

Study of Antipyretic Activity of *Bauhinia racemosa* Lam in Rats

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Abstract

The study was conducted to screen the antipyretic activity of alcoholic extract of the stem bark of *Bauhinia racemosa* Lam. as per the method described by Bhalla *et.al*, (1971). Thirty six healthy rats weighing between 200-250gms were divided into six groups of six animals each, with 50% sex ratio. The initial rectal temperature of each animal was recorded by digital thermometer and its hourly variation was noted for 3 hours. The pyrexia was induced by injecting a suspension of 15% of brewer's yeast and 2% gum acacia in normal saline sub-cutaneously below the nape of neck @ 1ml/100gm of animal weight. The difference in temperature between 0 hour and respective time interval was found out by statistical method. The potency of extract to bring down the temperature was compared with that of the control group. The extract showed marked antipyretic activity in a dose dependent manner.

Keywords: *Bauhinia racemosa*, brewer's yeast, gum acacia

Introduction

Today it has become essential to screen plant drugs for its efficacy. The plant *Bauhinia racemosa* Lam. belongs to the "Caesalpiniaceae" Family. It is popularly known as "Apta" in Marathi, "Kanchnal" in Hindi. Dhar *et al*, (1968) reported the antipyretic activity in mice from the hydro alcoholic extracts of *Bauhinia racemosa*. The stem bark and leaves of the *Bauhinia racemosa* are extensively used as an astringent and also in the treatment of inflammation, headache, fever, tumors, skin diseases, blood diseases, dysentery and diarrhea (Kirtikar and Basu, 1975). El-Khatiba and Khaleel, (1995) studied the pharmacological activity of ethanolic extract from *Bauhinia racemosa* leaves related to antipyretic activity in yeast induced hyperpyrexia in rats. Gupta *et.al*, (2005) also reported the antipyretic effects of methanol extract obtained from *Bauhinia racemosa* stem bark (MEBR) in rats. He studied the antipyretic effects of methanol extract obtained from *Bauhinia racemosa* stem bark. @ 50, 100 and 200mg/kg body weight. Veterinary pharmacologist and toxicologist are exploiting plants for ethno-veterinary uses and are converting the extracted parts of the plants into medicine for the livestock. Therefore, there is a need to undertake relative pharmacological evaluation on different varieties of the plants from different regions and also to carry out the phytochemical and clinical research work of the indigenous plants to prove and substantiate the traditional phytotherapies of the local people.

Materials and methods

Wistar albino rats were used for screening antipyretic activity, as described by Bhalla *et al*, (1971) method. Thirty six healthy rats weighing between 200-250gms were divided into six groups of six animals each, with 50% sex ratio. The initial rectal temperature of each animal was recorded by digital thermometer and its hourly variation was noted for 3 and their average was recorded. The pyrexia was induced by injecting a suspension of 15% of brewer's yeast and 2% gum acacia in normal saline sub-cutaneously below the nape of neck in the volume of 1ml/100gm of animal weight. A stabilized temperature was produced in 18 hours and recorded as shown in table 1. The aqueous extract was given orally to group T₃ and T₄ @ 100, 200mg/kg body weight respectively. Alcoholic extract was given orally to T₅ & T₆ groups @ 100, 200 mg/kg body weight respectively. The T₂ group was administered with Paracetamol orally @ 10mg/kg body weight with the help of syringe and catheter for comparison with activity of *Bauhinia racemosa*. T₁ served as negative control which received 0.5ml of normal saline solution orally. The extract were dosed orally (0 hour) and rectal temperature was recorded at 1, 2 & 3 hours. The difference in temperature between 0 hour and at the end of 3 hour was compared and analysed.

Results and Discussion

The results of antipyretic activity of aqueous and

alcoholic extracts of *Bauhinia racemosa* are presented in table given below. Aqueous and alcoholic extracts of *Bauhinia racemosa* Lam. produced significant antipyretic activity in rats, which was induced by brewer's yeast. The temperature was brought back to normal after 4 hrs of post administration of extracts. The aqueous extract @200mg/kg body weight and alcoholic extract @100mg/kg and 200mg/kg body weight was found to have significant effect and was found significant at 5% level of significance. Regulation of body temperature requires a delicate balance between production and loss of heat and the hypothalamus regulates that set point at which body temperature is maintained. It is well established that fever is mediated by release of prostaglandins in hypothalamus, which results in increased heat production and decreased heat loss leading to pyrexia. The aqueous and alcoholic extracts of *Bauhinia racemosa* significantly reduced the temperature suggesting that extracts might have antagonized prostaglandins and produce its effect.

Desai (1975) in his study reported that the paste of fresh leaves of *Bauhinia racemosa* was used in case of headache and fever. Methanol extract of *Bauhinia racemosa* stem bark (MEBR) in rats (50,100 and 200mg/kg body weight) showed a significant dose-dependent reduction in pyrexia in yeast-induced hyperpyrexia in rats. (Gupta *et al*, (2005). The observations in the present study are in agreement with the literature cited in the text. The results obtained from the experiment indicates the antipyretic activity

of the stem bark of the *Bauhinia racemosa* plant.

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Table-1. Analysis of Antipyretic Activity of Bauhinia racemosa Lam. By Wardlaw (1985) Method

Group	Temp of Apyretic rats			Temp of Pyretic rats			Average	Temp After drug administration
	1Hr	2Hr	3Hr	1Hr	2Hr	3Hr		
T ₁	98.8±0.210	98.2±0.502	98.51±0.422	101.48±0.465	101.81±0.360	101.86±0.212	101.86 ±0.280	101.91±0.267
T ₂	98.53±0.174	98.48±0.535	97.98±0.445	101.51±0.263	100.51±0.339	99.45 ±0.292	99.76±0.254**	99.33±0.130
T ₃	98.7±0.271	97.9±0.425	98.23±0.325	101.58±0.195	101.21±0.336	101.23±0.189	101.36±0.172	101.27±0.232
T ₄	97.9±0.403	98.85±0.291	98.43±0.382	101.48±0.215	101.23±0.413	101.1±0.304	100.86±0.284	101.06±0.334*
T ₅	98.57±0.354	98.3±0.276	98.78±0.310	101.46±0.212	100.53±0.283	100.78±0.265	100.27±0.257**	99.5±0.225
T ₆	98.56±0.389	98.43±0.399	98.11±0.228	101.75±0.105	101.01±0.153	100.28±0.318	100.28±0.228**	99.56±0.212

p<0.05 ± S.E. = Standard Error Mean with common superscripts does not differ significantly.
