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Biogenic nanosynthesis of *Anisomeles malabarica* leaves (AgNps) and cytotoxic effect on HepG₂ cell lines

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Nanoscience and nanotechnology have been an interesting field of research and gained much importance from last two decades. Nanotechnology is fundamentally changing the way in which materials are synthesized and devices are fabricated. Incorporation of nanoscale building blocks into functional assemblies and further into multifunctional devices can be achieved through a bottom-up approach. Research on the synthesis of nanosized material is of great interest because of their unique properties like optoelectronic, magnetic and mechanical, which differs from bulk. Nanostructured materials are being viewed as the future material and for various diverse applications in areas such as biomedical science, optics, mechanics, magnetics catalysts, biosensors and energy science. Biological methods can be used to synthesize silver nanoparticles without the use of any harsh, toxic and expensive chemical substances. Green synthesis approaches of producing NPs are an alternative source of conventional method and possess excellent antimicrobial activity. Nonalcoholic fatty liver disease is a common clinic pathological condition characterized by significant lipid deposition in the hepatocytes of the liver parenchyma. The pathological picture bears a striking resemblance to that of alcohol-induced liver injury, but it occurs in individuals who deny a significant history of alcohol ingestion. The effect of complex mixtures on several cellular responses, in an *in vitro* liver model using human hepato carcinoma (HepG₂) cells, was studied. The synthesis nanoparticles were characterized by UV-Visible spectroscopy, FTIR, SEM and EDX, TEM, XRD. AgNps of *A. malabarica* on HepG₂ cell line showed dose dependent activity performed by Laura Talarico, 2004 method. The AgNP's exhibited good cytotoxic effect. Activation of the caspase-3 pathway is a hallmark of apoptosis. The nano based phyto medicine will certainly provide and serve the line of safety and also will be used as eco-friendly than allopathic chemically synthesized drugs in future.

Biography

M Suriyavathana has completed her PhD in Bharathiar University, Coimbatore and upholding the position of Assistant Professor in Department of Biochemistry, Periyar University, Salem, Tamil Nadu, India. Her area of specialization is on medicinal plants and plant therapeutics, green nanotechnology and clinical biochemistry. Currently she is a Member in Centre for Nanoscience and Nanotechnology of Periyar University, Salem. She has nearly 70 research publications in referred and non-referred journals. She has authored two books *Nutraceuticals the Future Safe Medicine* and *Biochemical Characterization in Cassava*. She has completed five minor and one major research projects national and state levels. She has been honored and recipient of Dr. APJ Abdul Kalam Award for Teaching/Scientific Excellence-2015, AUFAU International award for Outstanding Researcher in Plant Therapeutics and Clinical Biochemistry in 2016.

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