IN VITRO ANTIBACTERIAL AND ANTIFUNGAL ACTIVITIES OF BELIMBING BULUH (*Averrhoa bilimbi*) LEAVES EXTRACTS AGAINST COMMON HUMAN PATHOGEN.

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ABSTRACT

IN VITRO ANTIBACTERIAL AND ANTIFUNGAL ACTIVITIES OF BELIMBING BULUH (*Averrhoa bilimbi*) LEAVES EXTRACTS AGAINST COMMON HUMAN PATHOGEN

Averrhoa bilimbi or commonly known as Bilimbing Buluh from family Oxalidiceae has been used in this study. Medicinal plants contain substances that can be used as therapeutic purposes and chemo-pharmaceutical. Traditionally, the fruits are used for blood pressure systems and cure beriberi and cough, while the leaves have been used to treat stomach ache, fever and inflammation. The tree is commonly found in semi wild throughout Indonesia, Malaysia, Sri Lanka, the Philippines and Myanmar. The aims of this study were to determine the antibacterial and antifungal activities of *A. bilimbi* leaves extract against human pathogens. This study also conducted to determine the minimum inhibitory concentration of *A. bilimbi* leaves extract that were able to inhibit the pathogens. Besides that, phytochemical substances were identified by using Harbourne phytochemical screening to know the presence of the active secondary metabolites that act as antimicrobial agents. Two different solvents were used for extraction which are methanol and distilled water. Bacteria used for this study were *Staphylococcus aureus* and *Escherichia coli,* while fungi used were *Candida albicans* and *Aspergillus niger.* The result has shown that methanol yielded about 2.65% (5.3 g) of extract while water yielded about 2.15% (4.3 g). Antibacterial activity results showed larger zone of inhibition for methanol *A. bilimbi* leaf extract against *S. aureus* and *E. coli* at concentration 600 µg/µL and 800 µg/µL with diameter of 6.00 mm and 9.20 mm, whereas for distilled water, the larger zone of inhibition against *S. aureus* at concentration 800 µg/µL with 1.80 mm diameter and *E. coli* at concentration 200 µg/µL with diameter of 2.40 mm. The antifungal study showed that methanol extract gave the larger inhibition zone only against *C. albicans* which the diameter was 1.90 mm at concentration 200 µg/µL, whereas distilled water leaves extract against *C. albicans* showed higher inhibitory activity at concentration 800 µg/µL with 2.80 mm diameter. The determination of minimal inhibitory concentration (MIC) of *A. bilimbi* leaves extract for both solvents gave the MIC at concentration 50 µg/µL against *S. aureus* and *E. coli.* MIC of *A. bilimbi* leaves extract against *C. albicans* for methanol extract at 600 µg/µL and at 800 µg/µL for distilled water extract. Phytochemical screening showed that methanol and distilled water extract contained glycosides, flavonoids, tannins, triterpenes and phenols.