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Resveratrol gold nanoparticles: Synthesis, characterization and *in vitro* anticancer activity

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The biosynthesis of nanoparticles has been proposed as a cost effective and environmental friendly alternative to chemical and physical methods. Gold nanoparticles were synthesized using standardized resveratrol extract as reducing agents. The method described a novel application of resveratrol and fortifies the screening of a new potential source of reducing agent for the synthesis of Au-R-NPs. The particle size of Au-R-NP was found in the range from 50-100 nm and is in the reported size range of NP. The zeta potential of Au-R-NP was found to be -22.64 mV, validated the size and the charge of the nanoparticles in colloidal solution without any aggregation. Pure drug has characteristic exothermic melting peak at 132.34 °C with high intensity. From the DSC results, it was found that melting point of Au-R-NP was shifted to higher temperature indicating the crystalline nature than that of resveratrol. FTIR studies confirmed the bio-fabrication of the Au-R-NPs by the action of its different functional groups present in the reducing agent. Au-R-NPs were screened for *in vitro* anticancer activity on human lung carcinoma A-549 cell line. Au-R-NPs exhibited promising *in vitro* anticancer activity with IC₅₀ value of 10 µg.

Biography

Shrinivas Bumrela is currently working as Head of Pharmaceutics department of Sinhgad Institute of Pharmaceutical Sciences, India. He is registered Indian Pharmacist having 13+ years of academic and research experience. He has presented and published 35+ research articles in national and international journals/conferences and received 07 Best Research Paper Awards. His research areas are nanoparticles and NDDS and guided 14 Post Graduate students for dissertation. His biography is included in Marquis Who's Who in the World 28th Edition, 2011. He is Reviewer of various journals to name a few *Revista Brasileira de Farmacognosia*, *Asian Journal of Complementary and Alternative Medicine*.

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