

## Antibacterial effects of *Lavandula Stoechas* Essential Oil, on Gram Positive and Negative Bacteria In Vitro

### Ahmady- Abchin, S. (MSc)

Assistant professor, Department  
Biology, Faculty of Science, Ilam  
University

### Nasrolahi Omran ,A.(PhD)

Assistant professor, Department of  
Microbiology, Faculty of Sciences, Islamic  
Azad University of Tonekabon Branch,  
Tonekabon.

### Jafari, N. (MSc)

Assistant professor, Department of  
Biology, Faculty of science, Mazandaran  
University

### Mostafapour M.J. (BSc)

MSc Student of Biology, Department of  
Biology, Faculty of Science, Ilam  
University

### Kia,S.M.( BSc)

Msc Food Sciences of Technology  
Student, Islamic Azad University of  
Azadshahr Branch

**Corresponding Author: Nasrolahi omran ,A.**

Email: AYAT 51@ yahoo. Co. in

Received:2/Feb/2012

Revised:14/Nov/2012

Accepted:20/Nov/2012

### Abstract

**Background and Objectives:** Concurrent with the development of new chemical drugs and antibiotics, their harmful effects are gradually emerged. Due to lack of harmful effects, herbal medicines have been used in the pharmaceutical industry. The aim of this study was the use of lavender essential oil as an herbal medicine for the replacement of antibiotics and chemicals.

**Material and Methods:** In this study, the plant essential oil was isolated by drying and distillation method using Clevenger apparatus. The antibacterial effect of this plant was evaluated by using disc diffusion method and successive dilutions. In order to control the standard of the method, antibiotic discs and standard bacterial strains were used.

**Results:** Based on the results, *Proteus mirabilis* and *Enterococcus faecalis* are , respectively , the most sensitive and most resistant bacteria to dilutions of 1, 1/2 and 1/4. *Escherichia coli* and *Enterococcus faecalis*, respectively, are the most sensitive and most resistant bacteria to the dilution of 1/8, 1/16, 1/32 and 1/64. MIC and MBC methods also show that all bacteria have the same minimum inhibitory and fatality concentrations except *Enterococcus faecalis* with minimum inhibitory concentration of 16/1 and minimum concentration fatality of 8/1. Evaluating the results of the disk diffusion method with antibiotic discs, we can observe the better effect of this plant in comparison with gentamicin and streptomycin discs on the growth of five strains of *Staphylococcus aureus* ATCC1885, *Staphylococcus epidermidis* ATCC 2405, *Enterococcus faecalis* ATCC2321, *Escherichia coli* ATCC 1652 and *Proteus mirabilis* ATCC 2601.

**Conclusion:** the essential oil of Lavender can be used instead of chemical drugs to treat bacterial infections.

**Keywords:** Lavandula, Anti-bacterial effects, Essential oils, Bacterium