Synthesis of plant mediated gold nanoparticles using flower extracts of Carthamus tinctorius L. (safflower) and evaluation of their biological activities

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The ecofriendly synthesis of nanoparticles through various biological means helps to explore various herbs for their ability to synthesize nanoparticles. Generally, nanoparticles are prepared by a variety of chemical methods which are not environmentally friendly. We report a rapid and convenient method to reductively prepare gold nanoparticles from auric chloride. In this report we use aqueous extracts of Carthamus Tinctorius L. (Safflower) flowers was used for the synthesis of gold (Au) nanoparticles. UV-visible spectroscopy studies were carried out to assess the formation Au nanoparticles. Transmission electron microscopy (TEM) was used to characterize the Au nanoparticles. TEM image divulges that nano triangle and spherical shape gold nanoparticles are formed with polydispersed size, which ranging from 40 nm to 200 nm. The antimicrobial activity of gold nanoparticles was performed on various gram negative bacteria and fungus. The gold nanoparticles showed more inhibitory activity on pathogenic gram negative bacteria than fungus.

Keywords: Gold nanoparticles, Safflower, Auric chloride, UV-visible spectrophotometer, TEM

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