Antibacterial activity of ethanolic extract of Syzygium polyanthum L. (Salam) leaves against foodborne pathogens and application as food sanitizer

ABSTRACT

The aim of this study was to determine antibacterial activity of S. polyanthum L. (salam) leaves extract foodborne pathogens. All the foodborne pathogens were inhibited after treating with extract in disk diffusion test with range 6.67 ± 0.58-9.67 ± 0.58 mm of inhibition zone. The range of MIC values was between 0.63 and 1.25 mg/mL whereas MBC values were in the range 0.63 mg/mL to 2.50 mg/mL. In time-kill curve, L. monocytogenes and P. aeruginosa were found completely killed after exposing to extract in 1 h incubation at 4x MIC. Four hours had been taken to completely kill E. coli, S. aureus, V. cholerae, and V. parahaemolyticus at 4x MIC. However, the population of K. pneumoniae, P. mirabilis, and S. typhimurium only reduced to 3 log CFU/mL. The treated cell showed cell rupture and leakage of the cell cytoplasm in SEM observation. The significant reduction of natural microflora in grapes fruit was started at 0.50% of extract at 5 min and this concentration also was parallel to sensory attributes acceptability where application of extract was accepted by the panellists until 5%. In conclusion, S. polyanthum extract exhibits antimicrobial activities and thus might be developed as natural sanitizer for washing raw food materials.