QUALITATIVE PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL EFFECT OF *Averrhoa bilimbi* FRUITS EXTRACTS AGAINST FOODBORNE PATHOGENS

By

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DECLARATION

"I hereby declare that this thesis is based on my original work and has not has been submitted previously or currently for any other degree at UiTM or any other institutions."

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ABSTRACT

Foodborne diseases have cause high mortality and morbidity worldwide. However, the use and misuse of synthetics antibiotics in treating the diseases not only cause the adverse effects to the patient but can also cause the emergence of enteropathogens. Thus, this study was conducted to determine the potential *of Averrhoa bilimbi* fruits extracts as natural antibacterial agents against foodborne pathogens as a substitute for the synthetic drugs. Antimicrobial Susceptibility Testing (AST) by disc diffusion method and Minimum Inhibitory Concentration (MIC) by microdilution broth method were performed to evaluate the antibacterial activity of the extracts against 2 types of Gram-positive and Gram-negative bacteria. They were *Staphylococcus aureus, Bacillus cereus, Escherichia coli* and *Salmonella typhimurium.* The phytochemical compounds of the extracts were interpreted by observing the color changes produced when the extracts were mixed with chemical reagents. Preliminary screening for ethyl acetate and aqueous extracts showed inhibition activity against all organisms with the greatest effect on *Bacillus cereus* (16 and 11.67±1.15 mm, respectively). S*taphylococcus aureus* and *Bacillus cereus* required the lowest concentration of ethyl acetate extracts to inhibit their growth with MIC value of 7.81 mg/ml. Lowest MIC value, 31.25 mg/ml of aqueous extract was observed to inhibit *Escherichia coli*. Moreover, alkaloids, flavonoids, phenols, terpenoids, tannins and reducing sugars that responsible for antibacterial activity were found in *Averrhoa bilimbi* fruits extracts. Thus, *Averrhoa bilimbi* fruits extract are potential to be used as a natural antimicrobial agent to treat the foodborne diseases. However, the in vivo study must be conducted to assess the cytotoxic and biological effects towards human prior to usage.

Keywords: *Averrhoa bilimbi*; foodborne; antibacterial; AST; MIC; phytochemicals