Study of anti-bacterial and anti-fungal effects of extracts and essential oils of tarragon (Artemisia dracunculus) and compare it to commonly used antibiotics, in vitro

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Abstract Introduction: Artemisia dracunculus is a genus of small herbaceous plants or plants widely distributed throughout the world but mostly found in temperate regions of the north. This plant is important the industrial point of view because of its anti-insect, antifungal, antibacterial, allopathic and other characteristics. The aim of this study was to evaluate the anti-bacterial and antifungal effects of extracts and essential oils of Tarragon (Artemisia dracunculus) and It compares with common antibiotics in vitro. Materials and Methods: At the beginning, the antimicrobial effects of essential oil, hydroalcoholic and methanolic extracts of tarragon were studied by using diffusion method on Staphylococcus aureus, Escherichia coli and Klebsiella pneumoniae bacteria. By using MIC (minimal inhibitory concentration) and MBC (minimum bactericidal concentration), the minimum inhibitory concentration and bactericidal inhibition was determined. The antifungal effects of essential oil, hydroalcoholic and methanolic extracts of tarragon were evaluated using a purplited method on Aspergillus niger fungus and the MFC (minimum fungicidal concentration) method was used to determine the minimum fungal fecundity. Results: According to the results of the inhibition zone, disc diffusion method showed that the essential oils, hydroalcoholic extracts and methanolic tarragon on gram positive bacteria of Staphylococcus aureus and gram negative bacteria of Escherichia coli and Klebsiella pneumoniae have antimicrobial effects. And the highest antimicrobial activity related to tarrachinic essential oil with a diameter of 32 inhibitory concentration at 200 mg / ml concentration in the presence of Klebsiella pneumoniae bacteria and the lowest antimicrobial activity related to hydroxylacetate extract of tarragon with a diameter

of 7 inhibitory concentration at 500 mg / ml concentration in the presence of bacteria Escherichia coli was recorded And the minimum inhibitory concentration and trachy content of tarragon essential oil were 6.25 and 12.5 mg / ml at 200 mg / ml concentration in the presence of Klebsiella pneumoniae and the minimum inhibitory and inhibitory concentration of Hydro alcoholic tarragon extract was 62.5 and 125 mg / ml at a concentration of 500 mg / ml. The results of antifungal effects were that aspergillus fungi did not grow in the presence of essential oil, hydroalcoholic and methanolic extracts of Tarragon, and in the minimum concentration of fungi with tarragon essential oil, 25 mg / ml and the minimum fungal concentration of the extracts Hydro alcoholic and methanolic tarragon, 62.5 mg / ml. Conclusion: According to the antibacterial and antifungal effects of essential oil, hydro alcoholic and methanolic extracts of tarragon, taking into account their side effects in invivo conditions, can be extracted hydro alcoholic and methanolic tarragon as a drug Herbal against infections.

Keywords : Key words: Artemisia dracunculus , Aspergillus niger, Staphylococcus aureus, Escherichia coli, Klebsiella pneumoniae, MBC, MFC, MIC