

Antibacterial Activity of Essential Oils of *Rosmarinus officinalis*, *Salvia officinalis* and *Anthemis nobilis* Widespread in The Syrian Coast

Rim M. Harfouch 1, Manal Darwish 2

1 Department of microbiology and biochemistry, Faculty of Pharmacy, Al Andalus University, Tartous, Syria

2 Department of pharmacognosy and phytochemistry, Faculty of Pharmacy, Al Andalus University, Tartous, Syria



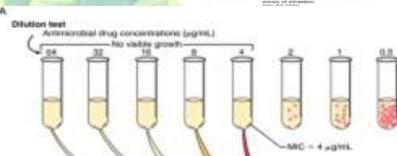
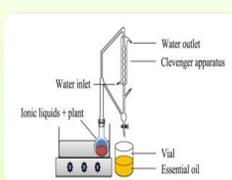
INTRODUCTION

- ✓ Rosemary (*Rosmarinus officinalis*), Sage (*Salvia officinalis*) and chamomile (*Anthemis nobilis*) are typical Mediterranean plants wide spread in the Syrian coast containing high concentrations of different biological active compounds such as essential oil, phenolic acids and flavonoids.
- ✓ *Rosmarinus officinalis* and *Salvia officinalis* are two spices belonging to Lamiaceae family. Several reports suggest strong antibacterial and antifungal activities of a wide range of essential oils, especially those belonging to the Lamiaceae family
- ✓ *Anthemis nobilis* belongs to Asteraceae family which consists of more than 210 species Its essential oil has anti-inflammatory antihistaminic and antispasmodic effects, in addition to sedative properties due to valerianic acid and cyanogenic glycosides. Two hydroperoxides compounds isolated from *Anthemis nobilis* showed a medium antibacterial activity.

AIMS/OBJECTIVES

We aimed in this study to determine the antibacterial efficacy of essential oils of *Rosmarinus officinalis*, *Salvia officinalis* leaves and *Anthemis nobilis* flowers widespread in the Syrian coast against several strains of *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

METHODS



Essential oil assay

plant	<i>Rosmarinus officinalis</i>	<i>Salvia officinalis</i>	<i>Anthemis nobilis</i>
Yield ml/100 g	12	2.6	4

Sensitivity of the essential oils Inhibition zone diameter (mm)

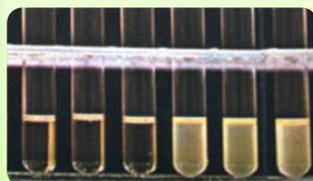
Bacterial strain	<i>Rosmarinus officinalis</i>	<i>Salvia officinalis</i>	<i>Anthemis nobilis</i>
<i>Staphylococcus aureus</i>	20	12	No inhibition zone
<i>Pseudomonas aeruginosa</i>	9	7	No inhibition zone

Minimum inhibitory concentration of essential oils (µl / ml)

Bacterial strain	MIC of <i>Rosmarinus officinalis</i>	MIC of <i>Salvia officinalis</i>
<i>Staphylococcus aureus</i>	3.9	31.2
<i>Pseudomonas aeruginosa</i>	7.8	125

RESULTS

Results in pictures



DISCUSSION & CONCLUSION

- ❖ We demonstrate here the antibacterial efficacy of essential oils extracted from some medicinal plants spread in the Syrian coast.
- ❖ We found a high activity of rosemary essential oil against *Staphylococcus aureus* that can make it a good choice for preservative and curative purposes.
- ❖ The in vitro results of our study provide evidence that rosemary and sage essential oils represent a potentially rich source for medicine and food antibacterial compounds against the well-known resistant bacteria; *Staphylococcus aureus* and *Pseudomonas aeruginosa*.
- ❖ Further chemical and pharmacological investigations are required for rosemary and Sage essential oils to isolate active chemicals and perform additional in vitro and in vivo experiments.