

PRELIMINARY STUDY OF ANTIMICROBIAL
ACTIVITY AND POTENTIAL SYNERGISTIC EFFECTS
IN FLOWER OF *LONICERA JAPONICA*

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ABSTRACT

This study was done to determine the minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC) and its potential synergistic antimicrobial activity of the bioactive compound extracted from flower of *Lonicera japonica* using 95% methanol and sub-fractions: hexane, ethyl-acetate, butanol, and water on four gram positive bacteria: *Bacillus cereus*, *Bacillus subtilis*, *Staphylococcus aureus*, and *Staphylococcus epidermidis*; four gram negative bacteria: *Escherichia coli*, *Klebsiella pneumonia*, *Pseudomonas*, and *Serratia* spp; and two fungi: *Candida albican* and *Saccharomyces cerevisiae*. The result shown that the methanol and sub-fractions extract exhibited antimicrobial activities against *S. epidermidis*, *E. coli*, *Klebsiella pneumonia*, *Pseudomonas*, and *Serratia* spp. The methanol and sub-fractions extract had greater inhibitory activity against *S. epidermidis*, *E. coli* and *Pseudomonas* with the MIC value obtained 0.195, 0.195 and 6.25mg/mL respectively while *Klebsiella* and *Serratia* which had a MIC value 25.0mg/mL, respectively. All extracts that possess antimicrobial activity against tested bacteria were subjected to MBC and bioautography assay. The sub-fractions of ethyl-acetate and butanol extract was determined to exhibit bactericidal activity against *S. epidermidis*, *Pseudomonas* and *Serratia* in the MBC test. In the bioautography assay, the *Lonicera japonica* flower methanol crude extract showed synergistic effect only on *S. epidermidis* and *Serratia* spp while the sub-fractions butanol extract inhibited *S. epidermidis*, *Pseudomonas* and *Serratia* spp. Alkaloid, flavonoid and tannin were detected in the methanol and sub- fraction extracts except for butanol and water extract where only flavonoid and tannin were identified. The total phenolic content in ethyl-acetate extract was 92.25µg/mL of GAE, which was the highest concentration among crude and sub-fractions, follow by butanol, methanol, water and hexane extract which has 38.79µg/mL of GAE, 29.51µg/mL of GAE, 16.93µg/mL of GAE and 12.02µg/mL of GAE respectively. These results revealed the potential of *Lonicera japonica* flower extracts as potential antimicrobial agents.