

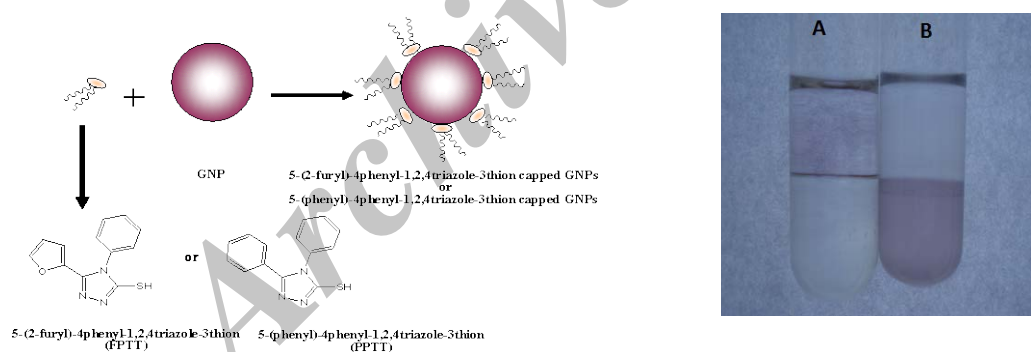
Synthesis and phase transfer of GNPs from aqueous to organic solution containing FPTT

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In this research work, gold nanoparticles have been synthesized within 40 minutes by reducing gold chloride (HAuCl_4) with CTAB in basic aqueous media, CTAB-capped gold nanoparticles (GNPs) in aqueous solution then were transferred directly in to organic solution chloroform containing 5-(2-furyl)-4phenyl-1,2,4triazole-3thion (FPTT). Optical absorption spectra corresponding to surface plasmon resonance provided a broad band centered at: 540 for FPTT capped gold nanoparticles (GNPs) in chloroform. Transmission electron micrograph images revealed that the average particle diameter of CTAB-capped gold NPs is 20-25nm. To obtain metal NPs in nonpolar solvents, Beust et al. [1, 2] developed a biphasic methodology, involving transfer of metal ions in to the organic layer using phase transfer reagents. In a different approach, there have been some reports where metal nanoparticles formed in aqueous solution are transferred to the organic solution containing capping agents [3].



References

- [1] - Brust, M.; Walker, M.; Bethell, D.; Schiffrin, D. J.; Whyman, R. Synthesis of Thiol Derivatized Gold Nanoparticles in a Two Phase Liquid/Liquid System, *J. Chem. Soc. Chem. C.* **1994**, 801.
[2] - Brust, M.; Fink, J.; Bethell, D.; Schiffrin, D. J.; Kiely, C. Synthesis and Reactions of Functionalized Gold Nanoparticles, *J. Chem. Soc. Chem. C.* **1995**, 1655.
[3] - Shaik, D. A.; Chakraborty, J. Use of repeated phase transfer for preparation of thiol coated copper organosols at higher particle loading, *COLLOID SURFACE A.* **2014**, 454, 46-56