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The mode of antimicrobial action of Cinnamomum burmannii's essential oil & cinnamaldehyde (Article)

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Abstract

The aim of this study was to postulate the mode of antimicrobial actions of both essential oil and cinnamaldehyde from Cinnamomum burmannii on the cell membrane of Escherichia coli,Staphylococcus aureus and Candida albicans. The essential oil was extracted by steam distillation and followed by the isolation of cinnamaldehyde. Four modes of action were tested including time-killing assay,salt tolerance assay,crystal violet assay and leakage of cellular metabolites. The antimicrobial effect on the cell membrane was dose-dependent whereby stronger antimicrobial action was observed by cinnamaldehyde at concentration equal to 4×MIC (1.33 mg/mL) compared to the essential oil. The potential of cinnamaldehyde as an antimicrobial compound of the cinnamon essential oil was discovered and proven to act on the cell membrane of tested microorganisms particularly against C. albicans.

Author keywords

Antimicrobial; Cinnamaldehyde; Cinnamomum burmannii; Essential oil; Mode of action

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