MINIMAL INHIBITORY CONCENTRATION (MIC) DETERMINATION OF ANTIMICROBIAL COMPOUNDS FROM FRUITS OF *MOMORDICA CHARANTIA* L. USING ACETONE

LIM SHIN YI

B. Sc. (Hons.) FOOD SCIENCE & NUTRITION
FACULTY OF APPLIED SCIENCES
UCSI UNIVERSITY

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ABSTRACT

Momordica charantia L. has been broadly used as traditional medicinal herb or folk medicine and has gained much attention due to its wide-spectrum of antimicrobial activity. By using the crude extract of *Momordica charantia* L., the aims of this study were to determine the minimal inhibitory concentration (MIC) of antimicrobial activity through resazurin microtitre assay plate; to test the synergistic effects by partial-purify the bioactive compounds and to further characterize the antimicrobial compounds by performing phytochemical tests. In this study, the solvent used for the extraction was 40% acetone in the ratio of 1:10 (w/v), with maceration time of 24 hours. The MIC value obtained was 2.5mg/200µL for both gram-positive bacteria (*Bacillus subtilis* and *Enterococcus faecalis*) and gram-negative bacteria (*Escherichia coli*, *Salmonella* spp., and *Serratia* spp.). Nevertheless, higher MIC value was needed for *Klebsiella pneumonia* with 5mg/200µL. For fungi strain, the MIC value of *Saccharomyces cerevisiae* was 5mg/200µL while MIC value for *Candida albicans* cannot be determined. Crude extract of *Momordica charantia* L. showed bacteriostatic effect towards all test microorganisms. In thin layer chromatography, the crude extract was found to contain at least 4 compounds. The results conferred the synergistic effect toward *Bacillus subtilis*, *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella* spp., *Serratia* spp., *Saccharomyces cerevisiae* and antagonistic effect towards *Enterococcus faecalis*, *Salmonella* spp., *Serratia* spp. Results also showed the presence of saponins, terpenoids, and flavonoids in the extract. Overall, higher inhibition was shown by synergistic effects rather than antagonistic effects of *Momordica charantia* L. crude extracts.