Abstract

Green synthesis of nanoparticles is one eci- friendly method, in which natural solvents are used. In this study, silver nano particles (Ag NPs) were biosynthesized by using $AgNO_3$ and the aqueous extract of *Withania somnifera* (as a reducing agent for biosynthesis of silver nanoparticles*)*. In order to gain the best Ag NPs with a uniform shape and size, parameters affecting on synthesis such as: volume of plant extract, pH of the reaction, concentration of $AgNO_3$ solution, time of reaction were investigated and optimized by UV-Vis spectrophotometry. The reaction was done at room temperature, that the color change of the extract from pale yellow to dark brown showed the generation of silver nanoparticles. The size and morphology of silver nanoparticles were determind using scanning electron microscopy. The shape of particles was spherical and their average size was about 24-35 nm. Because of existing the antioxidant properties and many secondary compounds in plant, they have a role in reducing and stabilizing the nanoparticles

keywords: Biosynthesis, silver nanoparticles, *Withania somnifera*, spectrophotometry

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Biosynthesis of silver nanoparticles using aqueous extract of *Withania somnifera*

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