

## **Green synthesis and characterization of gelatin-based and sugar-reduced silver nanoparticles.**

### **ABSTRACT**

Silver nanoparticles (Ag-NPs) have been successfully prepared with simple and "green" synthesis method by reducing Ag<sup>+</sup> ions in aqueous gelatin media with and in the absence of glucose as a reducing agent. In this study, gelatin was used for the first time as a reducing and stabilizing agent. The effect of temperature on particle size of Ag-NPs was also studied. It was found that with increasing temperature the size of nanoparticles is decreased. It was found that the particle size of Ag-NPs obtained in gelatin solutions is smaller than in gelatin-glucose solutions, which can be related to the rate of reduction reaction. X-ray diffraction, ultraviolet-visible spectra, transmission electron microscopy, and atomic force microscopy revealed the formation of monodispersed Ag-NPs with a narrow particle size distribution.

**Keyword:** Silver nanoparticles; Green method; Gelatin; Glucose; UV-vis spectra.