P2 PHARMACOLOGICAL EFFECT OF CURCUMINOID FROM TURMERIC ON THE SMOOTH MUSCLE PREPARATIONS.

Chandhanee Itthipanichpong[1], Nijsiri Ruangrungsi[2], Wandee Kemsri[1], Anugool Sawasdipanich[1]

[1]Department of Pharmacology, Faculty of Medicine, [2]Department of Pharmacognosy, Faculty of Pharmaceutical science, Chulalongkorn University, Bangkok, Thailand 10330

ABSTRACT

Curcuminoid compound extracted from turmeric (Curcuma longa Linn) was evaluated for the effect on isolated smooth muscle. In quinea-pig ileum smooth muscle, curcuminoid at the concentration of 12 µg/ml significantly inhibited the contraction induced by acetylcholine (ACh) $5x10^{-7}$ M and histamine $5x10^{-7}$ M.(Force of contraction was 62.84 ± 4.66% and 75.60 ± 2.77 % of the control respectively) and the effect was prominently observed when the concentration of curcuminoid was increased to 36 µg/ml (force of contraction was 42.79 ± 1.98 % and 44.93 ± 4.33 % of the control). In potassium depolarizing Tyrode solution, curcuminoid 4 µg/ml and 20 µg/ml reduced the contraction induced by calcium chloride ($CaCl_2$) 1.8 mM significantly. The contraction was 63.31 ± 1.80 % and 36.87 ± 3.25 % respectively. The smooth muscle relaxant effect was confirmed in isolated rat uterine smooth muscle, curcuminoid 8 µg/ml and 16 µg/ml significantly reduced force and frequency of contraction induced by oxytocin 1 x 10^{-2} IU/ml. Curcuminoid 8 µg/ml produced 54.68 ± 3.34 % force of contraction and 79.09 ± 2.29 % frequency of contraction. Curcuminoid 16 µg/ml caused more relaxation of rat utrerine smooth muscle. (Force of contraction was 42.34 ± 3.16 % and frequency of contraction was 71.18 ± 1.89%), In acetylcholine (2 µg/ml) induced contraction, curcuminoid 8 µg/ml also reduced force and frequency of contraction. (Force of contraction was 73.01 ± 4.10 % and frequency of contraction was 76.33 ± 3.94 %). The effect could clearly observed when curcuminoid 16 µg/ml was applied. (Force of contraction was 43.38 ± 3.56 %, frequency of contraction was 49.96 ± 5.20 %) Curcuminoid 8 and 16 µg/ml significantly reduced force of contraction induced by KCl 50 mM. (Force of contraction was 57.10 ± 4.92 % and 36.60 ± 2.99 % respectively) The results obtained from this study suggested that curcuminoid produced smooth muscle relaxation effect on isolated guinea-pig ileum and rat uterus by non specific inhibitory mechanism.

Acknowledgement : This research work was supported by Rachada Piseksompod Fund. Chulalongkorn University