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## Relaxant effects of Rosa damascena on guinea pig tracheal chains and its possible mechanism(s)

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## Abstract

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Several therapeutic effects including hypnotic, antispasmodic, treatment of abdominal and chest pain and strengthening the heart have been described for the flowers of *Rosa damascena*. Therefore in the present study, the relaxant effects of ethanolic extract and essential oils of *Rosa damascena* on tracheal chains of guinea pigs were examined. The relaxant effects of four cumulative concentrations of ethanolic extract (0.25, 0.5, 0.75, and 1.0 g%) and essential oils (0.25, 0.5, 0.75, and 1.0 vol.%) in comparison with saline as negative control and four cumulative concentrations of theophylline (0.25, 0.5, 0.75, and 1.0 mM) were examined by their relaxant effects on precontracted tracheal chains of guinea pig by 60 mM KCl (group 1, n = 5) and 10 μM methacholine in two different conditions including: non-incubated tissues (group 2, n = 8) and incubated tissues with 1 μM propranolol and 1 μM chlorpheniramine (group 3, n = 5). In group 1 experiments two final concentrations of essential oil and theophylline and only final concentration of ethanolic extract showed relaxant effects compared to that of saline (p < 0.01-0.001). In group 2 three higher concentrations of ethanolic extract and theophylline and all concentrations of essential oil showed concentration dependent relaxant effects compared to that of saline (p < 0.05-0.001). In addition, the effect of 0.25 and 0.5 g% of essential oils in group 2 was significantly higher than those of theophylline and ethanolic extract (p < 0.01 for all cases). However, in group 3 experiments the extract and essential oil of *Rosa damascena* did not show any significant relaxant effect. There were significant correlations between the relaxant effects and concentrations for ethanolic extract and essential oil and theophylline in groups 1 and 2. These results showed a potent relaxant effect of *Rosa damascena* on tracheal chains of guinea pigs that was comparable to that of theophylline at concentrations used. © 2006 Elsevier Ireland Ltd. All rights reserved.

## Author keywords

Bronchodilatory; Guinea pig; Rosa damascena; Trachea

## Indexed Keywords

EMTREE drug terms: alcohol; chlorpheniramine; essential oil; methacholine; muscle relaxant agent; plant extract; potassium chloride; propranolol derivative; Rosa damascena extract; sodium chloride; theophylline; unclassified drug

EMTREE medical terms: animal tissue; article; comparative study; concentration response; controlled study; correlation analysis; drug effect; guinea pig; incubation time; male; medicinal plant; nonhuman; rosa damascena; smooth muscle relaxation; statistical analysis; statistical significance; trachea; trachea muscle

MeSH: Animals; Bronchi; Bronchodilator Agents; Dose-Response Relationship, Drug; Guinea Pigs; Male; Muscle Relaxation; Muscle, Smooth; Phytotherapy; Plant Extracts; Plant Oils; Rosa; Theophylline

Medline is the source for the MeSH terms of this document.

Species Index: Cavia; Cavia porcellus; Rosa x damascena

Chemicals and CAS Registry Numbers: alcohol, 64-17-5; chlorpheniramine, 132-22-9; methacholine, 55-92-5; muscle relaxant agent, 9008-44-0; potassium chloride, 7447-40-7; sodium chloride, 7647-14-5; theophylline, 58-55-9, 5967-84-0, 8055-07-0, 8061-56-1, 99007-19-9; Bronchodilator Agents; Plant Extracts; Plant Oils; Theophylline, 58-55-9

Manufacturers: Drug manufacturer: Sigma, United Kingdom.

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