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Relaxant effects of the essential oil of Mentha pulegium L. in rat isolated trachea and urinary bladder.

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Abstract

OBJECTIVES: We evaluated the relaxant activity of the essential oil of Mentha pulegium L. (EOMP) and pulegone in rat isolated tracheal and bladder smooth muscles.

METHODS: ISOMETRIC contractions of isolated tracheal and bladder strips from male Wistar rats were induced by KCl (K60; 60 mM) or acetylcholine (ACh; 10 μM). EOMP and its major compound pulegone were incubated, after contracting agent, with the tissues in cumulating concentrations.

KEY FINDINGS: EOMP (3-300 μg/ml) inhibited the contractions induced by ACh and K60 in both tissues, but was more effective against the contractions induced by K60 in trachea (IC₅₀ = 40.47 ± 3.27 μg/ml) compared with ACh. Its relaxant action rules out ganglia and NO participation. Pulegone (10⁻⁷ to 10⁻³ M) inhibited the contractions induced by ACh and K60 in both tissues. EOMP concentration-dependently inhibited the contractions evoked by addition of CaCl₂ in depolarised trachea, suggesting inhibition of extracellular calcium entry.

CONCLUSIONS: These findings suggest that EOMP induced relaxant responses in pre-contracted smooth muscles of rat trachea and bladder, which are likely to be mediated via inhibition of calcium entry, mainly by its major compound, pulegone. These effects are coherent with the popular use of EOMP as an antispasmodic agent.

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