

Gastroprotective activity of *Ruellia tuberosa* root extract in rats

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Abstract : *Ruellia tuberosa* Linn. (Acanthaceae) roots are claimed to possess gastroprotective activity according to some Sri Lankan traditional medical practitioners although this has not been indicated in Ayurveda or folk medicine or confirmed by scientific experimentation. The aim of this study was to evaluate gastroprotective potential of *R.tuberosa* roots using a crude aqueous extract (470, 940, 1880 mg / kg) and using rat alcohol induced gastric lesion model. Results showed a strong and dose-dependent gastroprotective activity (in terms of reduction in length of haemorrhagic gastric lesions). The extract also had a mild erythropoietic and moderate analgesic activities and was well tolerated even with subchronic treatment. It is concluded that the data provided scientific evidence to support the claim that *R.tuberosa* root extracts have gastroprotective activity.

Key words : *Ruellia tuberosa*, Acanthaceae, gastroprotection, analgesia, erythropoietic activity, toxicity.

INTRODUCTION

Ruellia tuberosa Linn. (Family Acanthaceae, Wal Ammukkara in Sinhala) is an adventive perennial weed native to West Indies naturalized in India, Indonesia and Sri Lanka (Dassanayaka, 1998). In Sri Lanka, it is commonly found along moist walls and roadside drains in low and mid country of the island (Dassanayaka, 1998). Some traditional medical practitioners in Sri Lanka claim that the root of this weed has strong gastroprotective activity and have used as a herbal therapy for 'Amlapitta' (gastritis) but this medicinal effect of the root is neither indicated in Ayurvedic or folk medicine although other properties such as aphrodisiac and improvement of quality of semen have been documented (Reddy et al., 1989). Further, the use of plants of family Acanthaceae appear not be used as remedy to cure gastric ulcers (Disi et al., 1998). Nonetheless, testing of herbal medicines claimed to have gastroprotective activity is needed since gastric ulceration is increasing in developing countries (Shayne, 2002) and about 80% of the population in developing countries depend on herbal medicines (Anonymous, 2002). Further, in poor countries allopathic drugs are expensive. *R.tuberosa* is a weed available freely almost throughout the year and it is tangible to investigate its gastroprotective activity scientifically, which is the main objective of this study. Secondly, an attempt was made to examine its safety profile.

MATERIAL AND METHODS

Collection of plants and preparation of crude extract: Fresh *R.tuberosa* weeds were collected from Mirigama Sri Lanka in the month of September 1995 and the identity was authenticated by Prof. R.L. Wijesundera,

Department of Botany, University of Colombo. A voucher specimen (WDR/tuberosa) was deposited in the museum of the Department of Zoology, University of Colombo. The tubers were shade dried and powdered. Two hundred grams of the powdered root was mixed with 500 ml distilled water (DW) and refluxed for about 2 h. The resultant extract was filtered and the filtrate was evaporated under reduced pressure until a dark brown paste was obtained (yield, 10%). Portions of this paste was dissolved in 1 ml DW to obtain the desired concentrations (470, 940 and 1880 mg/kg) of crude extract (CE) for oral administration.

Animals

Adult cross-bred male albino rats (200-250 g) were used. They were housed individually in raised mesh bottom cages (to prevent coprophagy) under standardized animal house conditions with free access to pelleted food (Oils and Fats Co. Ltd Seeduwa Sri Lanka) and tap water.

Evaluation of gastroprotective activity

Food was withheld for 36 h and water for 24 h in 28 rats before the commencement of the experiment. These rats were randomly divided into 4 equal groups (N=7) and treated orally in the following manner: group 1 with 1 ml DW; 2 with 470 mg / kg CE; 3 with 943 mg / kg of CE and 4, with 1880 mg / kg of CE. Thirty minutes

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