Linalool and β-pinene exert their antidepressant-like activity through the monoaminergic pathway

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Abstract

Aims

Linalool and β-pinene are two volatile monoterpenes that possess antidepressant-like activity. These are components of many aromatic plants used in folk medicine around the world to relieve anxiety and
Linalool and β-pinene exert their antidepressant-like effect on depression. In this contribution, we focused on examining the mechanism of action of these compounds.

Main methods
We used mice in the forced swimming test (FST) and antagonist drugs (i.p.) to receptors related to the depression process such as 5-HT₁A. To assess the possible contribution of the serotonergic system, animals were pre-treated with WAY 100635 (a 5-HT₁A receptor antagonist) and PCPA (a serotonin synthesis inhibitor). To assess the participation of the noradrenergic system, the animals were pre-treated with yohimbine (an α₂ receptor antagonist), propranolol (a β receptor antagonist) and neurotoxin DSP-4 (a noradrenergic neurotoxin). In the dopaminergic system, we used SCH23390 (a D₁ receptor antagonist).

Key findings
WAY 100635 blocked the antidepressant-like effect of linalool and β-pinene. In contrast, pretreatment of mice with PCPA did not modify reductions in the immobility time elicited by the two monoterpenes. The yohimbine modified the effect of linalool on immobility time. Propranolol and neurotoxin DSP-4 reversed the anti-immobility effect of β-pinene; also, SCH23390 blocked the antidepressant-like effect of β-pinene.

Significance
Our results indicate that linalool and β-pinene produce an antidepressant-like effect through interaction with the...
Linalool and β-pinene exert their antidepressant-like effect on the monoaminergic system.

Keywords
Linalool; β-Pinene; Antidepressant; Monoterpenes; Aromatic compounds

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