

Stimulatory effect of *Crocus sativus* (saffron) on beta(γ)-adrenoceptors of guinea pig tracheal chains

Author(s): Nematı, H (Nematı, H.)¹; Boskabady, MH (Boskabady, M. H.)¹; Vostakolael, HA (Vostakolael, H. Ahmadzadeh)

Source: PHYTOMEDICINE **Volume:** 10 **Issue:** 12 **Pages:** 1038-1040 **DOI:** 10.1016/j.phymed.2008.07.008
Published: DEC 2008

Times Cited: 0 (from Web of Science)

Cited References: 4 [[view related records](#)]  [Citation Map](#)

Abstract: To study the mechanism(s) of the relaxant effects of *Crocus sativus* (Iridaceae), the stimulatory effect of aqueous-ethanolic extracts of this plant and one of its constituent, safranal was examined on beta-adrenoceptors in tracheal chains of guinea pigs.

The beta(γ)-adrenergic stimulatory was tested by performing the cumulative concentration-response curves of isoprenaline-induced relaxation of pre-contracted isolated guinea pig tracheal chains. The studied solutions were included two concentrations of aqueous-ethanolic extract from *Crocus sativus* (0.1 and 0.2 g%), safranal (1, 20 and 200 μ g), 10 nM propranolol, and saline. The study was done in two different conditions including: non-incubated (group 1, n = 6) and incubated tissues with 10 μ M chlorpheniramine (group 2, n = 6).

The results showed clear leftward shifts in isoprenaline curves obtained in the presence of only higher concentration of the extract in group 1 and its both concentrations in group 2 compared with that of saline. The EC₅₀ (the effective concentration of isoprenaline, causing 50% of maximum response) obtained in the presence of both concentrations of the extract (0.17 +/- 0.06 and 0.12 +/- 0.02) and safranal (0.22 +/- 0.02 and 0.22 +/- 0.02) in group 1 and only in the presence of two concentrations of the extract (1.16 +/- 0.31 and 0.68 +/- 0.21) in group 2 was significantly lower compared to saline (1.00 +/- 0.22 and 4.06 +/- 1.04 for groups 1 and 2, respectively) ($p < 0.05-0.01$). The maximum responses obtained in the presence of both concentrations of the extract and safranal in group 1 were significantly lower than that of saline ($p < 0.05$ for all cases). All values (CR₅₀ = (EC₅₀ obtained in the presence of active substances/EC₅₀ obtained in the presence of saline)⁻¹) obtained in the presence of higher concentrations of extract in group 1, its both concentrations and higher concentration of safranal in group 2 were negative and there were significant differences in this value between propranolol and those obtained in the presence of extract and safranal ($p < 0.05$ to $p < 0.01$).

The results indicated a relatively potent stimulatory effect of the extract from *Crocus sativus* on beta(γ)-adrenoceptors which is partially due to its constituent, safranal. A possible inhibitory effect of the plant on histamine (H1) receptors was also suggested. (C) 2008 Elsevier GmbH. All rights reserved.

Accession Number: WOS:000261910000003

Document Type: Article

Language: English

Author Keywords: *Crocus sativus*; Iridaceae; Stimulatory effect; beta(γ)-Adrenoceptors; Guinea pig; Trachea

KeyWords Plus: PLACEBO-CONTROLLED TRIAL; TO-MODERATE DEPRESSION; LONG-TERM POTENTIATION; DOUBLE-BLIND; IN-VITRO; L.; EXTRACT; CONSTITUENTS; MICE; INHIBITION

Reprint Address: Boskabady, MH (reprint author), Mashhad Univ Med Sci, Sch Med, Dept Physiol & Phamacol, Res Ctr Med Plants, Mashhad 91130, Khorassan, Iran.

Addresses:

1. Mashhad Univ Med Sci, Sch Med, Dept Physiol & Phamacol, Res Ctr Med Plants, Mashhad 91130, Khorassan, Iran

E-mail Address: mhboskabady@hotmail.com

Funding:

Funding Agency	Grant Number
----------------	--------------