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SUMITRA SUNTARARUKS : THE STUDY OF IMMUNOTOXIC EFFECTS OF *CLINACANTHUS NUTANS* EXTRACT IN MALE *WISTAR* RATS. THESIS ADVISORS: JUTAMAAD SATAYAVIVAD, Ph.D., MOLVIBHA VONGSAKUL, Ph.D., CHAITHIP WANICHANON, Ph.D. 108 p. ISBN 974-662-133-5

The pharmaceutical preparation stability and immunotoxicity of crude water extract of fresh leaves of *Clinacanthus nutans* (*C. nutans*) were investigated in our study. A granuloma pouch model (chronic inflammatory model) was used as the test model. Over a period of 8 days, male Wistar rats received topical application of 5% *C. nutans* in 3 different forms: (A) in cold₁ cream (125 mg cream / rat / day), (B) in 95% ethanol and (C) ethanolic extract of *C. nutans* in water. It was found that the anti-inflammatory action of topical applications of 5% *C. nutans* in the various preparations were as potent as 0.25% prednisolone (D). These treatments (A, B, C, and D) decreased the exudate and granuloma formation 50.98%, 50.1%, 48.3%, 56.82%, respectively. However, *C. nutans* in cold₁ cream, when stored at 4°C for 3 months, lost its potency. When *C. nutans* in powder form was stored at 4°C for 6 months and then was macerated in 95% ethanol for 2 weeks before testing, it was still able to reduce the exudate, edema, and granuloma formation. These results showed that the anti-inflammatory activity of *C. nutans* is stable in crude powder form but not when it is prepared in cream base. Therefore, our results suggested that the active chemical(s) may be degraded when *C. nutans* is prepared in the form of cream. A suitable vehicle providing longer shelf-life of topical preparation should be found.

The immunotoxicity was studied by the measurement of thymus and spleen weights and a histological study of immune organs. Reduction of thymus and spleen weights, histological changes in thymus (a depleted lymphocyte density in thymic medulla and cortex), hyperplasia of the follicles and marginal zone in spleen, suppression of granuloma formation and reduction of monocytes in granulomatous tissue were detected when 0.25% prednisolone in cold₁ cream was used. The 5% *C. nutans* in 95% ethanol produced lesser reduction of lymphocyte density in thymus and spleen than 0.25% prednisolone in cold₁ cream and it had no effect on thymus weight. However, it had the same effects on the reduction of exudate, number of macrophages, and granulomatous tissue formation as 0.25% prednisolone in cold₁ cream. The morphology of thymocyte was investigated by Dapi's staining and it was found that all samples showed non-significant changes in the number of intact nucleus cells per total cells. The results of this study suggested that the immunotoxic effects of *C. nutans* at the doses used were much less than those of prednisolone. One of the mechanisms of this local anti-inflammation might be related to the reduction of vascular permeability which resulted in reduction of macrophages to the inflammatory area. Further studies on the local anti-inflammatory mechanisms of *C. nutans* and immunological effects of the pure compounds isolated from this water extract should be conducted.