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Synthesis of Silver Nanoparticle and Formulation of Nanogel Using Pomegranate Peels Extract

Vrushali Laxman Satpute and Dnyaneshwari Gajanan Sawant
Vidya Niketan College of Pharmacy, Lakhewadi
satputevrushalivncop@gmail.com

Abstract: *Nanoparticles are the ultrafine particles that has a size range of 1-100nm. These particles are widely used since the rapid growth of Nanotechnology has taken over the formulation aspects. A combination of a nanotechnology with the herbal formulations has been always shown greater therapeutic effects and minimal side effects. Silver nanoparticles were used formulation. The phytoconstituent namely anthocyanins found in pomegranate peels has shown a good antioxidant effect. The use of peels instead of the whole fruit made the formulation cost effective and a productive formulation out of the biowaste. The anthocyanins were standardized using various standardization techniques like TLC, UV, HPLC. The Green synthesis method was used to synthesize the silver nanoparticles which was an environment friendly method which required minimal chemicals The synthesized silver nanoparticles were evaluated by the analysis techniques like SEM and TEM. The nanogel is a semisolid dosage form that, due it its smaller particle size and increased surface area on application has a greater advantage which provides great penetration through the skin. The formulated nanogels were evaluated as per their evaluation parameters. The formulation was tested for the DPPH radical scavenging activity to check the antioxidant potential of the formulation. The formulation was then tested for the drug release by using the Franz Diffusion apparatus. The nanogel was compared to the standard parameter and was found out to be comparable to the standards.*

Keywords: Nanoparticles (NPs) ,Silver Nanoparticles (AgNPs), Green Synthesis, Pomegranate Anthocyanins, Pelargonidin, Topical Delivery, Transdermal, Drug Deliver, Nanoparticles, UV Spectroscopy, Nanogel

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