ABSTRACT

Synthesis of Biocompatible Gold Nanoparticles Using Natural Phytochemical as Antineoplastic Therapy

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Cancer is the second leading cause of death globally, and was estimated to account for 9.6 million deaths in 2018, according to the WHO. To reduce the significant disability, suffering and deaths caused by cancer worldwide, effective and affordable programs in early diagnosis, screening, treatment, and palliative care are needed. Treatment options may include surgery, medicines and/or radiotherapy. In our research, we try to find a new way to treat cancer naturally. Toxic chemicals are utilized in several of the processes for production of nanoparticles, either in the form of reducing agents to reduce various metal salts to their corresponding nanoparticles, or as stabilizing agents to prevent agglomeration of nanoparticles. These toxic chemicals are powerful reducing agents that are currently used to produce gold and other metallic nanoparticles. These reducing agents are highly toxic to living organisms and to the environment. The purpose of the present experimental study is to prepare biocompatible Gold nanoparticles through 3 months, which contain the phytochemical, with high purity as anti-tumor therapy for destroying of cancer cells. Gold nanoparticles will be synthesized by a “green” procedure in University of Palestine laboratories. Then it will be internalized in cancerous cells to facilitate in detecting and damaging cancerous cells. Cytotoxicity and cellular uptake part of this study will be carried on cancerous cells in Rabbits. Gold nanoparticles will be prepared and applied on cancer tissue of ten rabbits. Then, the tissue culture will be checked out by pathologist. The results of the current may indicate that these non-toxic gold nanoparticles can serve as excellent detectable and damageable agent for cancerous cells; it will be a novel approach toward tumor damaging through Nano-pharmaceuticals.