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