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Title: Synthesis, Stability and Antifungal Properties of Glutathione Stabilized Ag Nanoclusters

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Abstract: Ag nanoclusters consist of a few to few hundreds of atoms having sizes that are comparable to the Fermi wavelength of electrons and exhibit fascinating molecule-like properties such as discrete electronic transitions and strong fluorescence. However, stabilising these clusters is extremely difficult due to their reactive nature leading to oxidation and also inherent nature of agglomeration. We have synthesized glutathione (GSH) capped Ag clusters (<2 nm) which forms a wine red colour dispersion in water. We have examined their stability and observed that over time, colour of this solution fades down due to surface oxidation of these clusters. We have further found that the Ag clusters shows antifungal activity towards pathogenic fungus *Candida albicans*, while it doesn't show any such activity towards nonpathogenic fungus *Saccharomyces cerevisiae*. Since it is known that the antifungal activity scales to reactive oxygen species (ROS) concentration, we propose that the generation of ROS is preferentially triggered by the pathogenic fungus in this case.

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