

Green-Synthesis of Silver and Gold Nanoparticles in Leaf and Bark of Plant *Vitex leucoxylon*

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Abstract: Nanotechnology has emerged up as integration between biotechnology and nanotechnology for developing biosynthetic and eco-friendly technology for synthesis of nanomaterials. Nanoparticles are extensively used in biological and medical research due to their unique properties. Use of such nanoparticles in biological & medicinal field gives rise to the concept of biomedical nanotechnology, bio nanotechnology & nanomedicines. Green-synthesis of nanoparticles is emerging area in plant science research. Different plants are used for this purpose being it is most ecofriendly and convenient method of synthesizing nano scale particles of different salts. The plants are their potent sources of many valuable bioactive constituents and these constituents contribute reduction of salt in the system. In present work, leaf and plant bark of *Vitex leucoxylon* plant was taken as an experimental system for Green-synthesis of silver and gold nanoparticles from silver nitrates and gold chloride salt. *Vitex leucoxylon* is rich source in secondary metabolites especially polyphenols such as alkaloids, tannins, flavonoids and also steroids, triterpenes etc. which has lots of medicinal importance. The extract reaction mechanism of the nanoparticles synthesis by using biomaterials is yet to elucidate in detail; the work done proposes the involvement of redox enzymes in the reduction of silver and gold ions. Different biological sources can be used for synthesis of AgNPs and AuNPs such as bacteria, fungi, algae and plant material. Silver and Gold nanoparticles are gaining more attention due to their enormous applications, which includes biolabeling in optical receptors, catalyst in many chemical reactions and also possess different biological activities such as antibacterial, antifungal, antioxidant, antiviral activities.

Keywords: Nanoparticles, Green-synthesis, Vitex, Silver Nanoparticles, Gold Nanoparticles, NTA, TEM, UV-Vis.

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