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Article

Analysis of Indonesian Spice Essential Oil Compounds That Inhibit Locomotor Activity in Mice

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Abstract: Some fragrance components of spices used for cooking are known to have an effect on human behavior. The aim of this investigation was to examine the effect of the essential oils of basil (*Ocimum formacitratum* L.) leaves, lemongrass (*Cymbopogon citrates* L.) herbs, ki lemo (*Litsea cubeba* L.) bark, and laja gowah (*Alpinia malaccencis* Roxb.) rhizomes on locomotor activity in mice and identify the active component(s) that might be responsible for the activity. The effect of the essential oils was studied by a wheel cage method and the active compounds of the essential oils were identified by GC/MS analysis. The essential oils were administered by inhalation at doses of 0.1, 0.3, and 0.5 mL/cage. The results showed that the four essential oils had inhibitory effects on locomotor activity in mice. Inhalation of the essential oils of basil leaves, lemongrass herbs, ki lemo bark, and laja gowah rhizomes showed the highest inhibitory activity at doses of 0.5 (57.64%), 0.1 (55.72%), 0.5 (60.75%), and 0.1 mL/cage (47.09%), respectively. The major volatile compounds 1,8-cineole, α-terpineol, 4-terpineol, citronelol, citronelal, and methyl cinnamate were identified in blood plasma of mice after inhalation of the four oils. These compounds had a significant inhibitory effect on locomotion after inhalation. The volatile compounds of essential oils identified in the blood plasma may correlate with the locomotor-inhibiting properties of the oil when administered by inhalation.

Keywords: Indonesian spices; locomotor activity; SPE; GC-MS