Stabilization of metal-sulfide nanoparticles by dissolved natural organic carbon

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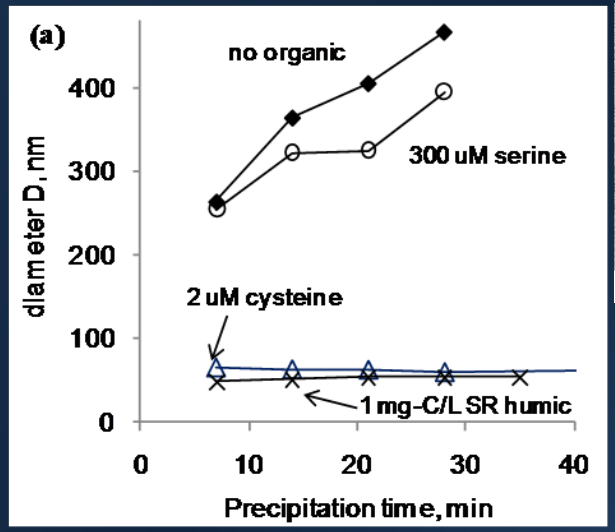
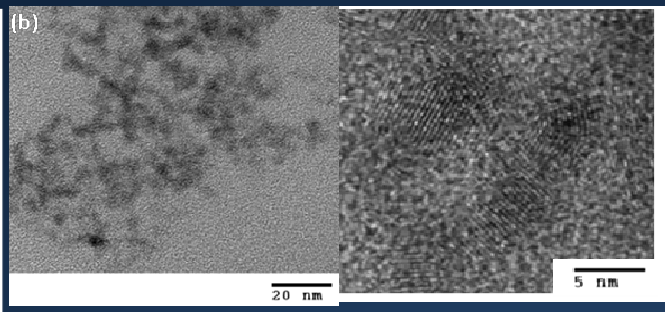
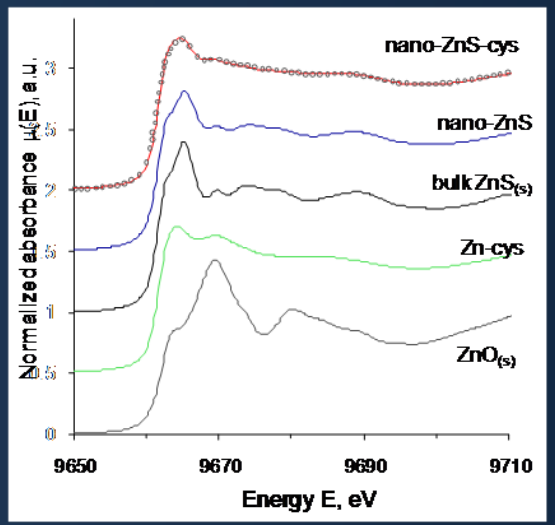
Dissolved natural organics such as humics and thiols facilitate the formation and stabilization of HgS and ZnS nanoparticles in environmental conditions.





TEM images of precipitation products showing ~5 nm nanocrystals of HgS. (Deonarine and Hsu-Kim, 2009, ES&*T*.)



XANES Zn K-edge spectra of nano-ZnS-cysteine coprecipitate, uncoated nano-ZnS and reference compounds: $ZnS_{(s)}$-sphalerite, Zn-cysteine, and $ZnO_{(s)}$. Solid lines refer to measured data; circles correspond to a linear combination fit of the nano-ZnS and Zn-cys spectra (~50% each).