

Acute and sub-chronic oral toxicity studies of methanol extract of *Clinacanthus nutans* in mice

ABSTRACT

Background: *Clinacanthus nutans* (*C. nutans*) Lindau (family Acanthaceae) is a shrub widely cultivated in the South East Asia region, including Malaysia. It has been traditionally used for treatment of various ailments including pain-mediated diseases. Various pharmacological activities of *C. nutans* have been reported except for its pain-relieving activity. This study was performed to evaluate the acute and sub-chronic oral toxicity of the methanol extract of *Clinacanthus nutans* (MECN) in male and female mice.

Methods: In the acute toxicity study, a single dose of 5000 mg kg⁻¹ of body weight MECN was administered orally, and was monitored for 14 consecutive days. In the sub-chronic toxicity study, the MECN was administered orally at doses of 50, 500, and 2500 mg kg⁻¹ day⁻¹ for 28 days.

Results: Results showed that there were no clinical signs of toxicity, mortality and body weight changes in both acute and subchronic toxicity studies. There were no significant differences in relative organ weight, haematological parameters, and biochemical parameters; except for the creatinine level, which indicated significant ($p < 0.05$) increase at doses of 500 and 2500 mg kg⁻¹ day⁻¹ for both sexes in the subchronic toxicity study. Necropsy, gross and histopathological observations, did not show any treatment-related signs of toxicity or abnormalities in both the acute and subchronic toxicity studies.

Conclusion: In conclusion, the lethal oral dose (LD₅₀) for the acute toxicity study is greater than 5000 mg kg⁻¹ while for subchronic toxicity study; the no-observed-adverse-effect level (NOAEL) is greater than 2500 mg kg⁻¹ day⁻¹.

Keyword: *Clinacanthus nutans*; Methanol extract; Acute oral toxicity; Subchronic oral toxicity; NOAEL; LD₅₀