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Short communication

ANTIPYRETIC ACTIVITY OF *PLATYCLADUS ORIEANTALIS* LEAVES EXTRACT IN RAT

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Abstract: The study was conducted to screen the antipyretic activity of alcoholic extract of the leaf of *Platycladus Orieantalis* .*Platycladus Orieantalis* is a potent medicinal plant in the Indian systems of medicine. Traditionally it is used as a diuretic, anticancer, anticonvulsant, stomachic, antipyretic, analgesic, etc. In the present study the alcoholic extract of the leaf of *Platycladus Orieantalis* were studied for their antipyretic activity by Brewer's yeast-induced pyrexia in rats. It was observed that the alcoholic extract produced significant antipyretic activity ($p < 0.05$). The extract showed marked antipyretic activity in a dose dependent manner.
Keywords: *Platycladus Orieantalis*, brewer's yeast-induced pyrexia, antipyretic activity, alcohalic extract.

INTRODUCTION

Platycladus orientalis, also known as Chinese Arborvitae or Biota. It is native to northwestern China and widely naturalized elsewhere in Asia east to Korea and Japan, south to northern India, and west to northern Iran. It is a small, slowgrowing tree, to 15-20 m tall and 0.5 m trunk diameter (exceptionally to 30 m tall and 2 m diameter in very old trees). The foliage forms in flat sprays with scale-like leaves 2-4 mm long. The cones are 15-25 mm long, green ripening brown in about 8 months from pollination, and have 6-12 thick scales arranged in opposite pairs. The seeds are 4-6 mm long, with no wing. The different parts of the plant are traditionally used as a diuretic, anticancer, anticonvulsant, stomachic, antipyretic, analgesic and anthelmintic. The plant has not been explored for its antipyretic activity so far. The present study was therefore aimed at investigating the antipyretic activity of the leaves extracts of *Platycladus Orieantalis*.

MATERIALS AND METHODS

Collection and preparation of Plant Extract

The leaves of *Platycladus orientalis* were collected in the month of June from the local field of Bhopal, Madhya Pradesh state, India, and authenticated by Dr.Harish .K. Sharma, Ayurvedic Medical College, Davangere, Karnataka, India. A voucher specimen was submitted at Institute's herbarium department for future reference. Dried leaves were ground to coarse powder. Powder was first defatted with pet.ether and then extracted with ethanol which is further evaporated to dryness to obtain alcoholic extract.

Phytochemical screening

Qualitative assay, for the presence of plant phytoconstituents such as carbohydrates, alkaloids, glycosides, flavonoids, tannins and saponins were carried out on the powdered leaves following standard procedure [6, 7].

Standard Drug

Paracetamol tablet was purchased from local market of Bhopal, Madhya Pradesh state, India, , made into powder in a mortar pestle and add to it 5% gum acacia. This solution was attributed to make a fine suspension and administered at a dose of 200 mg/ kg b.w).

Animals

Wistar albino rats, weighing 120-150 g, were used for evaluation of antipyretic activity. All the animals were housed in polypropylene cages at room temperature fed on standard pellet diet and water *ad libitum*. The Institutional Animals Ethics Committee approved all the experimental protocols.

ANTIPYRETIC ACTIVITY

Animals were selected for the experiment after confirmation of approximate constant rectal temperature for 7 days. The antipyretic activity of the alcoholic extract was evaluated based on Brewer's yeast-induced pyrexia in rats. Pyrexia was induced by subcutaneous injection of 10 ml/kg of 15% w/v Brewer's yeast suspension below thenape of the neck. The rectal temperature of each rat was measured at time, 0 hr, using a telethermometer and before injection of the yeast, at 18 hr following yeast injection, the different groups were treated with alcoholic extract (200 and 400 mg/kg), and standard drug, paracetamol (150 mg/kg). Tween 80 (1% v/v) was used as suspending agent. The rectal temperature was then recorded over a period of 6 hr.

RESULTS AND DISCUSSION

Alcoholic extract produced significant antipyretic activity ($p < 0.05$). In general, non-steroidal anti-inflammatory drugs produce their antipyretic action through the inhibition of prostaglandin synthetase within the hypothalamus. Therefore, the antipyretic activity of alcoholic extract of *Platycladus Orieantalis* is probably by inhibition of prostaglandin synthesis in hypothalamus.

Further, alcoholic extract was found to contain carbohydrates, alkaloids, glycosides , flavonoids and tannins, through preliminary photochemical screening. The antipyretic activity may be due to one/more group of above Phytoconstituents.

Extract reduced the hyperthermia at both 200 and 400 mg/kg doses 1 hr after administration. The initial and final rectal temperatures in the groups treated with alcoholic extract (400 mg/kg) and paracetamol (150 mg/kg) were 38.53 ± 0.11 and 37.79 ± 0.03; and 38.69 ± 0.11 and 37.89 ± 0.03 0C, respectively. Both Paracetamol and alcoholic extract showed significant antipyretic activity throughout the test period of 6 hr (Table 1).

Table-1Paracetamol and alcoholic extract showed significant antipyretic activity throughout the test period of 6 hr

Treatmeant	Dose (mg/kg)	Rectal temperature in C at various times (hr) -18	0	1	3	5	6
Control	--	37.24 ±0.15	38.06 ±0.33	38.30 ± 0.06	38.24 ± 0.06	38.23 ± 0.04	38.24 ±0.0s
Paracetamol	150	37.82 ±0.01	38.69 ±0.11	38.46 ± 0.07	38.30 ± 0.06	38.15 ±0.03	37.89 ±0.03
Alcoholic extract	200	37.88 ±0.02	38.79 ±0.12	38.56 ±0.08	38.41 ± 0.06	38.19 ±0.03	38.15 ±0.03
	400	37.71 ±0.04	38.53 ±0.11	38.13 ±0.11	38.13 ± 0.05	37.86 ± 0.03	37.79 ± 0.03

*Values are expressed as mean ± S.E.M. (n = 6); * p < 0.05compared with 0 h of the same group*

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