

## 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; Essential Oils