



INVESTIGATION OF THE EFFECT OF GINGER ON THE LIPID LEVEL

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Use of medical plants as a pharmacologic modality in prevention alternation in lipid metabolism has received wide attention from several workers. The lipid lowering effect of ginger was evaluated in this study.

This study is a randomized control trial that were performed on patients with hyperlipidemia. Exclusions were diabetes mellitus, hypothyroidism, alcohol, pregnancy and peptic ulcer. Patients were randomized to received ginger capsule (3gr/day in 3 divided dose) for 45 days. Lipid profile concentrations before and after treatment are measured by enzymatic assay and with demographic information analyzed by SPSS 10 and fisher's exact, paired t Test, t test and Mann-withney.

There was significant reduce in triglyceride, cholesterol, LDL, VLDL, concentrations of both groups ($p < 0.05$). Mean changes in triglyceride and cholesterol concentrations of ginger group are significantly higher than placebo group ($p < 0.05$). Mean changes in LDL and HDL and HDL concentrations of ginger group are higher than placebo group but in VLDL concentrations of placebo are higher than ginger so there were no significant difference ($p > 0.05$).

Results show that ginger has cholesterol and triglyceride lowering effect compared to placebo but no effect on others parameter.

ANTIMICROBIAL CHARACTERISTICS OF SOME HERBAL OILS ON *PSEUDOMONAS AERUGINOSA*

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Pseudomonas aeruginosa, an opportunistic pathogen that produces a number of unique virulence factors causes severe and life-threatening infections. In this study the effects of sub-minimal inhibitory concentrations (sub-MICs) of some essential oils on virulence factors of *Pseudomonas aeruginosa* such as alginate production, biofilm formation, swimming, twitching and adhesion were evaluated. MIC of *Zataria multiflora*, *Myrtus communis*, *Eucalyptus camaldulensis*, *Mentha spicata* and *Cuminum cyminum* essential oils on mucoid *P. aeruginosa* 8821M were determined by macrodilution method. Alginate production, biofilm formation, swimming, twitching and adhesion in the present of sub-MICs (1/2, 1/4 and 1/8 MIC) of essential oils were determined. GC-MS analysis led to identification of 32, 21, 22, 15 and 32 components in *Myrtus communis*, *Eucalyptus camaldulensis*, *Zataria multiflora*, *Mentha spicata* and *Cuminum cyminum* oils respectively. The MICs of essential oils against *P. aeruginosa* for *Z. multiflora*, *M. communis*, *E. camaldulensis*, *M. spicata* and *C. cyminum* oils were obtained 64, 64, 64, 16 and 32 $\mu\text{g/ml}$ respectively.

The results show that all oils at 1/2 and 1/4 MICs were significantly reduced all tested virulence factors. At 1/8 MICs, *Z. multiflora* oil had significantly reduced all virulence factors, but another oils had different effects. This study showed that sub-MIC levels of *Z. multiflora*, *M. communis*, *E. camaldulensis*, *M. spicata* and *C. cyminum* essential oils affected alginate production, biofilm formation, swimming, twitching and adhesion in *P. aeruginosa* and it is probable to use of these medicinal plants for treating.

APPLICATION OF "OMICS" TECHNOLOGIES IN PLANT RESEARCHES; MASS SPECTROMETRY POINT OF VIEW

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Nowadays, metabolomics, proteomics and genomics are important issues in plants researches. The evaluation and identification of metabolites in the natural specimens could be achieved using Gas Chromatography-Mass Spectrometry (GC-MS) and Liquid Chromatography-Mass Spectrometry (LC-MS) methods. Moreover, the plant proteins sequencing would be studied by electrospray and Matrix Assisted Laser Desorption Ionization mass spectrometry (MALDI)- Mass spectrometry (MALDI-MS). In addition the variations and expressions of plants DNA and RNA easily can follow by Mass Spectrometry instrument. Finally, the distribution of metabolites and peptides can be monitored by Imaging Mass Spectrometry (IMS).

Nanotechnologies have increased the nanomaterial applications in the several fields of life like agriculture as an agent to prevention or treatment of diseases. Knowledge of plant responsiveness to the environmental stresses can be obtained by determining the proteome variations and metabolite distribution within the tissues, organs or cells. Understanding the influence of nanoparticles (NPs) on metabolites, proteins and gens of plant can be only performed by MS instruments. Nevertheless, the most significant problems are missing the molecule's natural conditions of signaling responsiveness and interactions with other molecules over the sample preparation. This study will focus to show the ability of MS to provide outstanding point of view into the molecular analysis of plants according to the better resolution data about metabolites and proteins and quantitative variations during the plant development or environmental stresses.