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ANTIPYRETIC ACTIVITIES OF SOME SPECIES OF *ANDROGRAPHIS* WALL

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ABSTRACT: *The antipyretic activities of the alcoholic extracts of three species of Andrographis Wall, were assayed at a dose of 500 mg/kg body weight in pyrogenic polysaccharide – induced hyperpyrexia in male albino rats. All the extracts were found to be effective in the inhibition of pyrexia. The maximal antipyretic activity was found with the alcoholic extract of Andrographis alata Nees.*

INTRODUCTION

Andographis alata Nees., *Andrographis lineata* Nees., and *Andographis paniculata* Nees are used by traditional medical practitioners as stomatic, bitter anthelminitic, bitter tonic and antiperiodic and in intermittent and remittent fervers (1-4). These plants are also used in snake bites by local traditional medicine men. Reports on the medicinal properties (5,6) are available only for *A.paniculata* and much work has not been done on *A.alata* and *A.lineata, A. paniculata* is reported to contain, andrographolide ($C_{20}H_{30}O_5$), a bitter principle as the main active constituent (7). In the present study, 50 percent alcoholic extracts of *A.alata* and *A.lineata, A. paniculata* were tested for their effect in inhibiting the hyperpyrexia induced by yeast.

MATERIALS AND METHODS

Male albino rats of wistar strain from inbred stock weighing 100 – 120g were used throughout the experiments. They were given commercial rat-feed (Hindustan Lever Ltd., Bangalore) and tap water *ad libitum*. For the experiments rats were arranged randomly into five groups, each group comprising of six animals:

I. Control Group

II. *A. alata* treated group

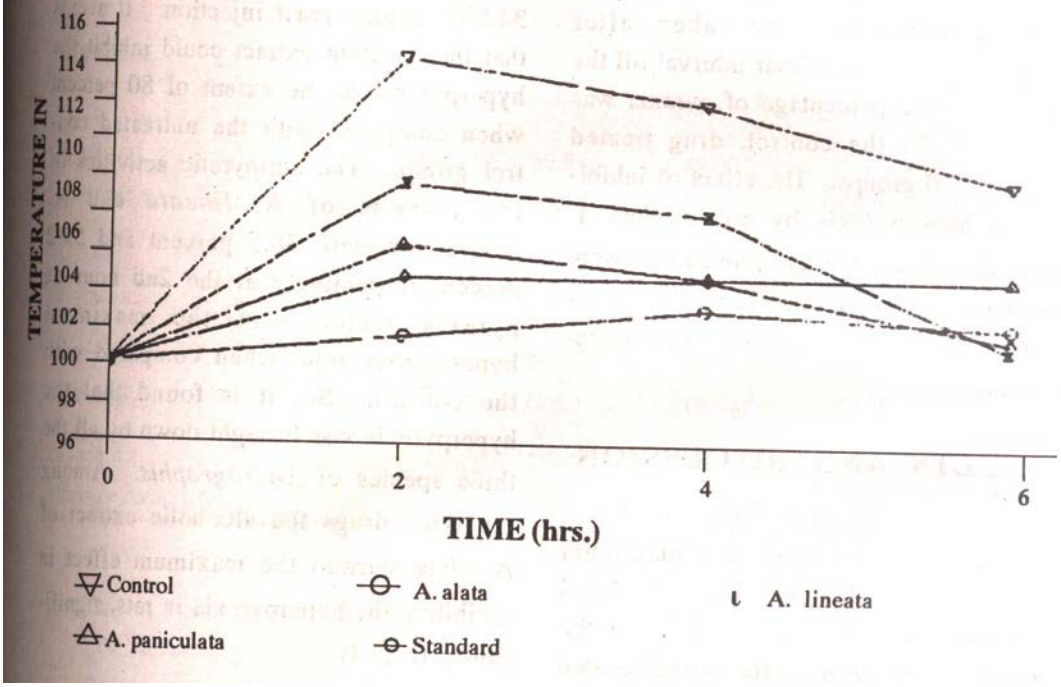
III. *A. lineate* treated group

IV. *A. paniculata* treated group

V. Standard group (Indomethacia treatment)

Figure 1.

ANTIPYRETIC ACTIVITIES OF SOME SPECIES OF Andrographis Wall



Samples of *A.alata* and *A. paniculata* were collected during their pre-flowering period (November) and *A.lineat*a during July from the Shevaroy Hills, Tamilnadu and identified by comparing with the hebarium specimens of Madras Herbarium (BSI, Coimbatore) and the Rapinat Herbarium, Tiruchirapalli: *A. alata* (MH – 31428, RHT – 22549): *A. lineate* (MH – 26936, RHT-2619); *A.paniculata* (MH – 13468, RHT – 3305). The whole of the plant materials were dried in shade and were subjected to soxhlet extraction using 50 percent ethyl alcohol for 12 hours. The extracts obtained were subjected to solvent evaporation by vacuum distillation and dried in a dessicator. The dried extracts were given to animals orally by suspending in water, at a dose of 500 mg/kg body weight at 24 hours and 1 hour prior to yeast injection. Hyper pyrexia was induced in rats by injecting a suspension of 12 percent yeast in water at a dose of 1ml / 100g body weight subcutaneously. The test was carried out in an air-conditioned room (25^0C and 50 percent humidity). The animals were kept in this room for 18 hours for acclimatization before starting the experiments. Feed was withheld during the experiments. The average of three rectal temperatures were recorded which were taken for each rat before injecting pyrogen. The temperature readings were taken after pyrogen injection at 1 hour interval till the 6^{th} hour. The percentage of pyrexia was calculated for the control, drug treated and standard groups. The effect of inhibition of hyperpyrexia by the extracts *A.alata, A.lineata* and *A.paniculata* were found by comparing the

hyperpyrexia of control groups administered yeast injection only.

RESULTS AND DISCUSSION

The hyperpyrexia induced by a lipogenic pyrogen reaches a maximum of 39^0C at the 2nd hour from the basal temperature of 34^0C at zero hour in the control group. In *A.alata* extract treated groups the maximum hyperpyrexia was only 36.5^0C. In this group the temperature raised very slowly, and reached the maximum only during the 4th hour by 2.8 percent. The *A.lineata* extract treated group of animals showed the maximum hyperpyrexia of 8.6 percent from its basal temperature. From Table-I it can be inferred that the extract of *A. paniculata* treated group shoed a hyperpyrexia of 5.7 percent from the basal temperature 34.5^0C, before yeast injection. It seems that the *A.alata* extract could inhibit the hyperpyrexia to the extent of 80 percent when compared with the untreated control group. The antipyretic activities of the extracts of *A.lineata* and *A.paniculara* were 38.5 percent and 59.2 percent respectively at the 2nd hour of pyrexia which was the maximum hyperpyrexia time when compared with the control. So, it is found that the hyperpyrexia was brought down by all the three species of *Andrographis*. Among the three drugs of alcoholic extract of *A.alata* showed the maximum effect in inhibiting the hyperpyrexia in rats, significantly (Fig.I).

As far as the extract of *A.lineata* is concerned, it is observed that it brings down the pyrexia to the near normal level at the 6th hour of treatment. These antipyretic extracts were comparable to that of the standard drug Indomethacin (4mg/kg).

TABLE – I

ANTIPYRETIC ACTIVITIES OF SOME SPECIES OF *Andrographis* WALL.

Experimental Groups	Drug dosage mg/kg. b.wt	Temperature reading in 0C and % to normal basal temperature after treatment (hrs.)			
		0	2	4	6
CONTROL		34.00 (100)	39.00 (114.7)	38.25 (112.5)	37.00 (108.87)
A. alata Treatment	500	35.50 (100)	36.00 (101.4)	36.50 (102.8)	36.25 (102.1)
A. lineata Treatment	500	34.50 (100)	37.50 (108.6)	37.00 (107.2)	34.87 (101.0)
A. paniculata Treatment	500	34.50 (100)	36.50 (105.7)	36.00 (104.3)	36.00 (104.3)
Standard (Indomethacin treatment)	4	35.50 (100)	37.00 (104.2)	36.00 (101.4)	36.00 (101.4)

REFERENCES

1. Chopra, R.N; Nayar, S.L. and Chopra, I.G., *Glossary of Indian Medicinal Plants*, p.18, CSIR, New Delhi (1956).

2. Anonymous *The Wealth of India Raw Materials*, Vol. I, pp.76-78, CSIR, New Delhi (1948).

3. Kirtikar, K.R. and Basu, B.D., *Indian Medicinal Plants*, Vol.III, pp. 1884 – 1886, (1975).

4. Tomar, G.S; Tiwari, S.K. and Chaturvedi, G.N; Kalmegh (*Andrographis paniculata Nees.)* and its medicinal status, Nagarajun 26 : 76 – 78, (1982).

5. Vedawathy, S. and Rao, K.N.; Antipyretic activity of six indigenous medicinal plants of Tirumala Hills, Andhra Pradesh, India, *J. of Ethnopharmacol.* 33 (1-2) : 193-196 (1991).

6. Roy Chondhury, B. and Poddar, N.K., Effect of Kalmegh on ratliver and serum enzymes, *Meth and Find Exptl. Chin. Pharmacol.* 5 : 727 – 30, (1988).

7. Quadrat-i-Khuda, M; Biswas, K.M. and Ali, M.A; Investigations on *Androgrphis paniculata Nees.* Part II. Examination of the constituents of alcoholic extracts of the leaves, *Scientific Res.* 1: 14 – 23, (1964a).