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## BIOSYNTHESIS OF SILVER NANOPARTICLES (AgNPs) USING *Tilia cordata* FLOWERS EXTRACTS AND EVALUATION OF SOME BIOLOGICAL ACTIVITIES

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### Abstract

Synthesis of silver nanoparticles (AgNPs) by plants is a simple, non-toxic and eco-friendly method. The purpose of this study was to develop a method for obtaining silver nanoparticles with biological properties. For reducing the silver ions, an extract of *Tilia cordata* (linden) flowers was used. Some parameters were investigated to optimize the synthesis method. Thus, the conditions of reaction were varied, such as pH, concentration of silver salt, different ratio of plant extract and silver salt, temperature and stirring time. The formation of nanoparticles was demonstrated by Ultraviolet-visible spectroscopy (UV-Vis), Fourier transform infrared spectra (FTIR), Transmission electron microscopy (TEM), Energy dispersive X-ray analysis (EDX), Photon correlation spectroscopy (PCS), Electrophoretic light scattering (ELS). In order to determine possible biological applications, we tested the antimicrobial and the antioxidant activities. The results demonstrated that linden flowers could be used to obtain silver nanoparticles with an important potential in the development of some therapeutic agents.

**Key words:** antimicrobial, antioxidant activity, phytochemical analysis, silver nanoparticles, *Tilia cordata*

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