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, \textit{Ulva flexuosa} (Chlorophyta), \textit{Colpomenia sinuosa} (Phaeophyceae) and \textit{Gracilaria persica} (Rhodophyta). The complete reduction of silver ions was observed after 24 h of reaction at 25°C. The formation of Ag-NPs was analyzed by UV-Vis spectrum, Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM) and X-ray diffraction (XRD). Our finding demonstrated that \textit{U. flexuosa}, \textit{C. sinuosa} and \textit{G. persica} have the potential of silver nanoparticles production in a media containing AgNO\textsubscript{3} at room temperature.

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