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Anti-spasmodic and anti-nociceptive effects of *Teucrium polium* aqueous extract

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Abstract

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Background: *Teucrium polium* has been known as an important traditional medicinal plant and is used for different therapeutic purposes such as gastrointestinal disorders. Therefore, the anti-spasmodic and antinociceptive activities of aqueous extract of *Teucrium polium* w as examined. Methods: Anti-spasmodic effect of different concentrations (47-470 mg/l) of *Teucrium polium* extract was assessed on acetylcholine (220 nM) precontracted guinea pig isolated ileum. The anti-cholinergic effect of the plant was also examined by obtaining concentration-response curves in the absence and presence of *Teucrium polium* extract (470 mg/l) and atropine (10 nM). Anti-nociceptive effect of different doses (30-240 mg/kg) of *Teucrium polium* aqueous extract was determined by hot-plate test on mice and compared with the effect of morphine (10 mg/kg) as positive control. Results: Maximum inhibition response induced by *Teucrium polium* extract on contraction induced by acetylcholine (220 nM) was 93.5%. In the absence and presence of *Teucrium polium* extract (470 mg/l) and atropine (10 nM) the EC50 (the effective concentration causing 50% of maximum response) of Ach were 28.3 ± 2.1 , 55.4 ± 3.7 and 208.1 ± 9.2 nM respectively. There was also a parallel rightward shift in the log concentration-response curve of acetylcholine in the presence of atropine, but a nonparallel shift in the presence of *Teucrium polium* extract. The *Teucrium polium* extract increased reaction time dose-dependently ($P < 0.01$ for all doses). However the anti-nociceptive effect of extract was significantly less than that of morphine ($P < 0.001$). Conclusion: These results show that *Teucrium polium* aqueous extract have anti-nociceptive and anti-spasmodic effects and may have some clinical benefits for gastrointestinal disorders.

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Author keywords

Anti-nociceptive; Anti-spasmodic; Aqueous extract; Lamiaceae; *Teucrium polium*

Indexed Keywords

EMTREE drug terms: acetylcholine; atropine; morphine; *Teucrium polium* extract

EMTREE medical terms: animal experiment; animal model; anticholinergic effect; antinociception; article; controlled study; dose response; drug inhibition; drug isolation; gastrointestinal disease; germander; guinea pig; ileum; in vitro study; muscle spasm; nonhuman; traditional medicine

Species Index: *Cavia porcellus*; *Teucrium polium*

Chemicals and CAS Registry Numbers: acetylcholine, 51-84-3, 60-31-1, 66-23-9; atropine, 51-55-8, 55-48-1; morphine, 52-26-6, 57-27-2

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