

**EXTRACTION AND DETERMINATION OF  
MINIMUM INHIBITORY CONCENTRATION  
(MIC) OF ANTIMICROBIAL COMPOUNDS  
FROM FRUITS OF *MOMORDICA CHARANTIA* L.  
USING ETHYL ACETATE AND HEXANE**

**TEONG LEE ZI**

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

**2010**

## ABSTRACT

The emergence of antibiotic and drug resistant microorganisms has created the need in discovering and developing new antimicrobial drugs. The present study was conducted to evaluate the antimicrobial activity of fruits of *Momordica charantia* L. against ten pathogenic microorganisms. Solvent mixture with a concentration of 40% ethyl acetate: 60% hexane and solid to solvent ratio of 1:10 for a maceration time of 24 hours was used to extract the antimicrobial compounds from the fruits. Crude extracts were tested for antimicrobial activity by determining its minimum inhibitory concentration (MIC). The MIC values for *Bacillus subtilis*, *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella* spp. and *Saccharomyces cerevisiae* were 15mg/mL while *Serratia* spp.'s MIC value was 7.5mg/mL. Fruit extract of *Momordica charantia* L. exhibited bacteriostatic effect towards *Bacillus subtilis*, *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella* spp., and *Serratia* spp.. Thin layer chromatography (TLC) was used to separate the bioactive compounds, while bioautography agar overlay method was carried out on the developed TLC plates. The separated partial-purify bioactive compounds showed antimicrobial effect against *Enterococcus faecalis*, *Salmonella* spp., and *Escherichia coli*. On the other hand, *Bacillus subtilis*, *Serratia* spp., *Klebsiella pneumonia*, and *Saccharomyces cerevisiae* were not inhibited by the separated compounds might due to the loss of synergistic effect. The results of the phytochemical analysis showed the presence of flavonoids and saponin in the crude extract. Similarly, total phenolic content was also found present with  $17.45 \pm 0.24$  mg GAE/100 g sample. The study showed that *Momordica charantia* L. fruit extract exhibiting antimicrobial activities against *Bacillus subtilis*, *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella* spp., and *Serratia* spp..