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Antitumor Effect of *Glycyrrhiza glabra* Nanoparticles

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In India, cervical cancer is the most common woman-related cancer, followed by breast cancer. Every year, cervical cancer is diagnosed in about 500,000 women globally and is responsible for more than 280,000 deaths annually. There is a need to develop new compounds with cytotoxic activities to cervical cancer because many available anticancer drugs are unsatisfactory and are toxic to normal cells. As a solution, this research investigated extracts from *Glycyrrhiza glabra* and silver nanoparticles as natural sources of medicinal remedies to prevent cancer among women. This study describes a method of synthesizing silver nanoparticles from 1mM $AgNO_3$ after being chelated with portion of the extracts. The size, stability and shape of the synthesized silver nanoparticles were analyzed using particle size, zeta potential and scanning electron microscopy analyses. To test the effectiveness of the anticancer compounds, cell viability tests were performed using 3-4, 5-dimethylthiazol-2yl), 2, 5-diphenyl-2H-tetrazolium bromide (MTT) and DNA fragmentation assay. The particle size and zeta potential of silver nanoparticles were 34.7nm and -24.7mV, respectively. The nanparticles were observed to be spherical in shape, with a diameter of 1 µm. Gas Chromatograph/Mass Spectroscopy (GC/MS) was used to identify three major phytochemical compounds from the *Glycyrrhiza glabra* extracts that possessed anticancerous activities. These plant extracts contains active compounds such as oleic, myristic and palmitic acids. Gel electrophoresis analysis of cells treated with the synthesized compounds revealed DNA damages to the Hela and Liver carcinoma cell lines, when compared to the control and marker, which did not show similar damages. The viability test using MTT, showed that 200 µl silver nanoparticles. produced 50 % apoptosis in Hela cell line and 48 % in Liver carcinoma cells. Hence, these experiments proved to better in killing the cervical cancer cells and to reduce the morbidity and mortality rate for women.