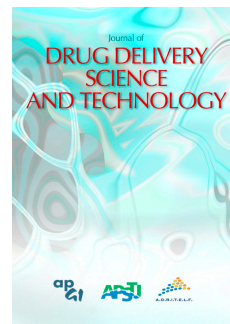


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Green synthesis of silver nanoparticles using *Trapa natans* extract and their anticancer activity against A431 human skin cancer cells

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Abstract

Silver nanoparticles (AgNPs) are one of the most promising biomedical agents for anticancer therapy. Biological or green synthesis of AgNPs using various plant extracts has been developed to overcome the limitations of the physicochemical routes. The purpose of this study was to describe an easy eco-friendly method for the synthesis of new anticancer silver nano-system using *Trapa natans* (*T. natans*) leaf extract. The formation of AgNPs was confirmed by the appearance of intense surface plasmon resonance (SPR) absorption peaks at 420-440 nm wavelengths on UV-vis spectrum. Fourier transform infrared spectroscopy (FTIR) analysis affirmed the role of *T. natans* extract as reducing and capping agent in the biosynthesis of AgNPs. X-ray diffraction (XRD) and scanning electron microscopy (SEM) analysis confirmed the biosynthesized AgNPs were crystalline in nature with size range from 30nm to 90nm. The biosynthesized AgNPs exhibited significant anticancer activity against A431 human skin cancer cells. These results suggest that, biosynthesized Ag nanoparticles from *T. natans* can be used as a novel therapeutic agent for skin cancer.

Key words: Green synthesis; *Trapa natans*; Silver nanoparticle; Skin cancer.

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