

Abstract

In the present study, Antibacterial effects of essential oils of four medicinal plants (*Mentha spicata*), Rosemary (*Rosmarinus officinalis*), Cloves (*Eugenia caryophyllata*) Cumin (*Cuminum cyminum*) on three strains of bacteria (*Escherchia coli*, *Listeria monocytogenes* , *Vibrio alginolyticus*) were carried out. To determine the minimum inhibitory concentration (MIC) of essential oils from the standard method of broth microdilution was used and minimum bactericidal concentration (MBC) with MIC values was determined for each oil. The results showed that the lowest MIC value of *Eugenia caryophyllata* essential oil was 4 mg/ ml against the bacteria *V. alginolyticus* and *E. coli* bacteria, as well as *Mentha spicata* on *V. alginolyticus* and MBC values of these oils, twice the MIC value (8 mg/ ml),whereas The highest MIC values of Rosemary essential oils was 18 mg / ml against the *L. monocytogenes* and MBC value of this oil was 36 mg/ ml. Among the oils, Clove oil was stronger, and three strains of bacteria were more sensitive to it, and rosemary oil was weaker and the bacteria were resistant to it compared to other oils. The most sensitive and most resistant bacteria to essential oils were *Vibrio* and *Listeria*, respectively

Key words: Antibacterial effects, essential oils, Microdilution



University of Zabol
Graduate School
Faculty of Natural Resources
Department of Fisheries

**The Thesis Submitted For the Degree of M.Sc
In the Field of Fisheries**

***In vitro* antibacterial effects of *Cuminum cyminum*, *Eugenia caryophyllata*, *Rosmarinus officinalis* and *Mentha spicata* essential oil on *Vibrio alginolyticus*, *Listeria monocytogenes* and *Escherchia coli* bacteria**

Supervisors:

Dr. M. Ghaffari

Dr. A. Gharaei

By:

N. Sanchooli

Oct 2012