

## Antimycolytic effect of quercetin dihydrate loaded electrospun nanofibrous membrane on *Candida albicans*

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**C**andida is an opportunistic fungus, known to cause systemic and life threatening infections in immunosuppressed patients. In our attempt to deal with this ominous fungal pathogen we have successfully fabricated ultrafine poly (D,L-lactide-co-glycolide), PLGA, nanofibrous membrane loaded with different concentrations of quercetin dihydrate, natural flavones with antioxidant and antimycolytic activity, using acetone-dichloromethane as solvent system. The bulk fabrication of these nanofibrous membrane was performed via electrospinning technique. The morphology of resulting nanofibrous membrane with or without quercetin dihydrate was examined using field emission scanning electron microscopy (FE-SEM). The nanofibrous membrane was also subjected to detailed analysis by Fourier transform infrared spectrometry (FTIR). The antimycolytic effect of these quercetin dihydrate loaded nanofibrous membrane on to the viability of *C. albicans* cells was established using modified XTT (2,3-bis(2-methoxy-4-nitro-5-sulphophenyl)-2H-tetrazolium-5-carboxanilide) reduction assay in 6 well polystyrene microtiter plates. Scanning electron Microscopic (SEM) visualization of this *C. albicans* treated quercetin dihydrate loaded nanofibrous membrane showed drastic reduction in the intense network of yeast, hyphae and pseudohyphae forms. These highly loaded nanofibrous membrane can be efficiently used as an antimycolytic agent as well as can be exploited as cost effective wound dressings and protective bandages.

**Keywords:** Electrospinning, Nanofiber, Quercetin, Antimycolytic.

### Biography

Priya Vashisth is currently pursuing her PhD in Department of Biotechnology from Indian Institute of Technology Roorkee, India under the joint supervision of Dr. Vikas Pruthi and Dr. R. P. Singh. She is working in the field of Nanobiotechnology (fabrication, characterization of polymeric nanofibers and their applications). She is awarded with the CSIR-JRF Fellowship, funded by Council of Scientific and Industrial Research (CSIR).

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## Importance of bioethanol and biodiesel from biomass

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**T**o combat the energy crisis and environmental degradation, due to heavy use of fossil energy sources, biodiesel and bioethanol are attractive alternatives to diesel fuels or petroleum. The paper aims at presenting the comparisons of bioethanol and biodiesel and the energy obtained from fossil fuels and increased interest of using biofuels over conventional fuels.

Biomass represents an abundant C-neutral renewable resource for the production of bioenergy and biomaterials. Bioethanol is derived from alcoholic fermentation of sucrose or simple sugars and used as a petrol additive or substitute. Biodiesel is eco-friendly alternative fuel that can be used in diesel engine with both the environmental and economic benefits.

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## Effect of nano-ZnO particle suspension on growth of gram (*Cicer arietinum*) seedlings

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**T**he present study demonstrates an effect of nano-ZnO particles on the growth of plant seedlings of Gram (*Cicer arietinum*). Various concentrations of nano-ZnO particles in suspension form were introduced to the agar media, and their effect on the root and shoot growth of the seedlings was examined. It was found that at certain optimum concentration, the seedlings displayed good growth over control, and beyond that, retardation in growth was observed.

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