

## **Anti-allergic effect of *Clinacanthus nutans* aqueous extract: protection against IgE-mediated passive systemic anaphylaxis**

### **ABSTRACT**

**Introduction:** Anaphylaxis is a serious, rapid and potentially life-threatening allergic response involving IgE or IgG. *Clinacanthus nutans*, a small native shrub found in tropical Asia possess analgesic, anti-inflammatory and anti-viral activities and traditionally used for skin rashes, insect and snake-bites. In Thailand, alcoholic *C. nutans* extracts has been used topically for skin rashes, a symptom of allergy. **Aim:** To justify that *C. nutans* can treat skin rashes; this study investigated the anti-allergenicity of *C. nutans* extracts. **Methods:** Cytotoxicity of *C. nutans* extracts was evaluated by MTT on RBL-2H3. The most active *C. nutans* extract was determined by IgE-mediated mast cell degranulation. Acute toxicity of *C. nutans* aqueous extract was evaluated using female Sprague Dawley rats at 5000 mg/kg. Anti-allergenicity of *C. nutans* aqueous extract was studied by IgE-mediated passive systemic anaphylaxis (PSA). The release of preformed mediator ( $\beta$ -hexosaminidase) as well as newly synthesized mediators (TNF- $\alpha$ , IL-4 and LTC<sub>4</sub>) was evaluated. **Results:** *C. nutans* extracts were not cytotoxic up to 1 mg/ml (ethanolic) and 6 mg/ml (aqueous). In vitro, *C. nutans* aqueous extract was able to inhibit the release of preformed mediators but not newly synthesized mediators at 5 mg/ml. The ethanolic extracts were not able to inhibit all mediators tested. At 5000 mg/kg, *C. nutans* aqueous extract was non-toxic to the rats; no significant difference observed haematologically and biochemically. In vivo, *C. nutans* aqueous extract did not inhibit mediators of IgE-mediated PSA at 500 mg/kg and 2000 mg/kg. **Conclusion:** *C. nutans* aqueous extract was most active but could not inhibit mediators of IgE-mediated PSA. As anaphylaxis could be mediated by IgE or IgG, we postulate that *C. nutans* aqueous extract may exhibit its anti-allergenicity in IgG-mediated pathway.

**Keyword:** Anti-allergic; *Clinacanthus nutans*; Aqueous extract; IgE-mediated passive systemic anaphylaxis