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.