The Analysis of Components and AntimicrohialActivities of Cinnamomum osmophloeum and Cinnamomum burmannii Leaf ...

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ABSTRACT

Osmophloeum (Cinnamomoum osmophloeum Kanehira) endemic to Taiwan, annual, recent studies have found to have antibacterial medical and other purposes, as high cash crops. Burmannii (Cinnamomum burmannii BI) introduced in recent years in Taiwan, shorter growing season, its appearance isand oil compositions are similar to that of Osmophloeum. In this experiment, the oil extraction from cinnamon leaf oil and burmannii were compared in essential oil compositions and their antibacterial effects. Experiment materials were collected in Chiayi Shekou forestry farm. Leaves from cinnamon and burmannii were extracted for essential oils, and were further analyzed by GC-MS. MHA (Mueller Hinton Agar) medium was used to test the antimicrobial effects using 14 bacterial strains. The test results showed that the major essential oil components in cinnamon were alcohols (Alcohols), monoterpenes (Monoterpene Hydrocarbon) and ketones (Ketones). The amount of Linalol, (+)-Camphor, ??Limonene, 1R-??-Pinene, Bornyl acetate, Cinnamaldehyde were analyzed to have higher concentration at 38.34%, 20.97%, 5.54%, 5.31%, 4.50% and 3.93%, respectly. Burmannii ’ s essential oil were analyzed to have major componets in alcohols (Alcohols), monoterpenes (Monoterpene Hydrocarbon), ether (Ether) and ester (Esters). In that, the amount of Borneol, Eucalyptol, Pinene, ??Phellandrene, p-Cymene, Bornyl acetate, with the amount of 22.43%, 13.55%, 7.11%, 6.63%, 5.56% and 5.41%, respectly. The antimicrobial activity of essential oils for burmannii ’ s essential oil is even worse than that of cinnamon essential oil. Burmannii ’ s essential oil has poor antibacterial activities for Bacillus cereus and salmonella spp. antimicrobial resistance is found for Propionibacterium acnes with the minimum inhibitory concentration of 100 μg/mL for cinnamon essential oil. Burmannii essential oils have poor antibacterial activities for Bacillus cereus, Listeria monocytogene and salmonella sp. Antimicrobial resistance is found for Propionibacterium acnes withminimum inhibitory concentration of 150 μg/mL for burmannii essential oils. Our results indicated that burmannii ’ s essential has lesser antibacterial effect when compared to that of cinnamon essential oilBurmannii still showed their protential in industrial applications.

Keywords : Cinnamomoum osmophloeum、Cinnamomum burmannii、gas chromatography、essential oil、antibacterial activity

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