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

Saeedeh Saeedi*[1]; Massih Forootan[2]; Elham Saboori[3]

*1- Department of Microbiology, Kerman Azad University, Kerman, Iran*

*2- Department of Plant Breeding and Biotechnology , University of Zabol, Zabol, Iran*

*3- Department of Plant Biotechnology, University of Zabol, Zabol, Iran*

s.saeedi12@yahoo.com

**Background & Objectives**: Most of the infections caused by *Staphylococcus aureus* resistantstrains 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* seprated 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 resistence. 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 resistancet 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:** *Staphylococus aureus;* Antibacterial; Resistant; Exteract; Essencial Oils