

ABSTRACT
ANTIBACTERIAL ACTIVITY OF ETHANOL EXTRACT OF *AVERRHOA*
BILIMBILEAVES* AGAINST *SALMONELLA TYPHI

Introduction: Medicinal plants contribute to human's health and well-being. People use medicinal plants as traditional medicine for generations. One of the folk medicine that is easy to find, yet has beneficial effect and low cost is *Averrhoa bilimbi*. *A. bilimbi* or 'Belimbing Wuluh' in Indonesian which are a native Indonesia's plant, is now cultivated in many countries. It is used as a treatment for cough, fever, mumps, bilious colic, stomachache, etc. Many studies have proven that *A. bilimbi* extract has antidiabetic, antimicrobial, antiinflammatory, cytotoxic, antioxidant, and infertility effect. Nowadays, many bacteria are resistant to antibiotic. *Salmonella typhi* which causes typhoid fever is resistant to multidrugs: ampicillin, chloramphenicol, cotrimoxazole and less sensitive against quinolones such as ciprofloxacin. To avoid further resistance, traditional medicine is needed. The present study was carried out to determine the in vitro antibacterial activity of ethanol extract of *Averrhoa bilimbi* leaves against *Salmonella typhi*.

Methods: This study was based on laboratory experimental. The samples were ethanol extract of *Averrhoa bilimbi* leaves and *Salmonella typhi*. *A. bilimbi* leaves were from Balai Materia Medika. The ethanol extraction was performed at Pharmacognosy and Phytochemistry Laboratory Faculty of Pharmacy Universitas Airlangga. *S. typhi* was from Microbiology Laboratory Faculty of Medicine Airlangga University. Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) values were determined by dilution method. The concentrations used in determination for MIC were 500mg/ml, 250mg/ml, 125mg/ml, 62.5mg/ml, 31.25mg/ml, and 15.625mg/ml. The MBC value were determined by suspension streaking from Mueller-Hinton broth to nutrient agar plate. The result was analyzed by description method.

Results: The MIC value could not be determined due to turbidity of the extract and the MBC value was at 500mg/ml.

Conclusion: Ethanol extract of *Averrhoa bilimbi* leaves have antibacterial activity against *Salmonella typhi*. MIC of ethanol extract of *Averrhoa bilimbi* leaves against *Salmonella typhi* could not be determined. MBC of ethanol extract of *Averrhoa bilimbi* leaves against *Salmonella typhi* was at 500mg/ml.

Keywords: *Averrhoa bilimbi* – *Salmonella typhi* – antibacterial – dilution method