**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 (β-hexosaminidase) as well as newly synthesized mediators (TNF-α, IL-4 and LTC4) 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