International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.12 No.04, pp 294-301, 2019

Green synthesis of copper oxide NPs using different medicinal plant Extracts for the applications of textile industries

V. Sumathi[1]*,

[1]Assistant Professor of Physics, Sri S.Ramasamy Naidu Memorial College, Sattur - 626 203, Tamilnadu, India

Abstract : In this present work, the simple, eco-friendly and cost effective method is adopted for preparation of copper Oxide NPs (CuO) using various traditional medicinal plants like Andrographis paniculata (Nilavembu), Aegle Marmelos (Vilva), Moringa Oleifera (Moringa) plant leaves extract and copper sulphate.The X- ray diffraction studies reveal the end-centered structure of CuO NPs and the grain size ranges from 4 nm to 60 nm. The FTIR analysis showed that the functional groups present in the plant extract which may involve in the green CuO NPs synthesis. From UV-visible spectroscopy we find the absorbtion peak to be around 360nm and the calculated band gap is found to be at 3.58 eV.SEM image shows that the NPs are orthorombic in shape. EDX analysis confirmed to some chemical elements is present in our sample .Antibacterial activity of CuO NPs were carried out for both gram positive (MRSA, Staphylococcus epidermidis) and gram negative (E-Coli, pseudomonus aeruginosa and Serratia marcescens) bacteria by using Agar well method. It concludes that gram negative bacteria shows significant activities compared to gram positive bacteria. Hence, it may be utilized as finishing agent in textile industries.
Keywords : Textile applications, Antibacterial activity, copper NPs, Plants extract.

V. Sumathi /International Journal of ChemTech Research, 2019,12(4): 294-301.

DOI= http://dx.doi.org/10.20902/IJCTR.2019.120436

*****