

**OR-60****Green Synthesis of Gold Nanoparticles (GNP) using Seaweed Extract and its Anticancer Effect**

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The application of gold nanoparticles is promising in many areas of biomedical sciences such as cancer. Recently, natural products have been reported as serving as both reducing and stabilizing agents for green synthesis of metallic nanoparticles. Seaweed, one of the most commonly used medicinal extracts, has documented anticancer activity both *in vitro*, *in vivo* and in human clinical trials. In the present study, GNP has been developed on seaweed extract using a green photochemical approach. Seaweed extract served as both a reductant and a stabilizer. The nanoparticles were characterized using UV-visible spectroscopy, X-ray diffraction (XRD), scanning and transmission electron microscopy (SEM and TEM). The nanoparticles are spherical, crystalline with size about <10 nm. The anticancer activity was demonstrated in MCF-7 breast cancer cells. The MCF-7 cells viability were determined via trypan blue test, while MTT assay was used for cytotoxicity evaluation using different concentrations of GNP. Morphological alterations induced by extracts were examined using phase contrast, fluorescent and electron microscopy. The nature of stimuli-responsive drug release and the inhibition of cancer cell growth by GNP could pave the way for the design of green synthesis therapeutic agents, particularly nano-medicine, for the treatment of cancer.

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