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Synthesis of Metal Nanoparticle Engineered Herbal Formulation for the Treatment of Skin Infections

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Editorial

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Editorial

Nanomaterials are known to be a wonder of modern medicine [1]. A number of metal nanoparticles have been synthesized by chemical, physical and recently biological methods [2]. Metal nanoparticles have strong inhibitory and antimicrobial activities which have been exploited for centuries against various diseases [3]. Green synthesis techniques make use of somewhat pollutant-free chemicals for synthesis of nanostructures. The use of plants can be easily scaled up for large scale synthesis without the use of the toxic chemicals or the need for the high pressures, energy and temperatures [4]**.** In the global efforts to reduce generated hazardous waste, green chemistry and chemical processes are progressively integrating with modern developments in science and industry. Biomolecules in plant extract consists of essential oils, polyphenols, carbohydrates etc. that contains active functional groups such as hydroxyl, aldehyde, amine and carboxyl units which plays an important role in the reduction and stabilization of metal nanoparticles [5]. Nanotechnology is currently employed as a tool to explore the darkest avenues of medical sciences to combat diseases caused by the drug resistant microbes. The most promising approach for generating new fields in biomedical sciences in the present scenario is the pharmaceutical application of nanoparticles [6]. There has been an increased interest during recent years in the use of topical vehicle systems that could modify drug permeation through the skin using permeation enhancers but the use of chemical enhancers may be harmful as most of them are irritants [7-8]. The nanosized particles can tightly adhere to the skin surface and transport the drugs in a more controlled fashion. They are found to significantly increase skin hydration and exhibit occlusive properties due to reduction in the trans epidermal water loss [9-10]. Topical application of the metal nanoparticles for the treatment of skin infections could be more effective if the particles are suspended in an ointment base as compared to the free particles suspended in water. Therefore, the study to explore the therapeutic value of herbal formulations and its use as a topical application such as ointments, creams, lotions etc. should be encouraged as it offers a greater advantage in a faster release of drug directly to the site of the action and helps in the fast recovery of skin infections.

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