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BIOSYNTHESIS OF SILVER AND GOLD NANOPARTICLES VIA PIGMENTS EXTRACTED FROM *SPINACIA OLERACEA*

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Abstract

Green synthesis of nanoparticles, one of the most important areas of nanotechnology, allows the synthesis of variable sizes and shapes nanoparticles through "green" routs.
The objective of this study was to synthesize gold and silver nanoparticles using chlorophyll extracted and purified from *Spinacia oleracea*. Analytical techniques (UV-Vis spectroscopy, thin layer chromatography - TLC, energy-dispersive X-ray fluorescence - EDXRF, scanning electron microscope - SEM) have been used to characterize the obtained materials. The absorption peaks at ~550 and ~452 nm confirmed the formation of gold and silver nanoparticles. The SEM measurements reveal that the dimension of the particles is in the range 50–100 nm for gold and from 100–300 nm to few micrometers for silver clusters.

Key words: chlorophyll, gold and silver nanoparticles, nanomaterials, *Spinacia oleracea*

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