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Relaxant effect of *Satureja hortensis* on guinea pig tracheal chains and its possible mechanism(s)

Boskabady, M.H. , Aslani, M.R., Mansuri, F., Amery, S.

Department of Physiology, Ghaem Medical Centre, Mashhad University of Medical Sciences, Mashhad, Iran

## Abstract

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**Background:** In Iranian ancient medical books, the therapeutic effects of *Satureja hortensis* on respiratory diseases have been reported. In order to verify these reports, the relaxant effect of aqueous-ethanolic extract of *Satureja hortensis* on guinea pig trachea was examined. **Methods:** The relaxant effects of 6 cumulative concentrations of extract (0.15, 0.3, 0.45, 0.6, 0.75 and 0.9 g %) in comparison with saline and 4 cumulative concentrations of theophylline (0.15, 0.3, 0.45, and 0.6 mM) by their effects on precontracted tracheal chains of guinea pig by 10  $\mu$ M methacholine (group 1) or 60 mM KCl in two different conditions including: non-incubated tissues (group 2) and incubated tissues with 1  $\mu$ M propranolol, 1  $\mu$ M chlorpheniramine and 1  $\mu$ M atropine (group 3, for each group n=6) were examined. **Results:** In group 1, the extract and theophylline showed concentration dependent relaxant effects compared to that of saline ( $p < 0.05$  to  $p < 0.001$ ). In group 2, three last concentrations of theophylline and four higher concentrations of extract showed significant relaxant effects compared to that of saline ( $p < 0.05$  to  $p < 0.001$ ). The effects of four lower concentrations of extracts in groups 1 and 2 were significantly lower than those of theophylline ( $p < 0.05$  to  $p < 0.001$ ). In group 3, the extract did not show any significant relaxant effect. There were significant correlations between the relaxant effects and concentrations of extract and theophylline in groups 1 and 2 ( $p < 0.001$  for all cases). **Conclusion:** These results showed a potent relaxant effect of *Satureja hortensis* on guinea pigs trachea which was comparable to that of theophylline.

## Reaxys Database Information

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## Author keywords

Bronchodilatory; Guinea pig; *Satureja hortensis*; Trachea

## Indexed Keywords

EMTREE drug terms: alcohol; atropine; chlorpheniramine; methacholine; plant extract; potassium chloride; propranolol; *satureja hortensis* extract; theophylline; unclassified drugEMTREE medical terms: animal experiment; animal tissue; article; bronchodilatation; controlled study; drug effect; drug mechanism; guinea pig; male; medicinal plant; nonhuman; plant leaf; *satureja hortensis*; savory; trachea muscle

Chemicals and CAS Registry Numbers: alcohol, 64-17-5; atropine, 51-55-8, 55-48-1; chlorpheniramine, 132-22-9; methacholine, 55-92-5; potassium chloride, 7447-40-7; propranolol, 13013-17-7, 318-98-9, 3506-09-0, 4199-09-1, 525-66-6; theophylline, 58-55-9, 5967-84-0, 8055-07-0, 8061-56-1, 99007-19-9

Manufacturers: Drug manufacturer: Sigma, United Kingdom.

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