

Novel green synthesis of tin nanoparticles by medicinal plant: Chemical characterization and determination of cytotoxicity, anti-human lung cancer and antioxidant properties

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Abstract

In the present study, tin nanoparticles were green-synthesized using the aqueous extract of *Foeniculum vulgare* leaf aqueous extract. The synthesized SnNPs were characterized by analytical techniques including EDX, FE-SEM, XRD, UV-Vis., and FT-IR. The anti-human gastric cancer activity of SnNPs was evaluated using MTT assay. The nanoparticles were formed in a spherical shape in the range size of 26.45 to 38.53 nm. In the antioxidant test, the IC₅₀ of *F. vulgare*, SnNPs@FV, and BHT against DPPH free radicals were 384, 119, and 71 µg/mL, respectively. In the cellular and molecular part of the recent study, the treated cells with SnNPs@FV were assessed by MTT assay for 48h about the cytotoxicity and anti-human lung cancer properties on normal (HUVEC) and lung cancer cell lines i.e., NCI-H2126, NCI-H1299, and NCI-H1437. The IC₅₀ of SnNPs@FV were 108, 168, and 122 µg/mL against NCI-H2126, NCI-H1299, and NCI-H1437 cell lines, respectively. The viability of malignant lung cell line reduced dose-dependently in the presence of SnNPs@FV.

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