Biosynthesis of spherical and highly stable gold nanoparticles using *Ferulago Angulata* aqueous extract: dual role of extract

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Abstract

Abiocompatible method for synthesizing of highly disperses gold nanoparticles using *Ferulago Angulata* leaf extract has been developed. It has been shown that leaf extract acts as reducing and coating agent. Various spectroscopic and electron microscopic techniques were employed for the structural characterization of the prepared nanoparticles. The biosynthesized particles were identified as elemental gold with spherical morphology, narrow size distribution (ranged 9.2–17.5 nm) with high stability. Also, the effect of initial ratio of precursors, temperature and time of reaction on the size and morphology of the nanoparticles was studied in more detail. It was observed that varying these parameters provides an accessible remote control on the size and morphology of nanoparticles. The uniqueness of this procedure lies in its cleanliness using no extra surfactant, reducing agent or any capping agent.

Keywords: gold nanoparticles, biosynthesis, *Ferulago Angulata*, leaf extract.