

Supplementary material

Interaction of humic acids with soil minerals: adsorption and surface aggregation induced by Ca^{2+}

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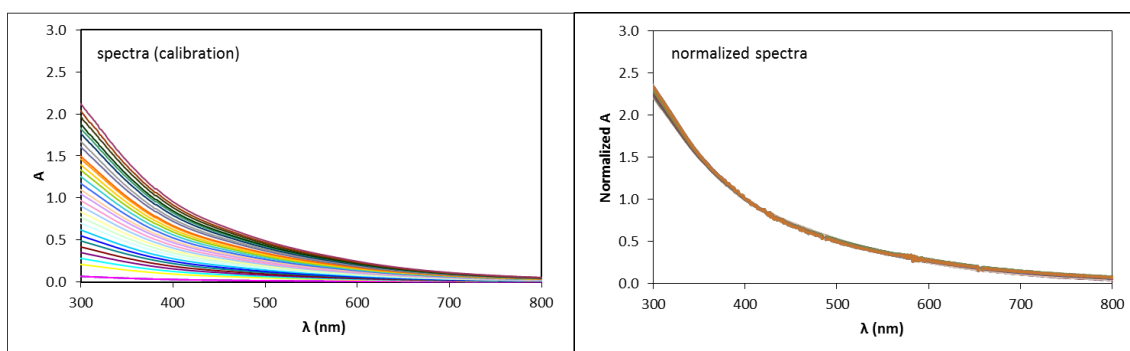


Fig. S1. Humic acid (HA) spectra (left) and normalised spectra (right) obtained for a calibration curve with HA at pH 7. The range of HA concentration varies between 0 and 80 mg L⁻¹. Normalisation was performed so that $A = 1$ at 400 nm.

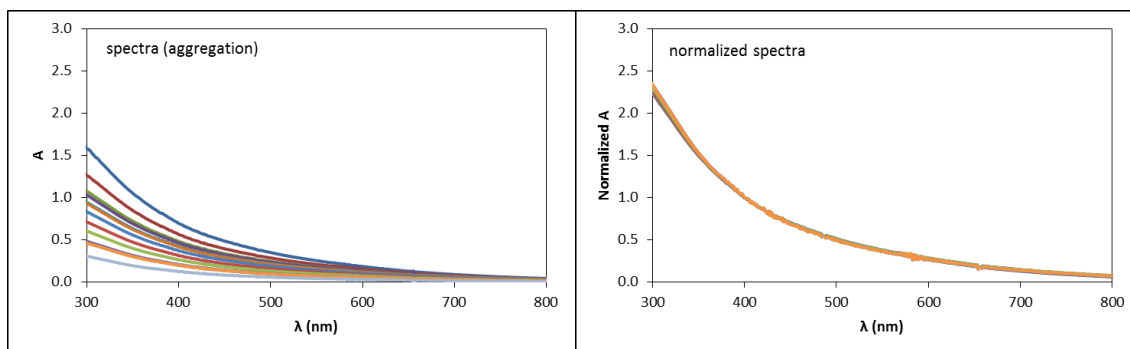


Fig. S2. Humic acid (HA) spectra (left) and normalised spectra (right) obtained in an experiment where HA was partially aggregated by the addition of Ca^{2+} . The spectra correspond to the supernatants after separating aggregated HA by centrifugation plus filtration. The aggregation varied between 0 and 70 %. pH = 7.

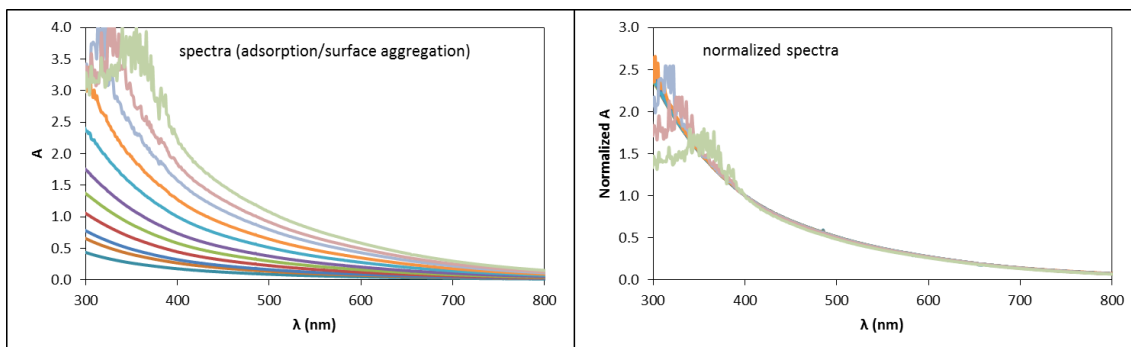


Fig. S3. Humic acid (HA) spectra (left) and normalised spectra (right) obtained in an experiment where HA was adsorbed (aggregated) at the surface of the soil clay fraction. The experimental conditions correspond to those of Fig. 3 in the article, with 0.5-mM total calcium concentration. The removal of HA varied from 0 to 90 %. Four spectra on the left (and the corresponding normalised spectra on the right) show a noisy signal for absorbances higher than ~ 3 (percentage transmittance lower than $\sim 0.1\%$) attributable to instrumental limitations.

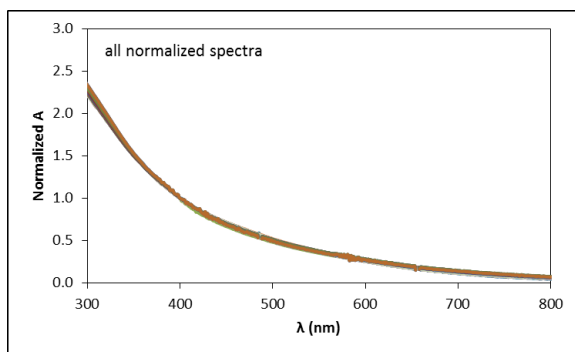


Fig. S4. All normalised spectra from Figs S1, S2 and S3. Data points below λ 390 nm corresponding to the four normalised spectra with the noisy signals from Fig. S3 removed for clarity.