

**Figure S1.** FT-IR spectrum of (Z)-2-((1-methyl-1-dodecylpyrrolidin-1-ium-2-ylidene)amino)ethan-1-ol bromide.

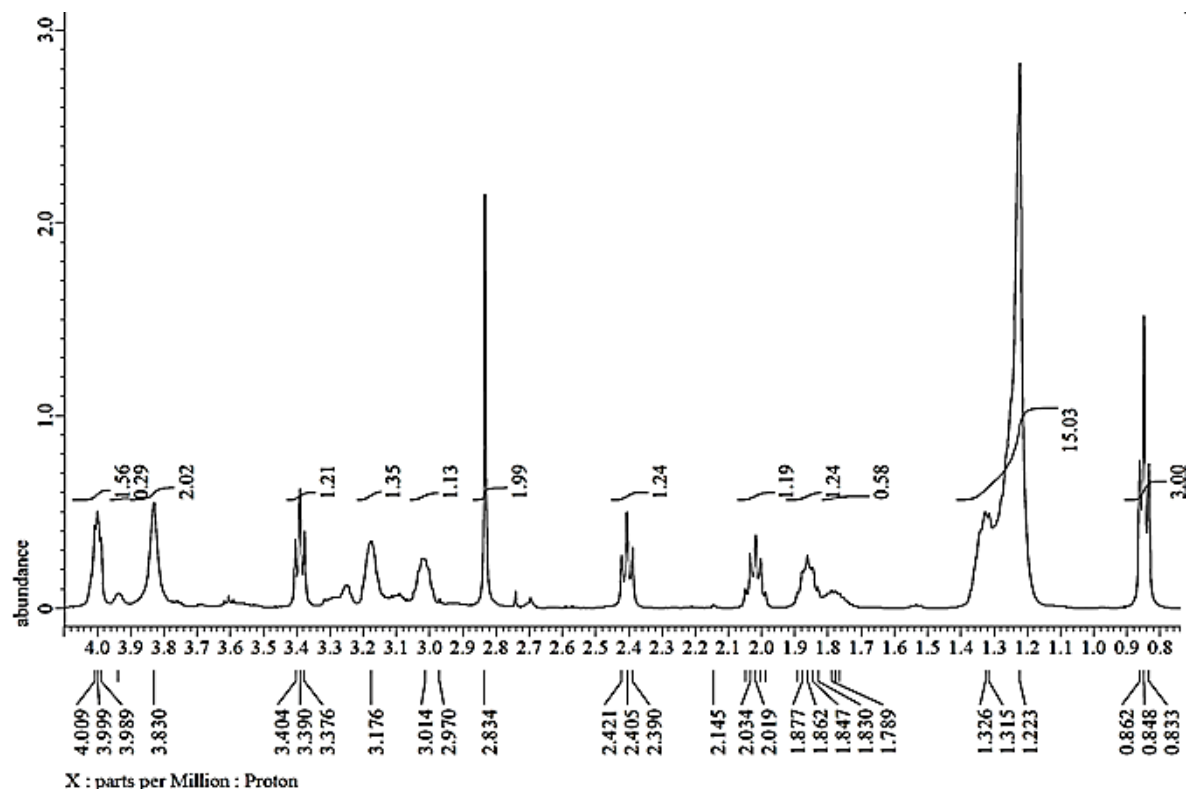
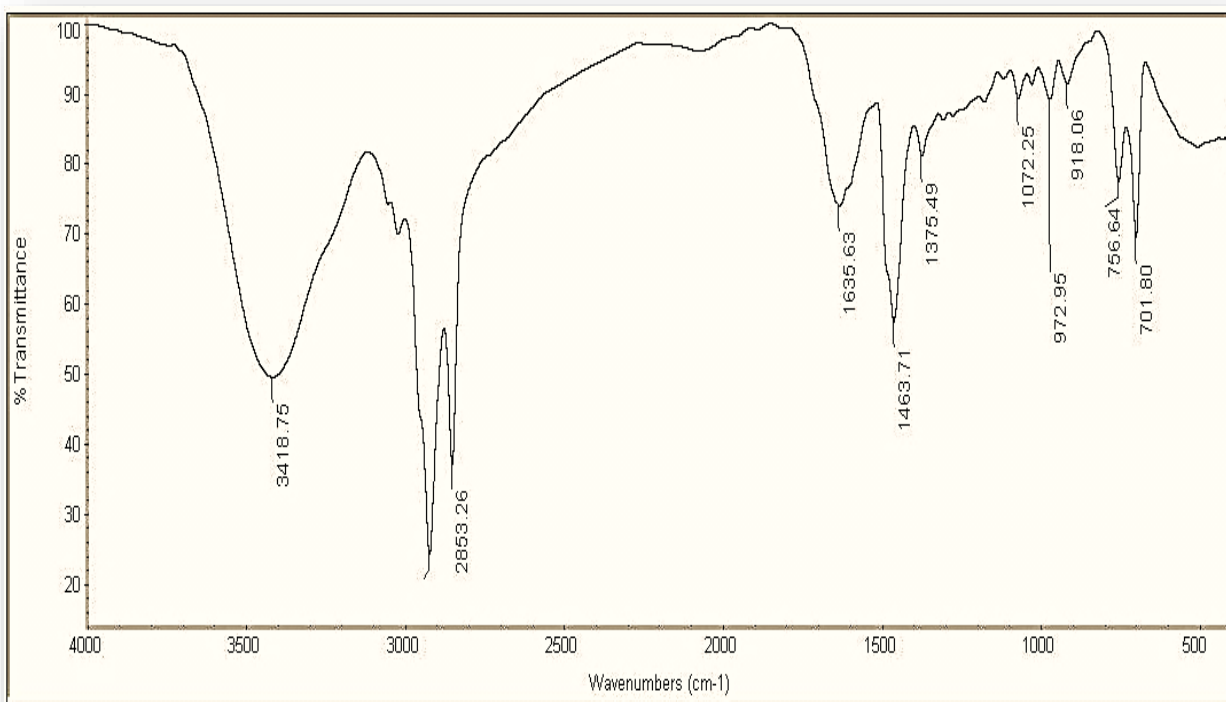


Figure S2.  $^1\text{H}$  NMR spectrum of (Z)-2-((1-methyl-1-dodecylpyrrolidin-1-ium-2-ylidene)amino)ethan-1-ol bromide.



**Figure S3.** FT-IR spectrum of the Zinc nanoparticles capped by the CS; (Z)-2-((1-methyl-1-dodecylpyrrolidin-1-ium-2-ylidene)amino)ethan-1-ol bromide.