18th International Conference on
CANCER AND CANCER THERAPY
June 13-14, 2022 | Webinar

Received date: 22-03-2022 | Accepted date: 25-03-2022 | Published date: 24-06-2022

The apoptotic effect of Ferulic acid-synthesized gold nanoparticles against human epidermoid carcinoma (A431) cells via activation of caspase-3 pathway

Lonchin Suguna, Indra Rajendranan, Thangavel Ponrasu and **Rama Rajaram**
Central Leather Research India, India

In the present study, ferulic acid, a polyphenol, was employed to prepare stable gold nanoparticles. It acts as a reducing agent when mixed with hydrogen tetrachloroaurate (III) hydrate at ambient temperature. Subsequently, fa also turned into a stabilizing agent and yielded spherical gold nanoparticles (fa-AuNPs). The synthesized gold nanoparticles (fa-AuNPs) were thoroughly characterized using UV/Visible spectroscopy, Scanning electron microscopy, High-resolution transmission electron microscopy, Dynamic light scattering, and Fourier-transform infrared spectroscopy studies. Then, the synthesized fa-AuNPs were tested in human skin cancer cells (A431) and normal kertotinocytes (HaCaT cells). The fa-AuNPs produced cytotoxicity in A431 cells in a dose and time-dependent manner. The angiogenetic efficacy of the fa-AuNPs was substantiated by the results of the CAM assay. The programmed cell death occurred via apoptosis as indicated by the sub-G1 population. Increased levels of reactive oxygen species and caspase-3 activity resulted in reduced mitochondrial membrane potential. Hence, this study corroborated that fa-AuNPs successfully stimulated autophagy in A431 cells through mitochondria-based pathways and thus may be considered a potential agent to treat skin cancer.

E: slonchin@hotmail.com