

P49-277: Inhibitory effect of hydroalcoholic extract of native plants of *Dysphania botrys* and *Artemisia khorassanica* on some Gram-positive and Gram-negative bacteria

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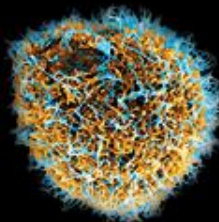
Background and Aim : Following the development of drugs, microorganisms become resistant to them through a variety of mechanisms. In recent years, the prevalence of antibiotic resistance has increased dramatically and the treatment of diseases caused by them has become more difficult. In this regard, new drugs are being developed. The aim of this study was to study the inhibitory effect of hydroalcoholic extracts of *Dysphania botrys* and *Artemisia khorassanica* on some bacteria.

Methods : *Artemisia khorassanica* (Family: Asteraceae) and *Dysphania botrys* (Family: Amaranthaceae) were collected from suburbs of Quchan (Khorasan Razavi province). After extracting the hydroalcoholic extract of the mentioned plants, blank discs impregnated with 2 mg of the extract were prepared using DMSO. Inhibitory effect of the extracts was determined by disk diffusion method based on Kirby Bauer standards. *Klebsiella pneumoniae* (ATCC 700603), *Micrococcus*, *Staphylococcus aureus* (PTCC111) and *Staphylococcus epidermidis* (ATCC12228) and 15 clinical isolates of *K. pneumoniae* were inoculated on Mueller-Hinton agar. Clinical isolates were previously identified using differential biochemical tests and confirmed with 16S rRNA primer and polymerase chain reaction. Standard gentamicin disk and blank disk were placed on the plate as positive and negative controls.

Results : The results showed that the highest effect of *D. botrys* on *S. aureus* (18 mm) and the highest effect of *A. khorassanica* on *K. pneumoniae* (12 mm). The minimum inhibition concentration (MIC) of *D. botrys* was 500 ?g/ml against *S. aureus*.

Conclusion : The results of this study showed that these two plants or their effective compounds can be a good candidate for the more effective treatment of bacterial infections.





P53-320: Inhibitory effect of onion juice and eucalyptus essential oil against antibiotic-resistant clinical isolates of *Klebsiella pneumoniae* and *Escherichia coli*

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Background and Aim : Finding the right drug to treat bacterial infections has always been a challenge for researchers. This challenge has become more difficult due to the increasing development of bacterial resistance and the emergence of antibiotic-resistant strains. In this study, white onion juice (family: Amaryllidaceae) and eucalyptus essential oil (family: Eucalyptus) (Barij Esans Company, Iran) were tested against 15 clinical isolates of *Klebsiella pneumoniae* and onion juice against 6 clinical isolates of antibiotic-resistant *Escherichia coli*.

Methods : Clinical isolates were previously identified using conventional biochemical tests and confirmed by polymerase chain reaction using 16S rRNA gene primers. The pattern of sensitivity of isolates to onion juice and eucalyptus essential oil was determined by two methods of disk diffusion and the agar well diffusion, according to CLSI standards. Gentamicin antibiotic disc was used as positive control and sterile distilled water was used as a negative control. After 24 hours of incubation at 37 °C, the diameter of the bacterial growth inhibition zone was examined. The results of this study showed that eucalyptus essential oil had the highest growth inhibitory effect against *K. pneumoniae* isolates. Also, the growth inhibition of eucalyptus essential oil in the agar well diffusion method was higher than the disk method.

Results : So that the growth inhibition zone of *K. pneumoniae* compared to eucalyptus essential oil was 23 mm in the agar well diffusion method and 9 mm in the disk diffusion method. All clinical isolates of *K. pneumoniae* and *E. coli* were resistant to the onion juice.

Conclusion : According to the results of this study, it can be concluded that eucalyptus essential oil can be a suitable alternative to chemical drugs against *K. pneumoniae* as the herbal medicine with a high antimicrobial effect.

Keywords : Eucalyptus, Onion, Diffusion disk, Antimicrobial activity

