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Synthesis of Silver Nanoparticles Using Three Marine Macro Algae from the Persian Gulf

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Abstract

The development of ecofriendly and non-toxic process for synthesis of silver nanoparticles is a great concern in the field of nanotechnology. In the present study, a reliable approach for the synthesis of Ag-NPs was investigated using the aqueous extract of three marine macroalgae, *Ulva flexuosa* (Chlorophyta), *Colpomenia sinuosa* (Phaeophyceae) and *Gracilariopsis persica* (Rhodophyta). The complete reduction of silver ions was observed after 24 h of reaction at 25°C. The formation of Ag-NPs was analysized by UV-Vis spectrum, Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM) and X-ray diffraction (XRD). Our finding demonstrated that *U. flexuosa*, *C. sinuosa* and *G. persica* have the potential of silver nanoparticles production in a media containing AgNO3 at room temperature.

Keywords: *Scanning Electron Microscopy, Transmission Electron Microscopy, X-ray diffraction, Spectrum.*