Study of Analgesic activity of Bauhinia racemosa lam in Rats

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Abstract

The present study was carried out to evaluate the analgesic activity of the stem bark of the *Bauhinia racemosa* plant in rats.weighing around 150-200g. Aqueous & alcoholic extracts of dried stem bark of *Bauhinia racemosa* Lam. @ 100, 200mg/kg body weight were used in the present study. The study was conducted as per the "Tail Immersion Method" described by Ghosh M.N., (1984.) Aqueous extract of B*auhinia racemosa* Lam stem bark @ 200mg/kg body weight produced significant analgesic activity whereas 100mg/kg dose did not produce significant results when compared with control. (P<0.01) The result of analgesic activity of alcoholic extract produced significant results at both the doses (P<0.01). The findings indicated the analgesic activity of the stem bark of the plant**.**

Keywords: B*auhinia racemosa,* analgesic activity

Introduction

The plant *Bauhinia racemosa* Lam. belongs to the Family "Caesalpiniaceae". It is popularly known as "Apta" in Marathi, "Kanchnal" in Hindi. The stem bark of the plant is an astringent and is used in the treatment of headache, fever, skin diseases, tumors, diseases of the blood, dysentery and diarrhea (Kirtikar, K.R. and Basu,B.D.1975, Chopra, R.N, *et.al.* 1956). In view of the various medical properties and growing interest in the development of ecofriendly, biodegradable and safer analgesic herbal preparations the plant was screened for analgesic property.

Materials and methods

Stem barks of *Bauhinia racemosa* Lam. were collected and were dried at room temperature ((37^{0}c). It was powdered and sieved through muslin cloth. The aqueous and alcoholic extract of stem bark of *Bauhinia racemosa* Lam. were prepared and used for analgesic study.The study was conducted by "Tail Immersion Method" described by Ghosh M.N., (1984.)

Thirty six healthy Wistar rats weighing around 150-200 gms were distributed in 6 groups each consisting of 6 rats with 1:1 sex ratio**.**. The tail of the rats up to 5 cm were dipped into hot water maintained at 55±0.5^{o}c. The time taken by the rat to flip its tail clearly out of water was taken as the reaction time. The reaction time in seconds before administration of the drugs was recorded for all the rats from each group. Each extract was studied in two different doses of 100 and 200 mg/Kg b.w. The group T1 served as control which received 0.5 ml of normal saline only. T2 served as reference standard to which Analgin was given @ 10mg/kg b.w. The group T3 & T4 was given with aqueous extract @ 100 & 200mg/kg respectively whereas T5 & T6 was given with alcoholic extract at same doses respectively. Oral route was followed for the administration of the extract. Reaction time in seconds after the administration of drugs was recorded at an interval of 30 min, 60 min and 90 min. Mean was compared with Analgin. The data obtained was analysed statistically to know the level of significance as per the method described by Snedecor and Cochran .

Results and discussion

The mean reaction time in all the groups was observed before and after administration of extracts. The mean differences observed in different groups are shown in the table below. The mean difference of all the groups was compared with control group. Mean and the data of observation were analysed statistically.

From the observation it was concluded that aqueous extract of B*auhinia racemosa* Lam stem bark @ 200mg/kg body weight (T4) produced significant analgesic activity in albino rats while @100mg/kg body weight (T3) did not produced significant difference as compared to (T1) control. (P<0.01**)** The result of analgesic activity of alcoholic extract of *Bauhinia racemosa* showed significant difference as compared to control @100mg/kg and 200mg/kg body weight (T5 and T6) respectively. (P<0.01).

It was observed that when mean reaction time of all the groups was compared with control all the groups differed significantly from the control except T3 (Aqueous @100 mg/kg) and were found significant at 1% level of significance. The aqueous extract could not develop analgesia probably because of insufficient dose.

The analgesia developed by *Bauhinia racemosa* is in agreement with El-Khatiba and Khaleel (1995). The extracts in their experiment showed significant results on hotplate test. (P<0.01).The results obtained are also in agreement with Gupta *et al* (2005) who reported the analgesic activity of methanol extract, obtained from *Bauhinia racemosa* stem bark (MEBR) in rats significantly at the dose rate of 50, 100 & 200 mg/ kg b.w which he evaluated by acetic acid-induced writhing and hotplate tests.

Desai (1975) also reported medicinal use of *Bauhinia racemosa* in case of headache and fever and reported that plucked stem bark can be applied in case of swelling, wound and mouth ulcer.) Stem bark and leaves of the *Bauhinia racemosa* are extensively used in the treatment of inflammation, headache, and fever. (Kirtikar and Basu ,1975) . The results obtained in the present investigation is in agreement with the literature cited and confirms that the stem bark of *Bauhinia racemosa* lam possess analgesic activity in rats.

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Table-1. - Analgesic activity of Bauhinia racemosa Lam in rats by tail immersion method.

Sr.	T_1			T_2			T_3			T4			T5			T6		
No.	B.D.	A.D.	Diff.	B.D.	A.D.	Diff.	B.D.	A.D.	Diff.	B.D.	A.D.	Diff	B.D.	A.D.	Diff.	B.D.	A.D.	Diff.
1.	3.4	3.8	0.4	2.8	4.5	1.7	5.0	5.3	0.3	3.7	4.2	0.5	4.1	5.0	0.9	4.7	5.9	1.2
2.	3.2	3.8	0.6	3.8	5.1	1.3	4.0	4.6	0.6	5.8	6.8	1.0	3.2	3.9	0.7	3.8	5.1	1.3
3.	5.0	4.2	0.8	5.1	6.4	1.3	4.8	5.2	0.4	4.0	4.8	0.8	4.1	4.9	0.8	4.1	5.0	0.9
4.	3.3	3.4	0.1	4.1	5.6	1.5	3.6	4.1	0.5	4.1	5.0	0.9	4.6	5.2	0.6	4.1	4.8	0.7
5.	3.0	3.4	0.4	3.4	4.8	1.4	4.0	4.8	0.8	4.0	4.7	0.7	3.8	4.6	0.8	3.8	5.0	1.2 **6.**
4.5	4.8	0.3	4.1	4.4	1.3	4.1	5.0	0.9	3.6	4.2	0.6	4.0	5.2	1.2	3.1	4.0	0.9	
Mean (M)	0.45			1.43**			0.60			0.76*			0.85*			1.07**		
± S.E.	**0.088**			**0.059**			**0.084**			**0.076**			**0.082**			**0.095**		

(p<0.01) Means with common superscript does not differ significantly.
B.D. = Before drug A.D. = After drug ± S.E. = Standard Error.

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