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STUDY OF EXPRESSION OF THE GENE ALPHA-6 IN MULTIDRUG-RESISTANT ACINETOBACTER BAUMANNII AGAINST THYME ESSENCE WITH REAL TIME PCR

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Background: The present study was aimed to investigate the inhibitory effects of Thyme essence on the expression of antibiotic resistance genes aphA-6 and Housekeeping DNA gyrase -A against Multidrug-resistant strains of *Acinetobacter baumannii* with Real time PCR technique.
Methods: Five Multidrug-resistant strains of *Acinetobacter baumannii* among seventy-five drug-resistant strains of *Acinetobacter baumannii* selected from hospitals in Tehran. AphA-6 and Housekeeping DNA Gyrase-A genes with PCR method were approved for studies. *Acinetobacter baumannii* ATCC #19606 was used in this study as a model reference strain. MIC values were determined by broth micro dilution assay recommended by the NCCLS. Thyme essence to the MIC was added to 1 ml Muller Hinton broth and after mixing, 1 ml of bacterial suspension (5 × 10 5 CFU / ml) was added to the medium, incubated at 37 ° C for 24 hours. After incubating bacteria, bacterial mRNA was extracted and transformed into cDNA and level of expression of aphA-6 and Housekeeping DNA gyrase-A genes in comparison to non-exposed Thyme essence was examined by Real time PCR.
Results: The major components of Thyme essence were thymol (28.8%) and carvacrol (23.46%). Thyme essence with MIC (0.45 l / ml) and an inhibitory effect on multidrug-resistant *A.bummanii* was found. The average zone of inhibition by Thyme essence on multidrug-resistant *A.bummanii* growth was 18.6 mm. Antibiotic susceptibility test results among seventy five *A.bummanii* strains areOxacillin (100%), amikacin (75%), kanamycin (68)%, gentamicin(60%),imipenem (60%) and (89%) were resistant to neomycin. Melting curve analysis showed the species- specific melting temperature patterns on 53°? differentiating *A.bummanii*. Thyme essence with MIC (0.45?l / ml) has the effect of reducing the expression of antibiotic resistance genes aphA-6 with Real time PCR method and no inhibitory effect on Housekeeping DNA Gyrase-A gene.
Conclusion: Thyme essence has strong inhibitory effects against *Acinetobacter* baumani. Therefore, due to the increasing resistance of pathogenic bacteria, Thyme essence can be used as a natural alternative for common antiseptic. Additional clinical researches are necessary to completely confirm the above results for practical purposes

Keywords: *Acinetobacter baumannii*, Thyme, Apha-6gene

STUDY OF INHIBITORY EFFECT OF ALCOHOLIC EXTRACT OF INNER STRATUM OF OAK FRUIT (JAFT) AND HYDRO ALCOHOLIC EXTRACT OF SUMMER BULB ON ACINETOBACTER IN VITRO

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Background: *Acinetobacter* is an important nasocomoial agent. Regarding the increase of resistant bacteria and identification of side effects of antibiotics, using plant drug with antibacterial effect could be appealing. This study aims to investigate the inhibitory effect of alcoholic extract of oak inner stratum and hydro alcoholic extract of summer bulb on *Acinetobacter* in vitro.
Methods: Oak inner stratum and summer bulb were collected and alcoholic and hydro alcoholic extractions were done. Inhibitory effect was carried out by disk diffusion and agar well diffusion method.
Results: Alcoholic extract of jaft had an inhibitory effect, but hydro alcoholic extract of summer bulb did not have any significant effect on this bacteria. The highest inhibitory effect of jaft was in 80µg/ml concentration.
Conclusion: Alcoholic extract of jaft has inhibitory effects on *Acinetobacter*, but hydro alcoholic extract of summer bulb does not have noticeable inhibitory effects.

Keywords: Alcoholic Extract, Summer Bulb, Jaft, *Acinetobacter*