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## Copper sulfide nanoparticles from Cyclohexylamine-N-Dithiocarbamates ligand

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Dithiocarbamates have been the major breakthrough in the synthesis of high quality, defect free and monodispersed nanoparticles. This is possible due to their strong chelating capabilities with transition metal ions. It was reported that ligand properties of the metal complexes used as precursor could be used in the modification of the size and shapes of nanoparticles. The well passivated nanoparticles have found lot of credential in many fields for their interesting potential application in biology. In this study cyclohexylamine-N-dithiocarbamate ligand and its Cu complex  $[\text{Cu}(\text{S}_2\text{CNC}_6\text{H}_{12})_2]$  were synthesized. The complex was then thermolysed in HDA and TOPO to give HDA and TOPO-capped CuS nanoparticles by varying concentration of the capping molecules. The absorption spectra showed localized surface plasmon resonances (LSPR) and quantum confinement effect for all samples. While TEM micrographs showed well dispersed isotropic particles for sample prepared in high concentration of HDA and anisotropic particles for sample prepared in low concentration of HDA. This was an opposite for samples prepared in TOPO. These particles were then tested against bacterias, gram negative and gram positive which showed enhanced activity in comparison to the complexes alone.

### Biography

Khumblani Mnqiwu is currently pursuing his MTech in Chemistry at Vaal University of Technology. For his BTech and MTech studies, he was awarded an NRF bursary because of his excellent academic achievements in his under-graduate studies.

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