

Antimicrobial activity of *Cosmos caudatus* extract against foodborne pathogens

Abstract

The antimicrobial activity of *Cosmos caudatus* extract was evaluated against *Bacillus cereus*(ATCC 33019), *Bacillus subtilis*(ATCC 6633), *Proteus mirabilis* (ATCC 21100), *Pseudomonas aeruginosa* (ATCC 9027) and *Candida albicans* (ATCC 10231) using the methods as recommended by the Clinical and Laboratory Standard Institute (CLSI). The antimicrobial tests were conducted in term of susceptibility, minimum inhibitory concentration (MIC), minimum bactericidal/fungicidal concentration (MBC/MFC) and killing-time curve. The results showed that *C. caudatus* extract was susceptible against all tested pathogens; the inhibition zone ranged from 8.60 mm to 9.83 mm. The MIC and MBC/MFC values were ranged from 6.25 mg/ml-12.50 mg/ml and 12.50 mg/ml-50.00 mg/ml, respectively. Mean while, killing-time curves showed that *C. caudatus* extract can killed the *B. cereus*, *B. subtilis*, *P. mirabilis*, *P. aeruginosa* and *C. albicans* at concentration of 8 MIC for 2 h, 4 MIC for 2 h or 2 MIC for 2 h, 8 MIC for 4 h, 4 MIC for 0.5 h and 4 MIC for 1 h, as respectively. Findings indicated that *C. caudatus* extract has the potentiality to develop as a natural antimicrobial agent.

Keyword: Antimicrobial activity; *Cosmos caudatus*; Foodborne pathogen; Plant extract; Time-kill study