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SIRIWAN TUNLERT: CARDIOVASCULAR ACTION OF YA-HOM IN RATS. THESIS ADVISORS: WISUDA SUVITAYAWAT, Ph.D. SUWAN THERAWARAPAN, Ph. D. NANTAVAN BUNYAPRAPHATSARA, Ph. D 153 p. ISBN 974-663-287-6

The effect of Ya-hom on the cardiovascular function was studied on isolated rat aortic ring, isolated rat atrium and blood pressure by comparison to the effect of norepinephrine. Ya-hom decoction at doses of 0.01, 0.02 and 0.05 g/ml induced aortic ring contraction with a dose dependence manner and independent on endothelium. The dose higher than 0.5 g/ml did not increase the aortic ring response and induced indifferent aortic ring contractions between with and without endothelium. This may indicate the possibility that Ya-hom contains other vasorelaxants which can react directly on vascular smooth muscle cells in the absence of endothelial barrier.

Ya-hom at concentrations of 0.83, 1.67, 8.33 and 16.67 mg/ml stimulated aortic ring contraction in the dose dependent manner. Maximum contraction at the concentration of 16.67 mg/ml was about 14% of norepinephrine. This stimulatory effect of Ya-hom was partially inhibited by phentolamine, α antagonist, which indicate that the effect of Ya-hom was partially dependent on α -receptor similar to those of norepinephrine. Ya-hom giving with norepinephrine decreased the force of aortic ring contraction. Ya-hom may be the partial α agonist.

Ya-hom at concentrations of 1.67, 8.33 and 16.67 mg/ml showed a positive inotropic effect and negative chronotropic effect in the dose dependent manner. Ya-hom increased the force of isolated rat atrial contraction with a slow onset and prolonged action. In contrast to norepinephrine which acted on β_1 -receptor causing positive inotropic and chronotropic effect, propranolol did not alter the effect of Ya-hom on the atrial contraction. This shows that the action of Ya-hom on atrial contraction does not involve β receptor.

Ya-hom at doses of 0.2, 0.4, 0.6 and 0.8 g/kg both decreased and increased blood pressure in rats. Ya-hom initially decreased blood pressure in the short period of time and long lastingly increased blood pressure. The duration of Ya-hom on decreasing and increasing blood pressure were prolonged on the dose dependent manner. The time to maximal effect of Ya-hom on increasing blood pressure were also prolonged on the dose dependent manner. Phentolamine attenuated the blood pressure decreasing effect but did not affect the blood pressure increasing effect of Ya-hom. It is possible that phentolamine prohibits the effect of Ya-hom on vascular smooth muscle contraction resulting in a prominent positive inotropic effect of Ya-hom. This may cause a phentolamine unchangeable increasing blood pressure.

The results of this study showed that the selected Ya-hom preparation increased vascular smooth muscle contraction, increased force but decreased rate of atrial contraction, and initially decreased and then followed with an increase in blood pressure.