Study of the Antimicrobial Activity of Ethanol Extracts and Essential Oils of Myrtus communis L Against Antibacterial Resistant Staphylococcus aureus

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Background & Objectives: Most of the infections caused by Staphylococcus aureus resistant strains are originated from hospitals, and its prevalence is increasing worldwide. Therefore, many efforts have been made to find new compounds as a substitute for antibiotics. This study investigates the antibacterial effect of alcoholic extract and essential oils of Myrtus communis L against resistant Staphylococcus aureus strain.

Methods: The ethanol extracts and essential oils of Myrtus communis L were prepared separately. Seventeen isolates of Staphylococcus aureus separated from nose and throat and the MIC of plant extracts and essential oils Myrtus communis L microtiterplate Methods has been investigated on these isolated.

Results: The results revealed that different concentration of ethanol extracts and essential oils of Myrtus communis L had a different effects on Staphylococcus aureus, where 100%, 94/1%, 23/5%, 5/9%, 5/9% strains showed susceptible to, concentrations 10mg, 5mg, 2/5mg, and 1/25mg, respectively, and therefore these values were taken as the MIC for each of the concentrations. Likewise, 5/9%, 76/5%, 94/1%, 100%, and 100% of the strains appeared resistant at concentrations of 5mg, 2/5mg, 0/62mg, and 0/3mg respectively, while essential oil (Myrtus communis L) with the same concentrations showed different levels of resistance. Thus, the concentration of 10mg, 5mg, and 2/5 mg, expressed a sensitivity of 100%, 88/2%, 5/9%, respectively and considered as the MIC, while the concentrations of 5mg, 2/5mg, 1/25mg, 0/62mg, and 0/3mg showed a resistance of 11/5%, 94/1%, 100%, 100%, and 100%, respectively.

Conclusion: The results of this study has witnessed the antibacterial effects of essential oils and ethanol extract of Myrtus communis L, and thus further investigation for identifying the antimicrobial effects of compounds and its feasibility for disease treatment as an alternative to antibiotics will be a promising approach.

Keywords: Staphylococcus aureus; Antibacterial; Resistant; Extract; Essencial Oils