

Safety Assessment of Tuberos Roots of *Boerhaavia diffusa* Root Extract: Acute and Sub-Acute Toxicity Studies

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Abstract : *Boerhaavia diffusa* (BD) Linn. belonging to family Nyctaginaceae is a herbaceous plant and known as 'punarnava' in Hindi, used as herbal medicine for pain relief and various ailments. It is widely used as a green leafy vegetable in many Asian and African countries. The objective of present study was to investigate potential adverse effects, if any, of standardized root extract of *Boerhaavia diffusa* in rats following subchronic administration. In acute toxicity study, no mortality was found at a dose of 2000mg/kg which indicates that oral LD50 of *Boerhaavia diffusa* root extract is more than 2000mg/kg. The chronic administration of *Boerhaavia diffusa* for 28 days at a dose of 1000mg/kg body weight did not produce any significant changes in hematological (RBC, WBC, platelets, hemoglobin, bleeding time, clotting time) and biochemical (triglycerides, blood glucose, high density lipoprotein, serum creatinine, serum glutamic oxaloacetic transaminase, serum glutamic pyruvic transaminase) parameters of male and female rats as compared to normal control group. All the animals survived until the scheduled necropsy, and their physical and behavioral examinations did not reveal any treatment-related adverse effects. No pathological changes were observed in histological section of heart, kidney, liver, testis, ovaries and brain of *Boerhaavia diffusa* treated male and female rats as compared to normal control animals. These observations from oral acute toxicity study suggest that the extract is practically non-toxic. Thus, it can be inferred that the *Boerhaavia diffusa* root extract at levels up to 1000 mg/kg/day was found to be safe and does not cause adverse effects in rats. So, the no-observed effect level (NOAEL) of the extract was found to be 1000mg/kg/day.

Keywords : *Boerhaavia diffusa*, histology, toxicity, sub-acute

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