Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

SUPPLEMENTARY INFORMATION

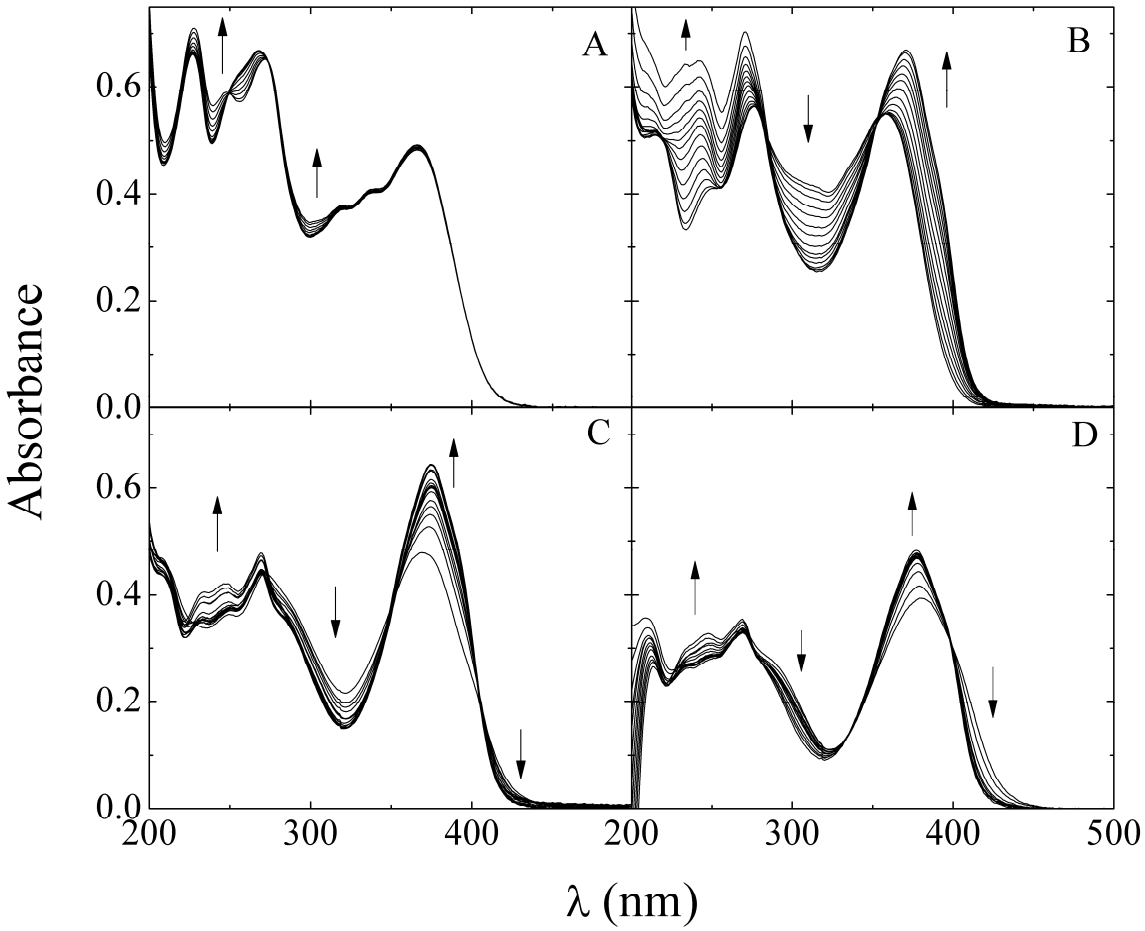

Fig. S1 Absorption spectra of TC (~4.0×10^{-5} M) in aqueous solution at pH 2.3 (A), 5.0 (B), 9.0 (C) and 11 (D) alone and in the presence of increasing amount of $Mg(ClO_4)_2$ up to 0.374 (A), 1.11 (B), 0.015 (C) and 0.015 (D) M concentrations.

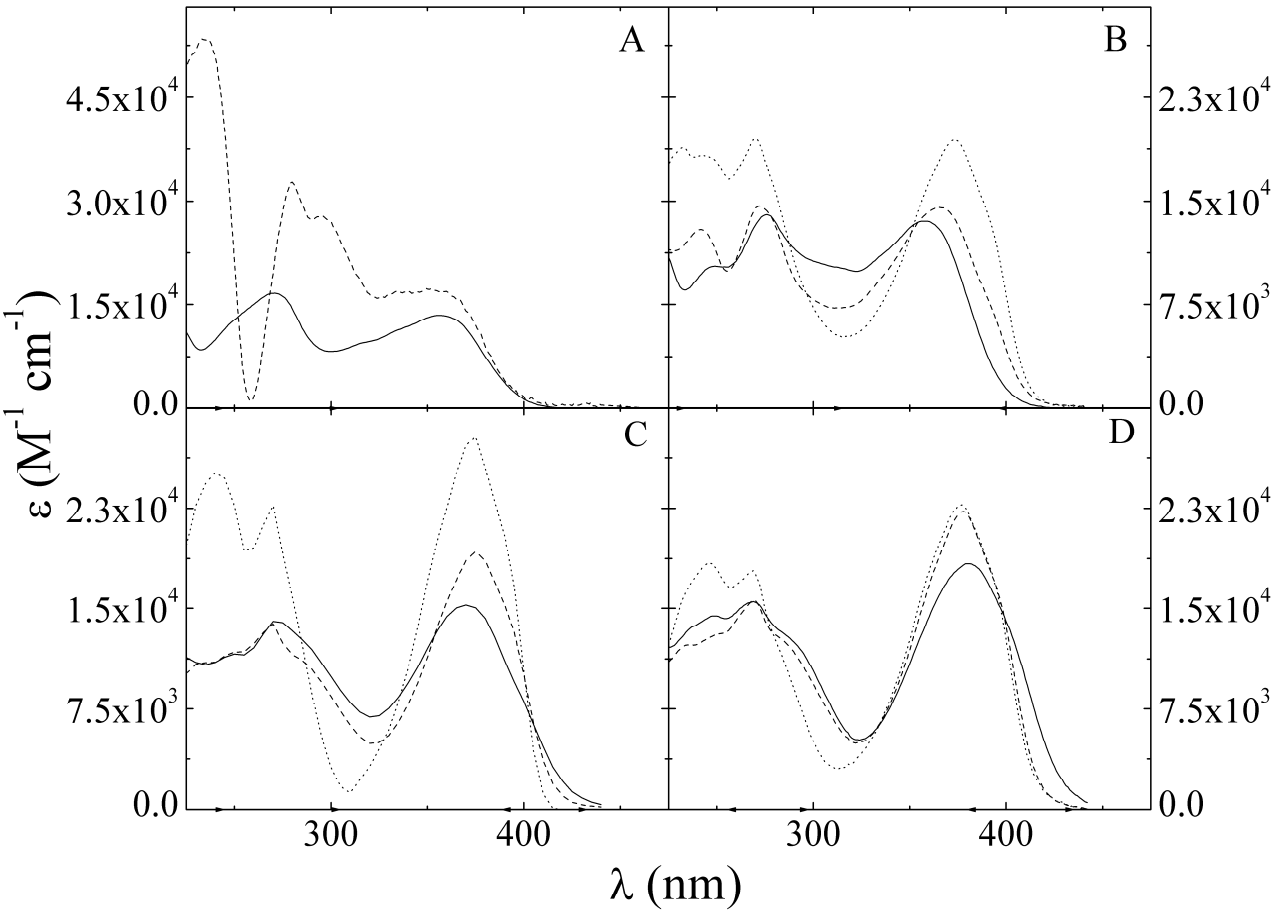

Fig. S2 Quantitative absorption spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Mg^{2+} in aqueous solution at pH 2.3 (A), 5.0 (B), 9.0 (C) and 11 (D).

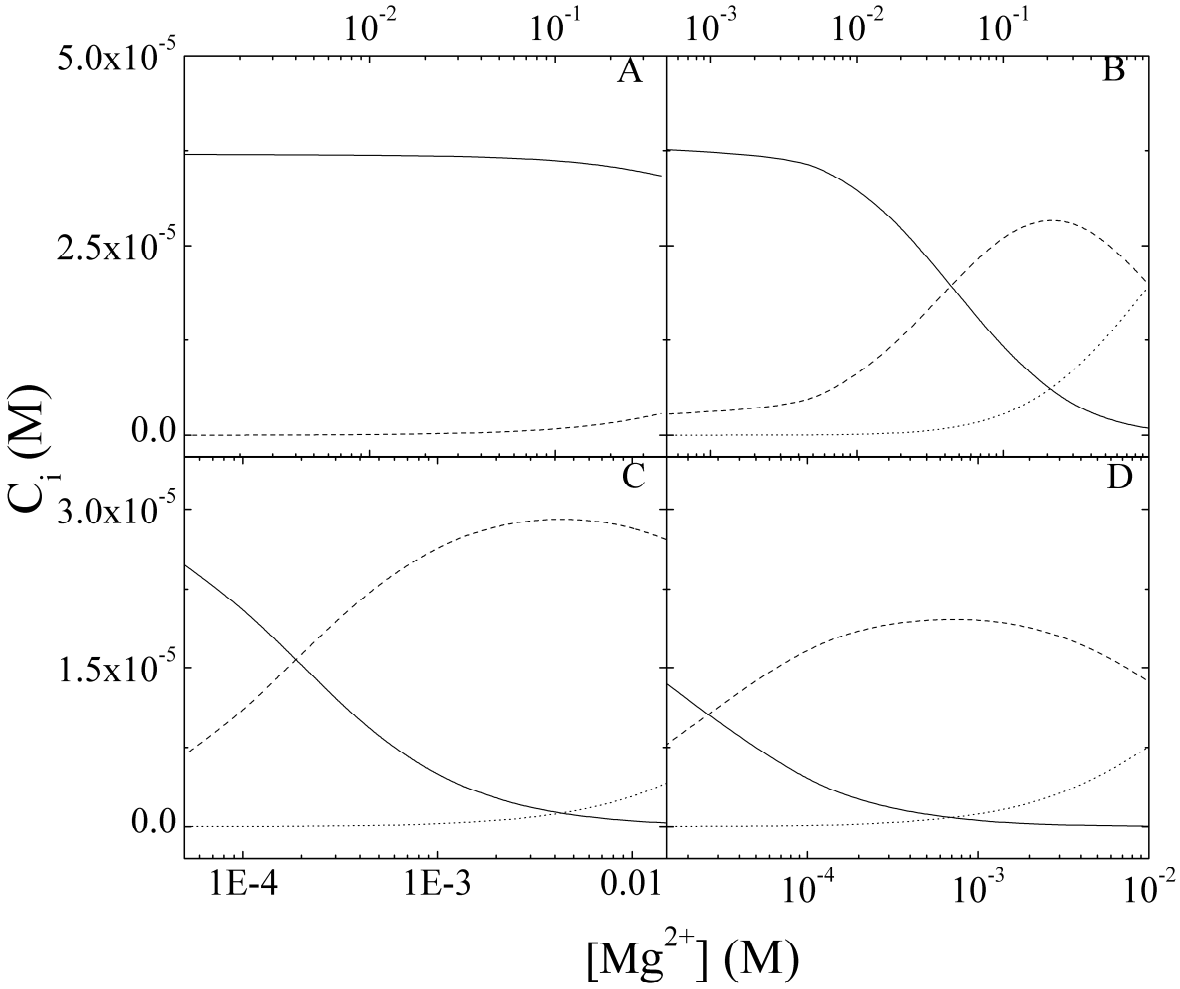

Fig. S3 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Mg^{2+} in aqueous solution at pH 2.3 (A), 5.0 (B), 9.0 (C) and 11 (D) obtained by Global Analysis of the absorption titrations.

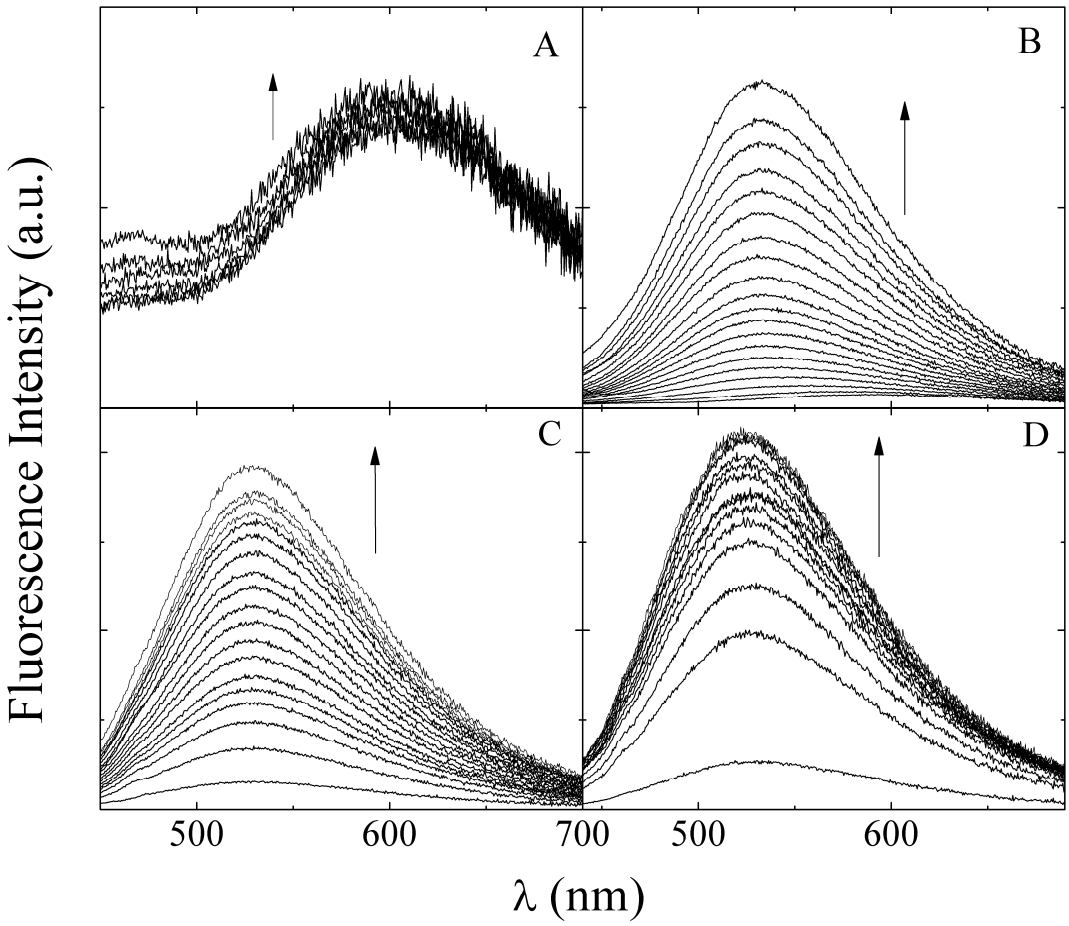

Fig. S4 Fluorescence spectra of TC in aqueous solutions at pH 2.3 (A), 5.0 (B), 9.0 (C) and 11 (D) alone and in the presence of increasing amount of $Mg(ClO_4)_2$ up to 0.038 (A), 0.416 (B), 0.015 (C) and 0.015 (D) M concentrations (λ_{exc}= $\lambda_{isosbestic}$=357 (A), 355 (B), 404 (C) and 398 (D) nm).

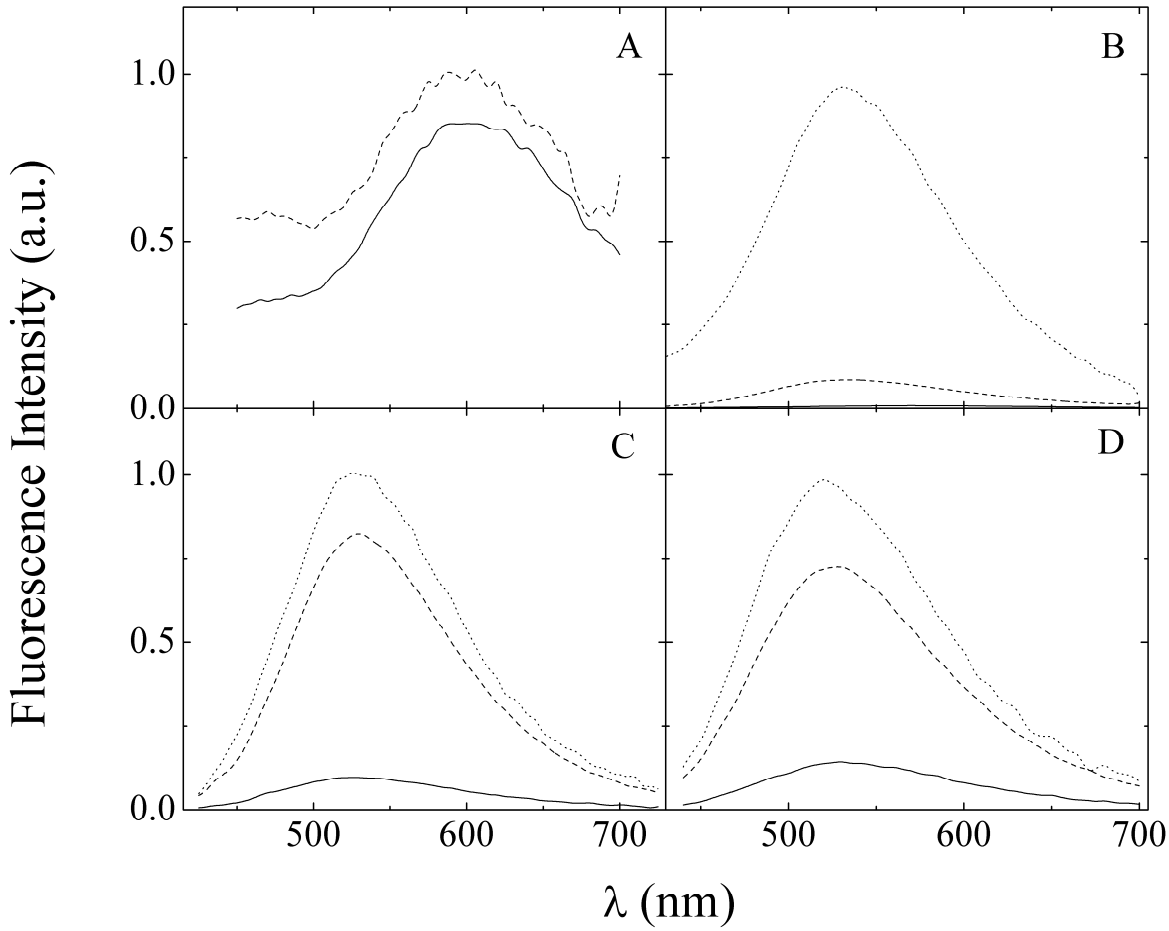

Fig. S5 Emission spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Mg^{2+} in aqueous solution at pH 2.3 (A), 5.0 (B), 9.0 (C) and 11 (D).

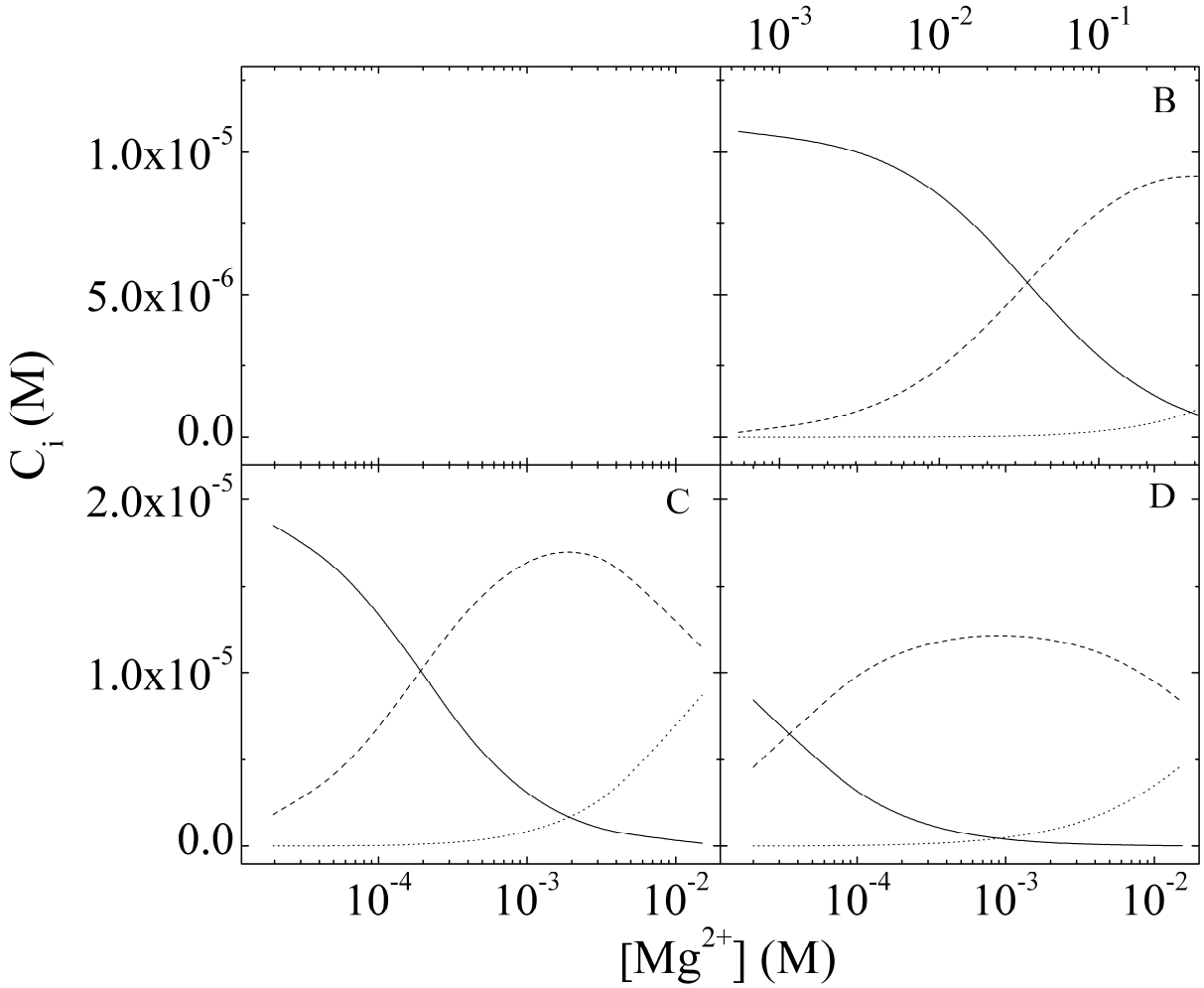

Fig. S6 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Mg^{2+} in aqueous solution at pH 5.0 (B), 9.0 (C) and 11 (D) obtained by Global Analysis of the fluorescence titrations.

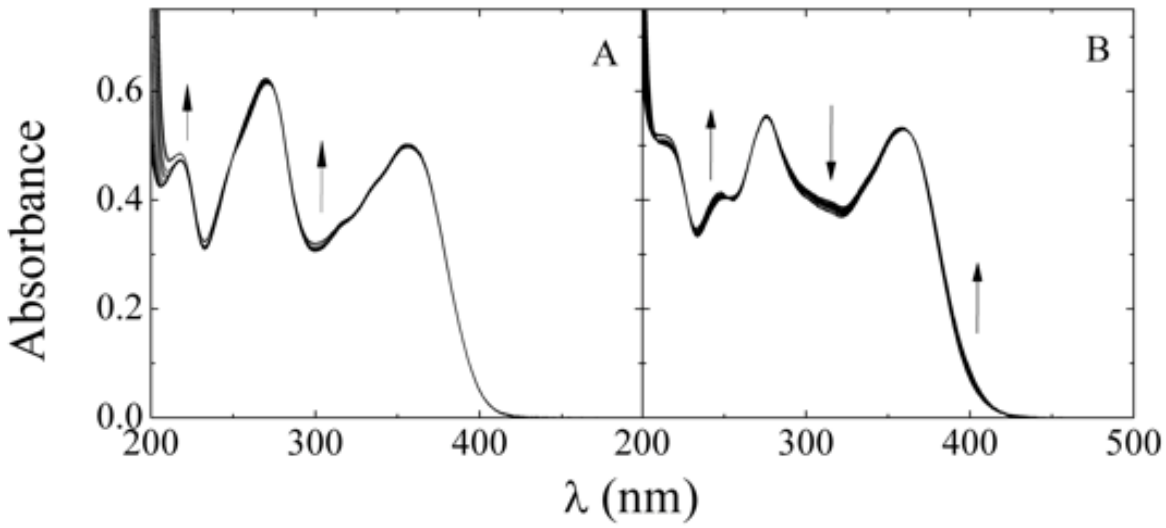

Fig. S7 Absorption spectra of TC (4.0×10^{-5} M) in aqueous solution at pH 2.3 (A) and 5.0 (B) alone and in the presence of increasing amount of $CaCl_2$ up to 0.15 (A) and 0.017 (B) M concentrations.

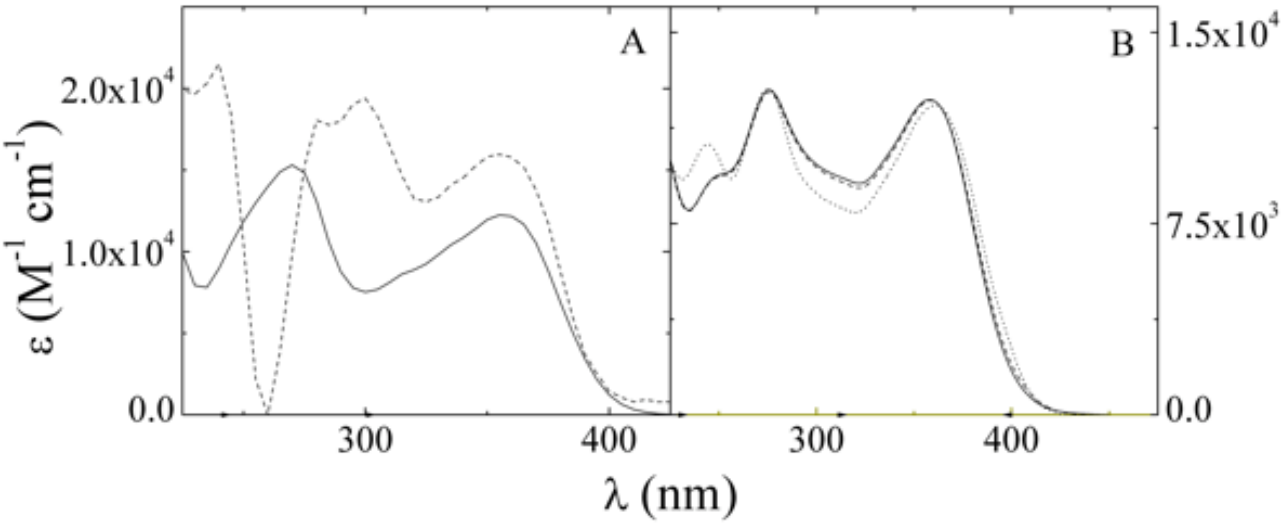

Fig. S8 Quantitative absorption spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Ca^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B).

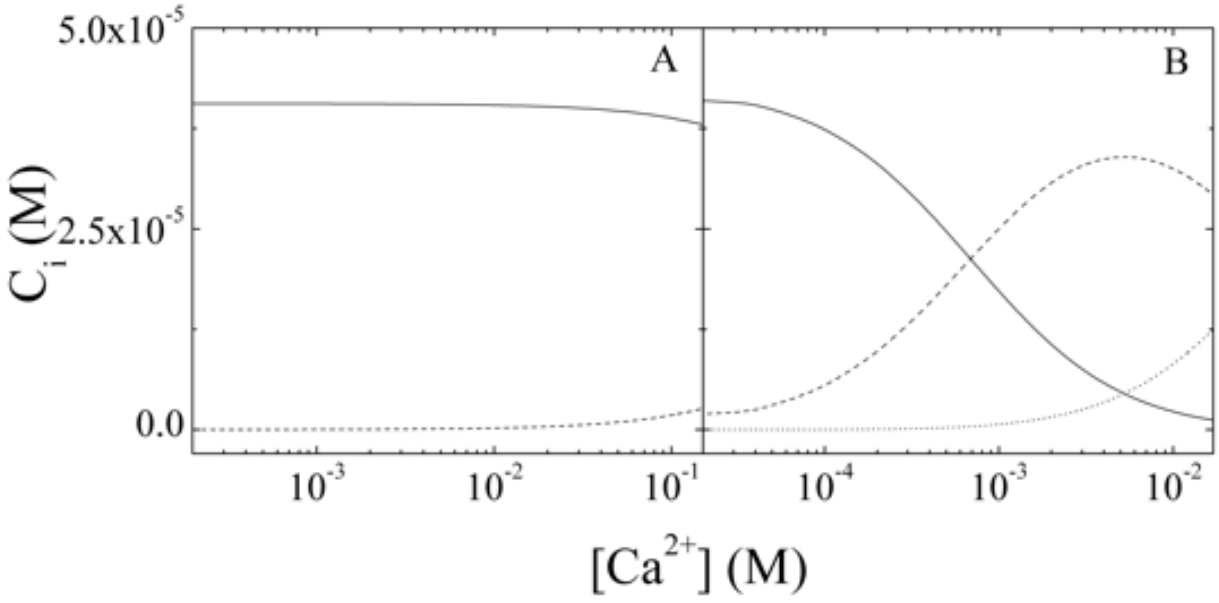

Fig. S9 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Ca^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B) obtained by Global Analysis of the absorption titrations.

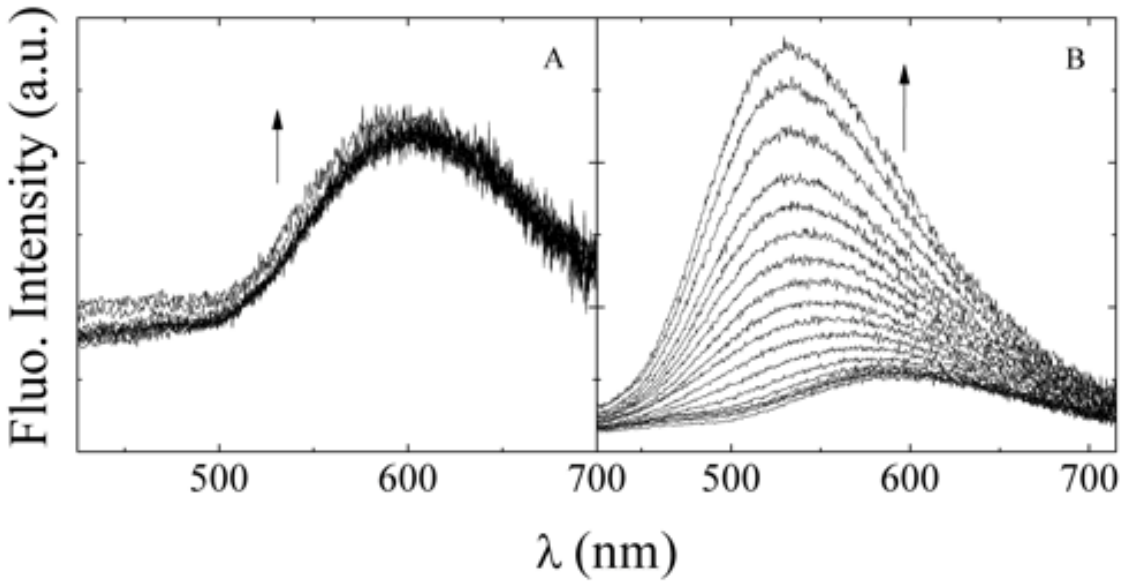

Fig. S10 Fluorescence spectra of TC in aqueous solutions at pH 2.3 (A) and 5.0 (B) alone and in the presence of increasing amount of $CaCl_2$ up to 0.037 (A) and 0.017 (B) M concentrations (λ_{exc}= $\lambda_{isosbestic}$=360 (A) and 370 (B) nm).

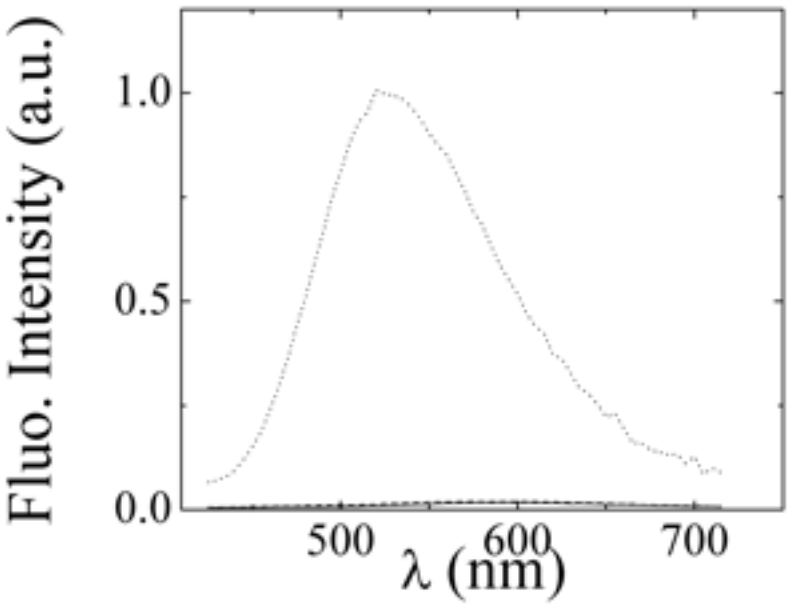

Fig. S11 Emission spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Ca^{2+} in aqueous solution at pH 5.0.

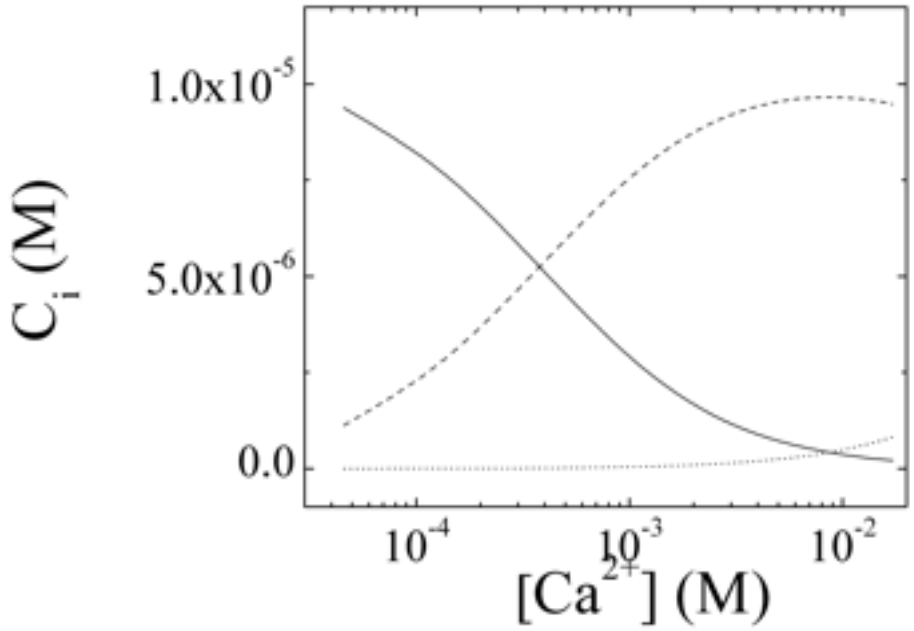

Fig. S12 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Ca^{2+} in aqueous solution at pH 5.0 obtained by Global Analysis of the fluorescence titration.

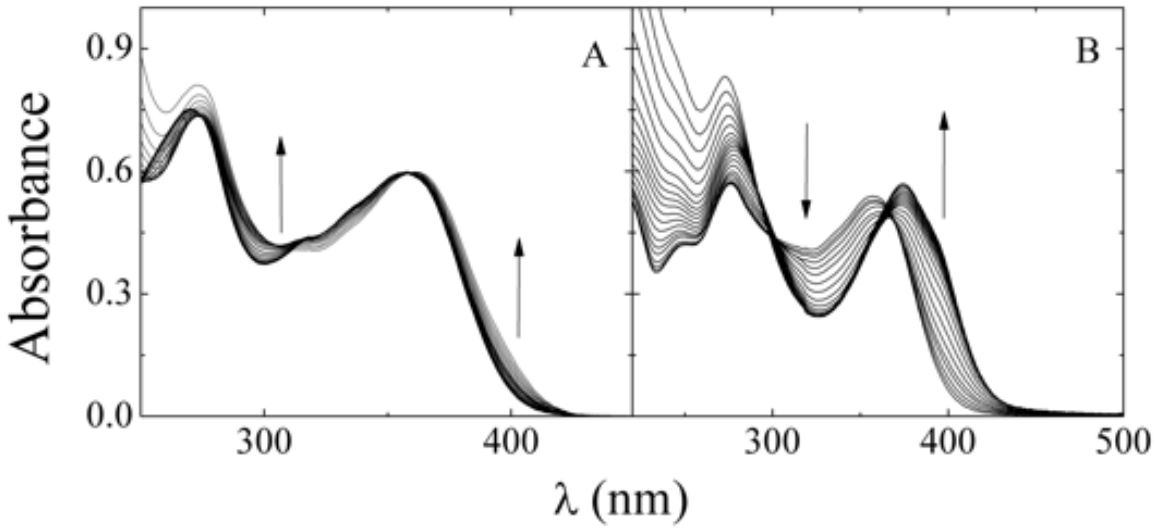

Fig. S13 Absorption spectra of TC (4.0×10^{-5} M) in aqueous solution at pH 2.3 (A) and 5.0 (B) alone and in the presence of increasing amount of $CuCl_2 \bullet H_2O$ up to 0.0042 (A) and 0.00059 (B) M concentrations.

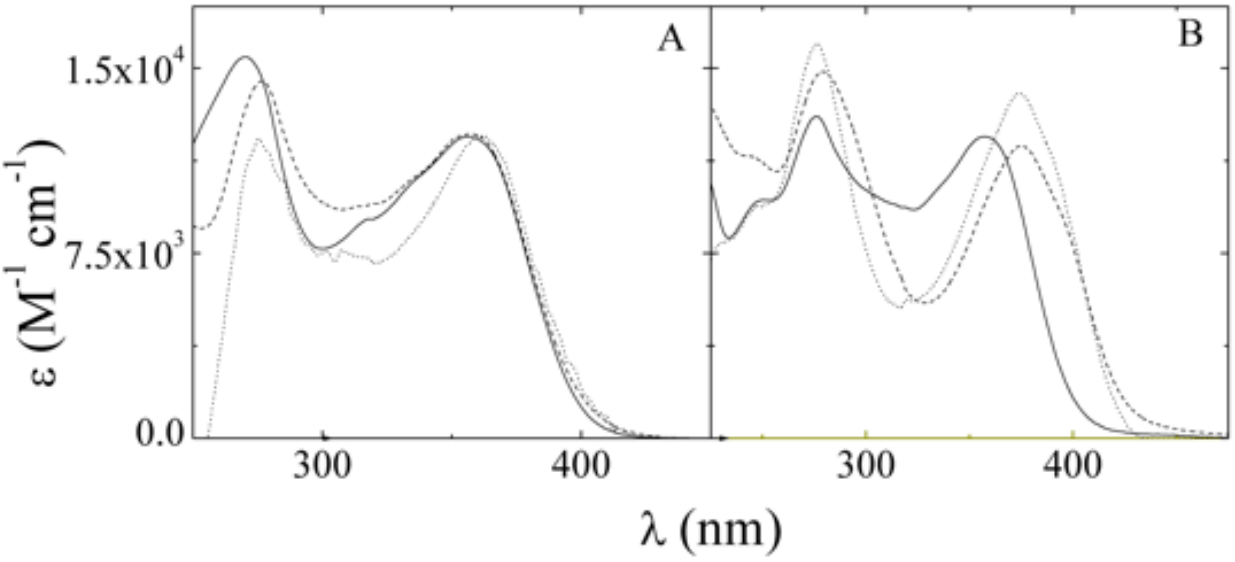

Fig. S14 Quantitative absorption spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Cu^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B).

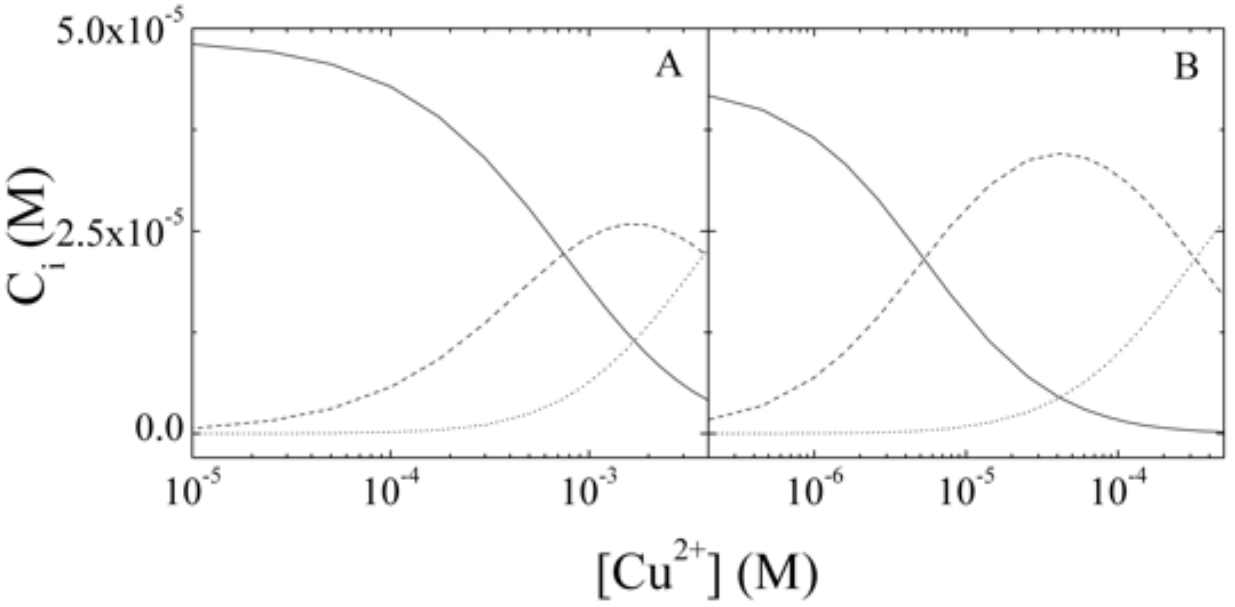

Fig. S15 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Cu^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B) obtained by Global Analysis of the absorption titrations.

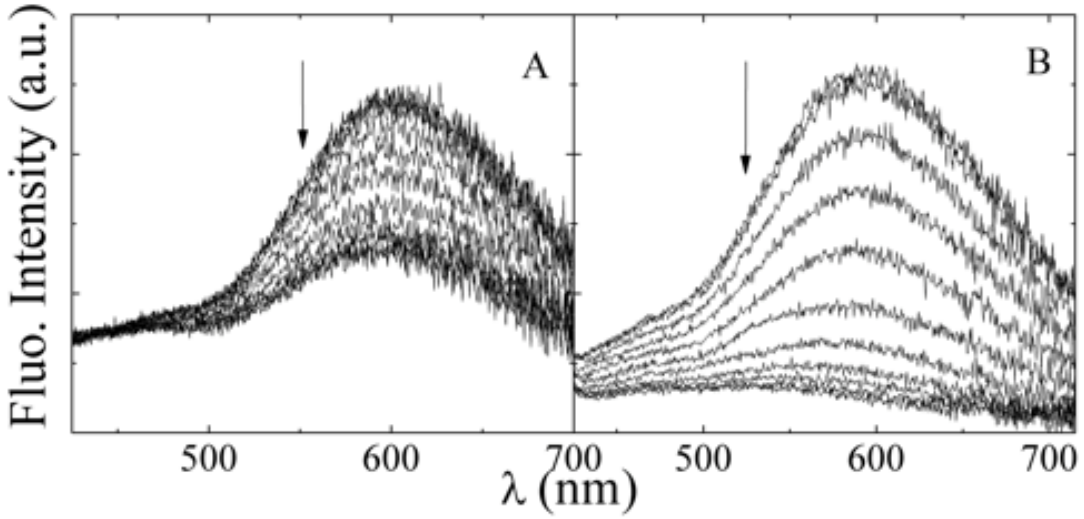

Fig. S16 Fluorescence spectra of TC in aqueous solutions at pH 2.3 (A) and 5.0 (B) alone and in the presence of increasing amount of $CuCl_2 \oplus H_2O$ up to 0.004 (A) and 0.00036 (B) M concentrations ($\lambda_{exc} = \lambda_{isosbestic}$=358 (A) and 365 (B) nm).

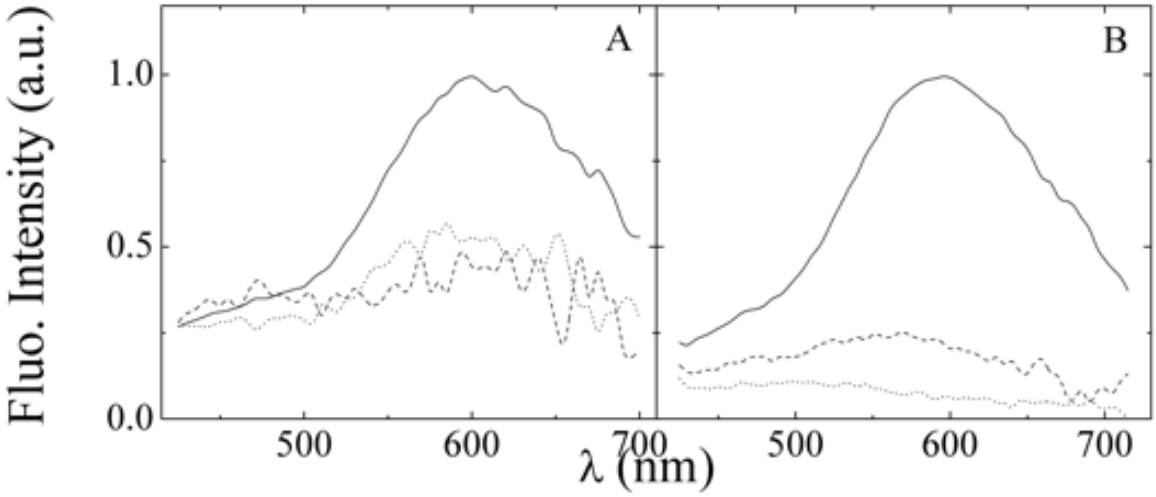

Fig. S17 Emission spectra of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Cu^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B).

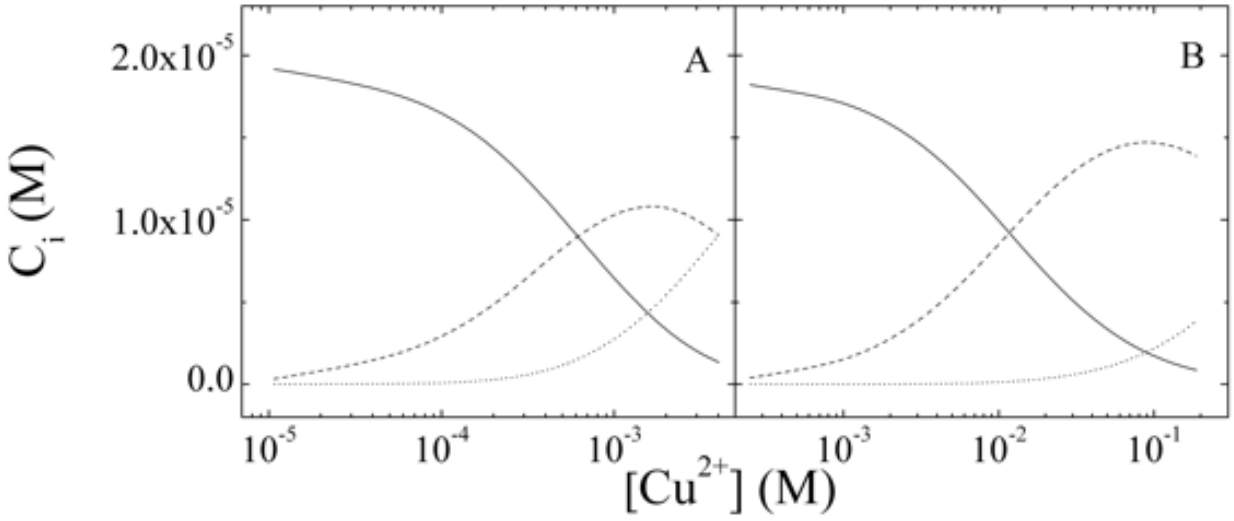

Fig. S18 Concentration profiles of TC (full lines) and its 1:1 (dashed lines) and 1:2 (dotted lines) complexes with Cu^{2+} in aqueous solution at pH 2.3 (A) and 5.0 (B) obtained by Global Analysis of the fluorescence titrations.