

The effect of alpha-pinene on anxiety-like behaviors in acetic acid-induced ulcerative colitis in rats: The gut-brain axis

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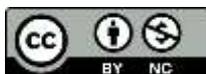
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Abstract

Ulcerative colitis is associated with various neurological complications including peripheral neuropathy, headache, depression, anxiety, and cognitive impairments. This study aimed to evaluate the anxiolytic and anti-inflammatory effects of alpha-pinene on anxiety-like behaviors in an acetic acid-induced colitis model in male Wistar rats. Twenty-four rats were randomly assigned into four groups (n=6): control, colitis with normal saline treatment, and two colitis groups treated with alpha-pinene at doses of 50 and 100 mg/kg. Following colitis induction, anxiety-like behaviors were assessed using the open field test and elevated plus maze. Additionally, TNF- α levels in brain tissue were measured. The results of the study showed that colitis significantly increased anxiety-like behaviors and elevated TNF- α levels in the brain. Treatment with alpha-pinene at both doses markedly reduced anxiety-like behaviors and brain TNF- α levels. These findings suggest that alpha-pinene exerts notable anti-inflammatory and anxiolytic effects in the acetic acid-induced colitis model and may serve as a potential therapeutic agent to alleviate neurological complications associated with colitis.

Key words: Alpha-pinene, Anxiety-like behaviors, Ulcerative colitis, TNF-a, Rats

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