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Diuretic activity of leaf and stem decoction of *Anisomeles indica*

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Abstract. *Anisomeles indica* (Lamiaceae) is a wild perennial herb growing in South and South East Asia. A decoction of leaves and stems of this plant is said to be diuretic but this point has not been verified in a controlled scientific investigation. The aim of the study was to scientifically investigate the diuretic activity of the decoctions of leaves and stems of both preflowering (E1) and flowering (E2) plants. Rats were used for experiments. The results showed that *A. indica* has powerful diuretic action and justify the use of the plant in traditional medicine in Sri Lanka. It is concluded that only the preflowering plants possessed marked diuretic activity. The selection of proper stage of the plant is vital for the induction of diuresis.

Keywords: *Anisomeles indica*, decoction, diuretic activity, potassium retention, rats

INTRODUCTION

Anisomeles indica (Lamiaceae), Yakwanassa in Sinhala, Peyameratti in Tamil is a perennial wild herb growing in many Asian countries (Jayaweera, 1981). A decoction of leaves and stems of the plant is claimed to be effective as a diuretic in the Sri Lankan traditional medicine system (Jayaweera, 1981). However, no scientific investigation has been done to verify this claim. The objective of this study was to scientifically investigate the effectiveness of the decoctions made from preflowering and flowering plants as a diuretic

MATERIALS AND METHODS

Collection of plants and preparation of extracts
Flowering and pre-flowering *A. indica* plants were collected from around Colombo, authenticated by Professor R. N. de Fonseka, Department of Botany, University of Colombo. A voucher specimen (No. 20-AI) has been deposited at the museum of the Department of Zoology, University of Colombo. The plants were cut into small pieces, reflux-boiled separately in distilled water (DW) for 3 h, and filtered through cotton wool. Each filtrate was reduced by boiling and freeze-dried. The yield from the flowering and pre-flowering plants were designated E1 and E2, respectively. Appropriate weights of E1 or E2 extracts were dissolved in DW to obtain desired concentrations of the extract in 1 ml solution.

Cross-bred male albino rats weighing 200-250 g were used as experimental subjects. They were housed under standardised animal house conditions and had free access to pelleted food (Vet House Ltd, Colombo, Sri Lanka) and water.

Determination of diuretic activity
The experiment was carried out according to Navarro et, Al. (1994). Rats (n = 45) were fasted overnight but water was provided *ad libitum*. They were randomly assigned into 5 equal groups (n=9/group). Group 1 and 2 were orally treated with 250 and 500 mg/kg of E1 respectively while group 3 and 4 were treated respectively with 500 mg/kg of E2 and 13 mg/kg of frusemide (Laurence and Bennett, 1992)(State Pharmaceutical Corporation, Colombo, Sri Lanka). The group 5 was treated with 1 ml of water and served as control. After 30 min. bladders of all these rats were emptied by pressing the abdomen close to the tail, orally hydrated with 50 ml/kg of normal saline and immediately placed in metabolic cages for 6 h. The urine produced by these rats was collected upto 6 h and their volumes were determined. The colour of the urine was noted and pH of urine was determined using a pH meter (TOA Electronics Ltd, Tokyo, Japan). The specific gravity, presence or absence of glucose and proteins were determined using Combistrix test strips (Bayer Australia Ltd., New South Whales, Australia). The concentration of sodium and potassium ions in the urine of rats treated with 500 mg/kg of E1 were determined using a Flame Photometer (M 6 D. Laboratory Supply Ollman & Co., Friedberg, Germany). Data were statistically analysed with t-test. A $P \leq 0.05$ was considered as significant.

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