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1989- B.Sc. Physics, Babes-Bolyai University, Cluj-Napoca, Romania.

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Field of interest, experience

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Abstract:

Selenium nanoparticles: production, characterization and novel biological and medical applications

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Keywords: nanoparticles, selenium, biofortification, antioxidant effect, biomaterial coating.

The present work is aimed to emphasize different approaches in production of selenium nanoparticles, either by conventional - chemical reactions, and biological - green synthesis. Advantages and drawbacks of each method are presented with respect to the purpose application.
Different characterization techniques including FTIR spectroscopy, Dynamic Light Scattering (DLS), Zeta Potential, SEM/TEM and AFM microscopy are used in order to investigate the physico-chemical and morphological properties of selenium nanoparticles [1]. Biological and medical applications are referring to:

1) Improving antioxidant capacity, nutritional and growth parameters of vegetables by effective selenium uptake (biofortification).
2) Developing functional foods based on selenium nanoparticles, with the ability to annihilate toxic effects induced by heavy metals (Pb, Cd, As) [2].
3) Developing microspheres as controlled delivery system for nano-selenium particles, using different formulation based on alginate and chitosan [1].
4) Nanoselenium coatings on titanium mesh for cranioplasty.

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