SUPPORTTING INFORMATION

Binding of calcium and magnesium ions to chromophoric dissolved organic matter (CDOM): A combination of steady-state and time-resolved fluoresce study

Juan Liu, Ruiya Zhou and Xu Zhang\*

Department of Environmental Science, School of Resources and Environmental Science, Wuhan University, Wuhan, 430079, P.R. China



**Figure S1.** Absorption spectra of ESHA and PPHA (10 mg C/L) in the presence of Mg2+ and Ca2+.



**Figure S2.** Effects of Ca2+ or Mg2+ on the hydrodynamic size of ESHA (60 mg C/L) and PPHA (100 mg C/L) aqueous solution (pH 7.5).



**Figure S3.** Effects of Mg2+ or Ca2+ on the EEM spectra of PPHA (10 mg C/L) aqueous solution.



**Figure S4.** Effects of Mg2+ or Ca2+ on the steady-state fluorescence spectra of PPHA (10 mg C/L) aqueous solution at excitation of 375, 440, and 550 nm.



**Figure S5.** Effects of Mg2+ (10 mg/L) and Ca2+ (10 mg/L) on the time-resolved fluorescence spectra of PPHA (10 mg C/L) aqueous solution at excitation of 375 and 440 nm.



**Figure S6.** Lifetime distributions for emission decays of PPHA (10 mg C/L) aqueous solution at excitation of 375 and 440 nm, Mg2+ (10 mg/L), Ca2+ (10 mg/L).



**Figure S7.** Effects of Mg2+ or Ca2+ concentrations on the lifetime distributions for emission decays of PPHA (10 mg C/L) aqueous solution at excitation of 375 nm.



**Figure S8.** Effects of excitation and emission wavelength on the fluorescence quenching of ESHA (10 mg C/L) aqueous solution by Mg2+, Ca2+, and Cu2+.