

COMPARISON OF TWO METHODS FOR THE GREEN SYNTHESIS AND CHARACTERISATION OF SILVER NANOPARTICLES FROM VERNONIA AMYDALINA

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Abstract

The synthesis of metal and semiconductor nanoparticles is an expanding research area due to the potential applications for the development of novel technologies. In this work, we describe a cost effective and environment friendly technique for green synthesis of silver phyto nanoparticles and their antibiogram from 3mM silver nitrate solution through the extract of *Vernonia amygdalina* as reducing as well as capping agent. In the process of synthesising silver nanoparticles we observed a rapid reduction of silver ions leading to the formation of stable crystalline silver nanoparticles in the solution. The herbal leaves and their medicinal properties were already discussed in varieties of ayurvedic studies. A comparative study was made in preparing the nanoparticles using the boiled extract and the microwave irradiated extract of *Vernonia amygdalina*. The synthesis of silver phyto nanoparticles were prepared by adding silver nitrate solution solution [3mM] to both the plant extracts. Nanoparticles were characterised using UV-Visible absorption spectroscopy, TEM, FTIR, XRD, XRF and SEM analysis for both the extracts. The biomass of plants produces their nanomaterials by a process called bio mineralization

Keywords: *Vernonia amygdalina*, Herbal extract, Silver nanoparticles, Silver nitrate, microwave irradiation.