

ABSTRACT

Pillai, Kevin. 2014. ***The Antibacterial Effect of Oregano Leaves Ethanolic Extract on the Growth of Escherichia coli In Vitro***. Final Assignment, .Faculty of Medicine Universitas Brawijaya. Supervisor. (1) dr Roekistiningsih, DMM., MS., Sp.MK (K), (2) dr Bambang Soemantri Mkes.

Oregano leaves is a common herb substance that is usually used in cooking. There were 3 main components of *oregano* leaves which were believed possessing antimicrobial effect which were flavonoids, monoterpenes and phenolic acid. These compenents work inhibiting the synthesis of nucleic acid, increasing the permeability of cytoplasmic membrane and inhibiting the energy metabolism. This caused the death of the bacteria. This herb has also been used to treat respiratory tract diseases, gastrointestinal disorders, menstrual cramp dan urinary tract infection. Up to now, the effect of oregano leaves has not yet been explored extensively as antimicrobial, especially towards intestinal bacteria. This research was done to prove that *oregano* leaves has antibacterial effects towards *Escherichia coli*, which causes a common urinary tract infection, meningitis and gastroenteritis. This experiment was done at Microbiology Laboratory, Universitas Brawijaya, by using the tube dilution method. The effective range based on exploration experiment were from 12.5% to 6.125% and were further studied until obtaining the tested concentration values. The tested concentrations of *oregano* leaves extract were 0%, 9%, 10%, 11%, and 12%. The final concentration after the addition of bacteria suspension were 0%, 4.5%, 5.0%, 5.5% and 6.0%. The Minimum Inhibitory Concentration (MIC) was 5.5% marked by the clarity of solution in tube test. The Minimum Bactericidal Concentration (MBC) was at 6.0%, where there was no colonial growth on the NA plate. The data analysis showed that all concentrations showed significant difference towards the number of colonies (Pos Hoc Tukey <0.05). The Pearson correlation showed that there was a very strong correlation between these two variables. ($r = -0.973$). This research proves that *oregano* leaves ethanolic extract has antibacterial effects on the growth of *Escherichia coli* in vitro.

Key words: *Escherichia coli*, *Oregano* leaves Minimum Inhibitory Concentration, Minimum Bactericidal Concentration, Tube dilution method