# UNIVERSITI TEKNOLOGI MARA

# INVESTIGATION ON PHYTOCHEMICAL AND ANTIBACTERIAL ACTIVITY OF *Persicaria odorata* L. (KESUM) METHANOLIC LEAVES EXTRACT AGAINST SELECTED GASTROINTESTINAL PATHOGENS

**EMIRIATULEMNI BINTI SUHEMI**

Thesis submitted in fulfillment of the requirements for
the degree of
**Bachelor in Medical Laboratory Technology (Hons.)**

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# DECLARATION BY STUDENT

Project entitled "Investigation on Phytochemical and Antibacterial Activity of *Persicaria odorata* L. (Kesum) Methanolic Leaves Extract Against Selected Gastrointestinal Pathogens" is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisors, Hartini Bt Yusof and Dr. Nurul 'Izzah Bt Mohd Sarmin. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Medical Laboratory Technology (Hons).

Student's signature

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(Emiriatulemni Bt Suhemi)

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Date: …….

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*In the name of Allah, The Most Gracious, The Most Merciful.*

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# ABSTRACT

Worldwide, diarrheal disease continues to pose major risk especially among children of age below five years old in developing countries. Further aggravation by rapid emergence of multidrug-resistant bacteria, the quest for advance production of antimicrobials derive from bioactive compounds of natural sources as an alternative is crucial. This study aimed to investigate the phytochemical compounds of *Persicaria odorata* L. or (*P. odorata* L.) methanolic leaves extract qualitatively and its antibacterial activity against selected gastrointestinal pathogens. Two groups of Gram positive bacteria (*Staphylococcus aureus* and *Bacillus cereus*) and Gram negative bacteria (*Salmonella enterica* serovar *typhimurium* and *Shigella flexneri*) have been tested by using agar well diffusion method and broth microdilution method. *P. odorata* (L.) leaves extracted using methanol was diluted with 10% Dimethyl-sulfoxide (DMSO) and all four bacteria were treated with the diluted extract. *P. odorata* (L.) leaves extract had shown significant antibacterial activity against *S. aureus* with zone of inhibition (22.67 mm) compared to *B. cereus* (18 mm) at 1000 mg/ml concentration, but both bacteria gave similar minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) value (15.63 mg/ml) whereas Gram negative bacteria (*S. typhimurium* and *S. flexneri)* shown zone of inhibition ranging from 17 to 18 mm with higher MIC value ranging between 125 to 250 mg/ml and MBC at 500 mg/ml. The qualitative phytochemical compounds screening revealed phenols, flavonoids, terpenoids and tannins were present in the *P. odorata* (L.) leaves methanolic extract. In a nutshell, leaves of *P. odorata* (L.) that have been widely used in cuisines and traditional medicine also possess the potential to serve as antibacterial agent.

Keywords: Antibacterial activity, phytochemical compounds, methanol, gastrointestinal pathogen, *Persicaria odorata*