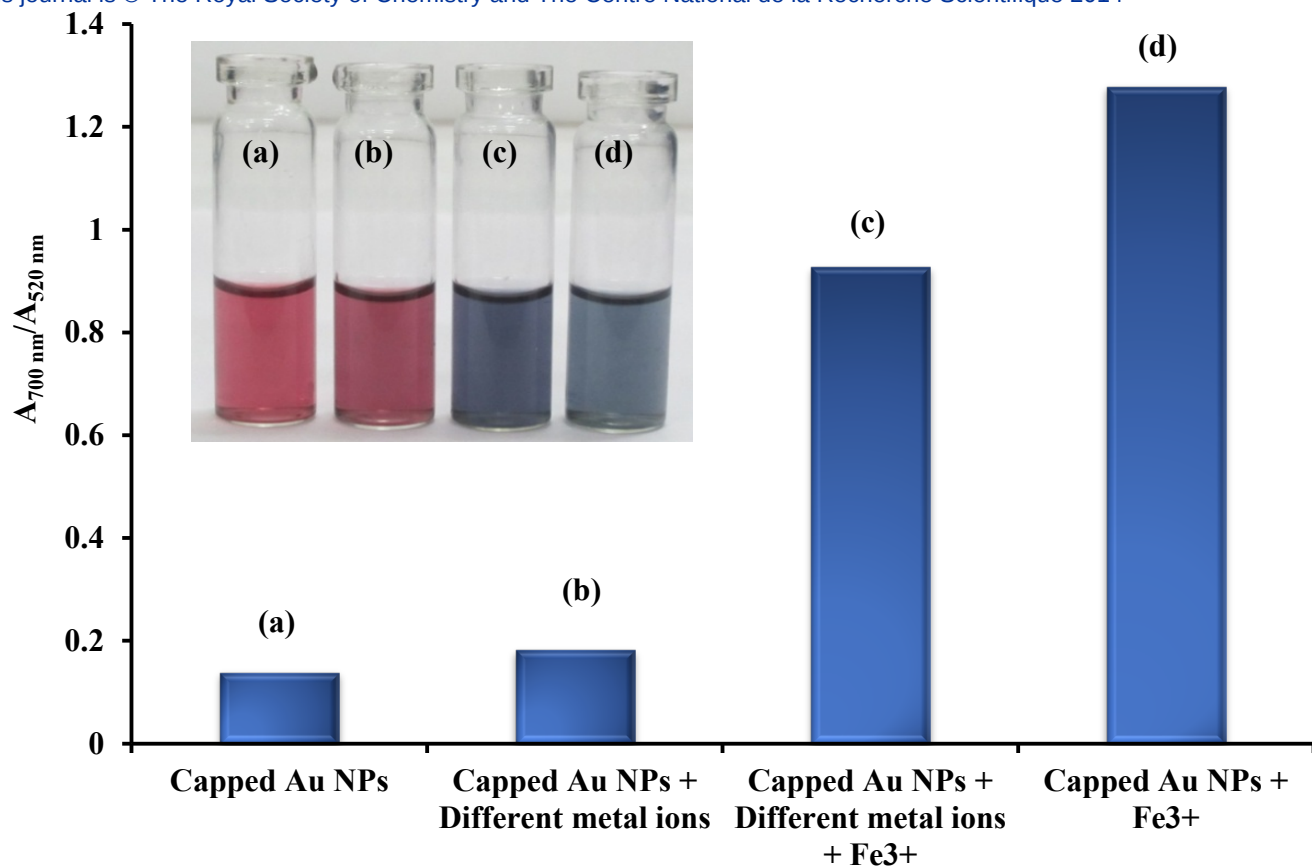


Figure S5. The extinction ratio of $A_{700 \text{ nm}}/A_{520 \text{ nm}}$ (a) DTC-PAS-Au NPs (b) DTC-PAS-Au NPs with different metal ions without Fe^{3+} (c) DTC-PAS-Au NPs with Fe^{3+} in presence of different metal ions and (d) DTC-PAS-Au NPs in presence of only Fe^{3+} . Inset picture show the photographic image of (a) capped Au NPs (b) capped Au NPs + different metal ions (c) capped Au NPs + different metal ions + Fe^{3+} and (d) capped Au NPs + Fe^{3+}

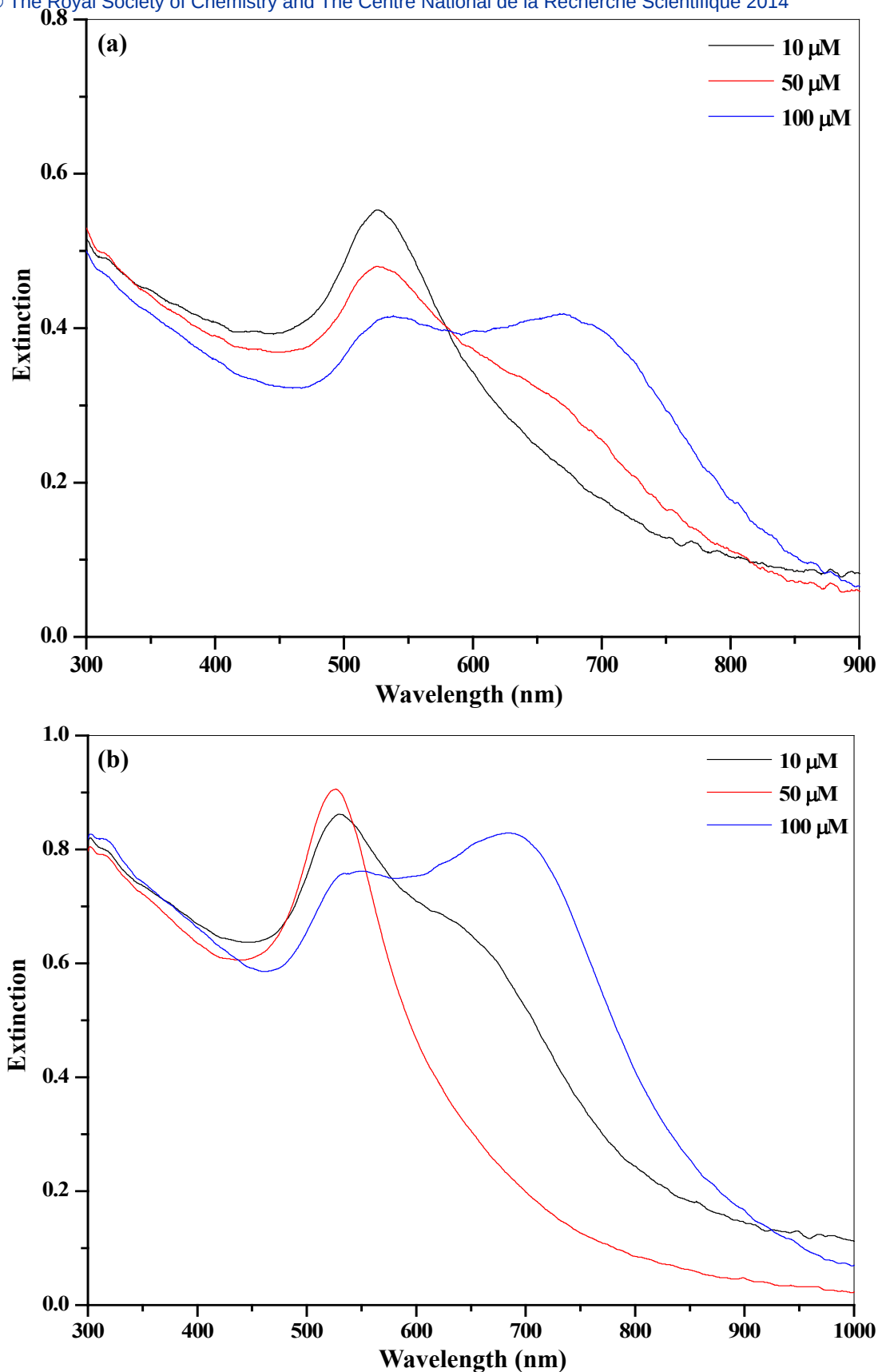


Figure S6. UV-visible absorption spectra of DTC-PAS-Au NPs as colorimetric probes for analysis of Fe^{3+} in (a) spiked blood serum and (b) spiked urine at 10, 50 and 100 μM of Fe^{3+} .

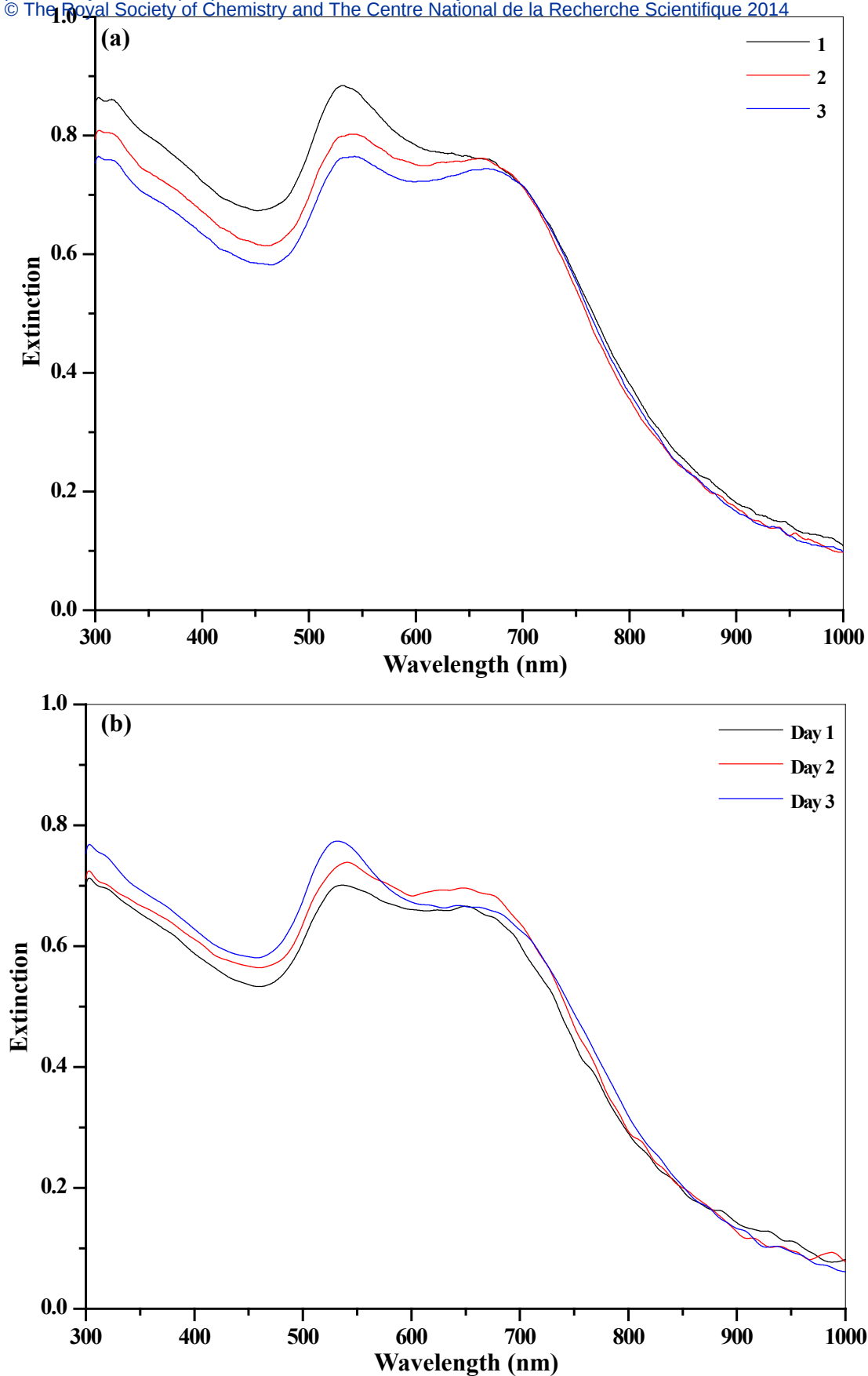


Figure S7. Reproducibility of the present method for analysis of Fe^{3+} (100 μM) at (a) inter-day spectra and (b) at intra-day spectra by using DTC-PAS-Au NPs as colorimetric probes.