

ABSTRACT

ANTIBACTERIAL EFFECT OF *Allium sativum* L. EXTRACT AS AN ANTIBIOTIC AGAINST *Streptococcus pyogenes* AND *Pseudomonas aeruginosa* ISOLATE RSUD DR. SOETOMO IN VITRO

Background: Infectious diseases are still a health problem. Bacteria are pathogenic microorganisms that most often cause infection. Based on the staining, it divided into two groups, Gram positive and Gram negative bacteria.

Purpose: *Streptococcus pyogenes* is one of a Gram positive bacteria and *Pseudomonas aeruginosa* is the example of Gram negative bacteria. Antibiotics used as a therapy of bacterial infections. But over time, certain bacteria have become resistant to even the most powerful antibiotics available today. *Allium sativum* L. can act as antibiotic to reducing the incidence of bacterial infections. *Allium sativum* L. contain allicin, ajoene, saponin, and flavonoid that act as antibacterial agent. This experiment aims to investigate the antimicrobial activity of *Allium sativum* L. extract against *Streptococcus pyogenes* and *Pseudomonas aeruginosa*.

Methods: A study carried out by tube dilution method. Treatment groups are bacteria that were given *Allium sativum* L. extract with the concentration 2 gram/ml, 1 gram/ml, 0.5 gram/ml, 0.25 gram/ml, 0.125 gram/ml, 0.0625 gram/ml, 0.03125 gram/ml, dan 0.015625 gram/ml.

Results: Minimum inhibitory concentration (MIC) could not be determined because the extract colored was cloudy and there was no significant change in the level of turbidity between before and after treatment. The minimum bacterisidal concentration (MBC) for *Streptococcus pyogenes* was 1 gram/ml and *Pseudomonas aeruginosa* was 0.5 gram/ml.

Conclusion: Garlic (*Allium sativum* L.) can act as antibiotic for *Streptococcus pyogenes* and *Pseudomonas aeruginosa*.

Keywords: *Allium sativum* L., *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, antimicrobial activity, tube dilution method, agar dilution method.