

In vitro* scolical activity of synthesised silver nanoparticles from aqueous plant extract against *Echinococcus granulosus

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Highlights

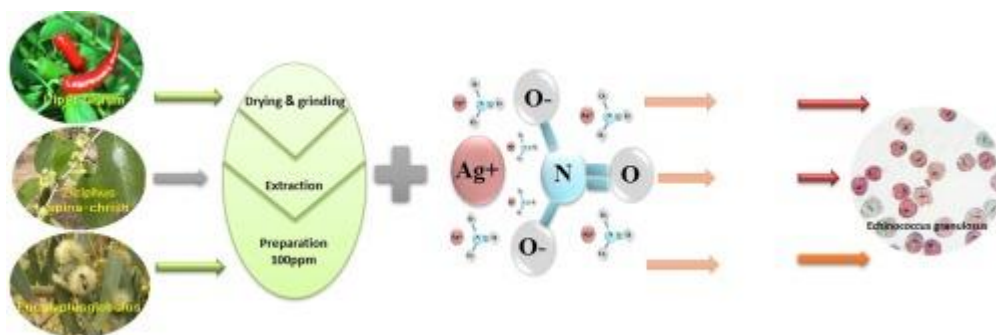
- Silver nanoparticles were biosynthesised using plant extract derived from *Piper nigrum*, *Ziziphus Spina-Christi* and *Eucalyptus globulus*.
- The scolical activity of synthesised silver nanoparticles against *Echinococcus granulosus* has been investigated.
- The *Eucalyptus globulus* extract exhibits outstanding activity comparing to *Piper nigrum* and *Ziziphus Spina-Christi* plant extracts.
- Silver nanoparticles exhibited reasonable results compared to that obtained from treatment with 10 µg/mL of Albendazole.

Abstract

At present, biosynthesis of AgNPs is a very effective method to produce less toxic nanoparticles. The vision of this research is to use three different plant extracts derived from leaves of *Piper nigrum*, *Ziziphus Spina-Christi* and *Eucalyptus globulus* for rapid biosynthesis of AgNPs. This is in addition to investigating the scolical activity against *Echinococcus granulosus*. The methods of UV–vis spectroscopy, X-ray diffraction (XRD),

scanning electron microscopy (SEM), and energy-dispersive X-ray analysis (EDX) were employed to characterise the nanoparticles. UV spectra disclosed a maximum absorption at 437 nm for the biosynthesised AgNPs using EUCGLO extract. The XRD patterns revealed the (fcc) structure of the AgNPs with slightly shifted characteristic peaks at 2θ degree of 37.3° and 43.4° , respectively. The scolicidal activity against *E. granulosus* revealed that the AgNPs, which were synthesised using *Eucalyptus globulus*, have powered scolicidal of 47.8 % after 45 min. which is comparable to the treatment by Albendazole.

Graphical abstract



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Keywords

Biosynthesis

Pant extracts

Silver nanoparticles (AgNPs)

Scolicidal activity

E. granulosus