

EFFECTS OF VOLATILE OIL FROM THE LEAVES OF *CLAUSENA ANISATA* HOOK. ON SMOOTH MUSCLE CONTRACTIONS

Parpak Srikiticoolchai*, Chandhanee Itthipanichpong*, Nijisiri Ruangrungsi**

*Department of Pharmacology, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand

** Department of Pharmacognosy, Faculty of Pharmaceutical Science, Chulalongkorn University, Bangkok 10330, Thailand

Abstract

Preliminary study of the pharmacological action of volatile oil from the leaves of *Clausena anisata* Hook. was carried out in various smooth muscle preparations. Cumulative doses of the essential oil (5×10^{-5} - 3.2×10^{-3} % v/v) stimulated the contractile response of all smooth muscle preparations. The highest stimulation was found in isolated rat aorta (47.03 %, $EC_{50} = 1.28 \times 10^{-2}$ %). The others were guinea-pig ileum (39.40 %, $EC_{50} = 9.6 \times 10^{-3}$ %) rat fundus (26.19 %, $EC_{50} = 8.192 \times 10^{-1}$ %) guinea-pig trachea (15.78 %) and rabbit jejunum (4.99 %). These spasmodic effects were investigated through autonomic nervous system. The result demonstrated that atropine was not able to attenuate the stimulation effect of the essential oil on the isolated rabbit jejunum and guinea-pig ileum while the inhibitory effects of atropine (1×10^{-7} and 1×10^{-6} M) were prominently found in the contraction induced by the essential oil on rat fundus. Relaxation effect was insignificantly shown in guinea-pig trachea after exposure to atropine. Sympathetic mechanism of the essential oil was confirmed in rat aorta since prazosin (1×10^{-7} M) reduced the contractile response, produced by the essential oil, significantly. Furthermore, inhibition of extracellular calcium ion through calcium channel was shown in the essential oil induced smooth muscle contraction in calcium free Krebs Henseleit solution and after verapamil exposure. All these results could be concluded that the essential oil from the leaves of *Clausena anisata* possessed smooth muscle stimulation effect partly through sympathetic and parasympathetic mechanisms.

Keywords : anethole, methyl chavicol, smooth muscle contraction, *Clausena anisata* Hook.