Thesis Title :	The screening of anti-inflammatory action of Clinacanthus nutans (Burm. f.) Lindau : A critical evaluation of carrageenan-induced hind paw edema model.
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ABSTRACT

Carrageenan-induced rat hind paw edema model was selected to screen the anti-inflammatory action of Clinacanthus nutans (Burm. f.) Lindau leaf extract with the aim to identify the active fractions or constituents presented in the butanol fraction. Previous report by Kittisiripornkul (1984) indicated that butanol fraction had convincing anti-inflammatory action on carrageenan-induced hind paw edema. This finding prompted us to extensively study this fraction. In this study, butanol fraction also exhibited anti-inflammatory action not only on carrageenan-induced hind paw edema model but also on granuloma pouch technique when it was given orally. In the granuloma pouch technique, butanol fraction

produced similar effects to steroidal drugs, that was it reduced thymus weight (38.88% at dose 90 mg/kg; 21.19% at dose 270 mg/kg, significantly at P-value=0.05) and increased adrenal weight (15.40% at dose 90 mg/kg; 16.83% at dose 270 mg/kg significantly at P-value =0.05). Although, the effects of butanol fraction may be similar to those of the steroid drugs, it is not necessary that they have the same mechanisms of action.

In addition, the anti-inflammatory action of butanol fraction declined upon a year storage indicating the instability of the active constituents.

The screening of 7 chromatographic fractions obtained from butanol fraction revealed that fraction Q and fraction W had the anti-inflammatory action. Fraction Q 15 mg/kg p.o. (equivalent to butanol fraction at dose 90 mg/kg p.o.) inhibited 44.71% of paw edema (P-value < 0.05). Fraction W 5 mg/kg p.o. (equivalent to butanol fraction at dose 90 mg/kg p.o.) inhibited 25.93% of paw edema (P-value < 0.05).

After separation of fraction Q by column chromatography, Q71-146-3 and Q147-272-5-2, the two major fractions were obtained but they possessed no anti-inflammatory action. It was suggested that these major constituents of fraction Q which acted as anti-inflammatory agent were unstable. This suggestion based on the finding that the butanol fraction

lost its activity upon storage.

Separation of fraction W by column chromatography, a pure compound FC was obtained and identified as flavonoid compound (Chuakul, 1986). It showed anti-inflammatory action by inhibiting 16.49% paw edema at dose 2.5 mg/kg (P-value= 0.05). The anti-inflammatory action appeared not to be dose-dependent. Compound FC which was the major constituent of fraction W was quite stable and the mechanism of its action, based on the effect on carrageenan-induced hind paw edema, may involve in the inhibition of prostaglandin synthesis, this speculation should be studied further.

Since the process of separation and purification of active constituents from butanol fraction required several months, the influence of circannual variation on the testing model had to be considered. The carrageenan-induced rat hind paw edema model had been proved to be a suitable testing model throughout the entire period of studies and proved to be useful model for guiding the separation and purification of the active constituents from medicinal plants.

The unstablility of the butanol fraction revealed in this study has some clinical impact on the folkloric uses of this medicinal plant. It is suggested that freshly crushed leaves should be used for its anti-inflammatory action.