Pharm Anal Acta 2018, Volume 9
DOI: 10.4172/2153-2435-C4-043

18th Annual Pharmaceutical and Chemical Analysis Congress

November 05-06, 2018 | Madrid, Spain

Morphology, spectroscopic and structural analyses of nano-sized bioactive materials based on metal mercaptotriazole assemblies

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New nano-sized materials involving some transition metal ions and mercaptotriazoles as well as dithiocabamate or 8-hydroxyquinoline have been prepared. A number of techniques were used for characterization and structure elucidation of these composites including elemental analysis, spectroscopic measurements (FT-IR, UV-Vis.), molar conductance, magnetic measurements, X-ray powder diffraction (XRD), transmission electron microscopy (TEM) and thermal studies. Both XRD and TEM patterns provided clear indication of the nano- particle morphology of the prepared materials. Thermal decomposition studies of the complexes were monitored by thermogravimetry (TG), derivative thermogravimetry (DTG) and differential thermal analysis (DTA) in dynamic nitrogen atmosphere. The prepared nano-materials have been applied as antimicrobial agents against some bacteria and fungi and showed enhanced bioactivity.

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