



Original Research

**Effective Parameters on Biosynthesis of Silver using the Pelargonium
sidoides Root Extract**

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ABSTRACT

A green synthetic approach using Pelargonium sidoides root extract was applied and optimized for preparing silver nanoparticles (NSs). The synthesized NSs were investigated by X-ray diffraction method (XRD), UV-Vis spectrophotometer, transmission electron microscopy (TEM), and scanning electron microscopy (SEM). SEM and TEM images obtained show that the synthesized NSs have spherical shape with around 22 nm sizes, which is properly consistent with the results of Shearer method. Different parameters affecting the formation performance of nanoparticles such as temperature, pH, concentrations of silver nitrate and root extract and resting time were characterized and optimized.

Keywords: Green chemistry, Silver nano particles, Pelargonium sidoides root extract