

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

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Abstract.

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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References

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