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Title: Biological synthesis of gold nanoparticles & test for cytotoxicity and anti-microbial activity

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The main objective of our experiment is to synthesize gold nanoparticles by a biological and eco-friendly method and to study the effect of these synthesized gold nanoparticles on cancer cell lines by Cytotoxicity test and for anti-microbial effect.

Nanotechnology is an enabling technology that deals with nano-meter sized objects. It offers a way to treat various diseases without doing too much damage to healthy tissue.

Gold nanoparticles can be used as potential tools for medical imaging as well as for treating diseases due to their size features, rich functionality, good biocompatibility and capability of targeted drug delivery and controlled release of drugs.

The nanoparticles were synthesized from the gold salt (HAuCl₄.3H₂O) by using Neem (*Azadirachta indica*) leaves as reducing agent. Characterization of the obtained nanoparticles was done by UV-visible spectroscope, particle size analyzer, Gas Chromatography Mass Spectrometry and Scanning Electron Microscope to determine the nature and size of the particles obtained. These nanoparticles were coated with PEG (polye 1 thylene glycol) to avoid agglomeration. The MTT assay was carried out of gold nano particles on carcinoma cell lines and there is an observable decrease in the cell number from 5000cells/well to 811cells/well shows the effective cell disruption.

The PEG coated gold nanoparticles were tested on two microbial cultures the *Staphylococcus aureus* and *Aspergillus flavus* the growth curves obtained shown more than 78% cell death.

Biography

Prof. Pushpa Agrawal completed her Ph. D. degree in the year 1984 from DAVV, Indore and postdoctoral studies from Miami University, USA and India Institute of Science Bangalore, India. She is Professor of Biotechnology and Dean, Post graduate studies in Biotech and Chemical Engineering at R. V. College of Engineering, Bangalore India. Many scholars are pursuing and completed Ph.D. under her guidance. She has presented over 100 research papers in conferences and published more than 40 papers in reputed journals. Prof. Pushpa has coauthored a book on biotechnology and chapters in 2 books and has been serving as managing editor and editorial board member of reputed journals. She has received various awards, honors and fellowships.

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