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EXPERIMENTAL EVALUATION OF THE ANALGESIC PROPERTY OF ECLIPTA ALBA (L) HASSK.

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Abstract: *A narcotic or a non-narcotic analgesic that would not cause respiratory depression and addiction in may be used as an alternative to morphine. In Ayurveda a large number of indigenous drugs have been mentioned possessing the analgesic properties e.g Guggul, Erand, Rasna, Bhringaraja, Methika, palandu and prasikayavani. Total alcoholic extracts of Bhringaraja (Eclipta alba) was undertaken to study the analgesic activity in albino rats and albino mice by using different standard experimental models.*

INTRODUCTION

It is a matter of great concern, to produce good analgesia with a drug or combination of drugs without respiratory depression, sickness, and addiction, the present experimental research work was undertaken to study the antinociceptive activity of total alcoholic extracts of Bhringaraja (*Eclipta alba*) in albino rats/ mice by using standard experimental models to find out the effective dose of the trial drug and to find out the side effects if any.

MATERIALS AND METHODS

I [a] Animals

The experiment were conducted on adult healthy wister strain albino rats weighing between 150-200 gm for tail flick-method, 50-60gm for Hot-plate methods & albino-mice weighing between 25-30gm of either sex for writhing test.

[b] Grouping of Animals

In experimental study the animals were divided into six groups with six animals in each group and the study was carried out extensively of following parameters:

II. Trial drugs

1. The yield of the alcoholic extract of *Eclipta alba* was -10% (100gm of dried plant will yield 20 gm of alcoholic extract by soxhlet extraction).

2. Preparation of intraperitoneal injection of alcoholic extract of indigenous drug as follows.

    a) Prepare 0.55% W/V of sodium carboxy methyl cellulose (sodium CMC) suspension in distilled water (freshly prepared). Initially wet the powder with two drops of glycerine, triturate it with 5ml of distilled water, then add small amount in increasing order while triturating.

    b) After preparing the suspension added desired amount of drug i.e. alcoholic extract of the

indigenous drug to it and triturated followed by stirring for 1 hour to make a homogenous solution.

c) Add 0.1% (0.1mg in 100ml) propyl paraben (preservative) to the prepared suspension.

The studies were conducted by administering alcoholic extract of E. alba intrperitoneally (i.p.) one day prior to the experiment and at the day of experiment except in writhing test where it was given orally.

RESULTS AND DISCUSSION

Table 1. Antinociceptive activity of Alba using tail flick method.

G.P No.	Group (n=6)	Mean latent period of tail flick response (sec) ±S.E.				
		Initial	After 15 min	After 15 min	After 15 min	After 60 min
1.	Control (Vehicle)	4.29 ±1.28	4.44 ± 0.99	4.57 ± 0.96	4.93 ± 0.79	3.99 ± 1.99
2.	E.alba (50mg/kg)	4.51 ± 0.87	4.29 ± 0.86	5.23 ± 0.79	5.25 ± 1.12	4.28 ± 0.87
3.	E.alba (100mg/kg)	4.23 ± 0.56	4.35± 0.52	6.73 ± 0.69	9.42 ± 0.36	6.06 ± 0.96
4.	E.alba (200mg/kg)	4.92 ± 0.92	5.12 ± 0.48	7.21 ± 0.97	11.23 ± 0.81	7.21 ± 0.88
5.	E.alba (1.5mg/kg)	4.46 ± 0.89	12.43 ± 0.58**	15.30 ± 1.72**	10.34 ± 0.34**	6.29 ± 1.01
6.	E.alba (200mg/kg) + Morphine (1.5mg/kg)	4.62 ± 0.84	13.32 ± 0.82**	17.27 ± 1.28**	12.27 ± 1.27**	7.31 ± 0.02

* Significant; ** Highly Significant; Values without Superscripts are insignificant.

Table 2. Antinociceptive activity of Alba using tail flick method.

G.P No.	Group (n=6)	Mean latent period of tail flick response (sec) ±S.E.				
		Initial	After 15 min	After 15 min	After 15 min	After 60 min
1.	Control (Vehicle)	4.12 ± 1.23	1.35 ± 0.13	1.33 ± 0.07	0.94 ± 0.08	0.56 ± 0.47
2.	E.alba (50mg/kg)	4.35 ± 1.32	1.71 ± 0.73	1.29 ± 0.52	0.79 ± 0.47	0.59 ± 0.36
3.	E.alba (100mg/kg)	3.99 ± 1.15	1.59 ± 0.29	1.39 ± 0.61	1.11 ± 0.31	0.92 ± 0.18
4.	E.alba (200mg/kg)	3.89 ± 1.34	1.70 ± 0.21	1.92 ± 0.12*	1.99 ± 0.32	1.10 ± 0.23
5.	E.alba (1.5mg/kg)	4.21 ± 1.23	1.95 ± 0.08*	2.12 ± 0.23	1.92 ± 0.09**	1.88 ± 0.69
6.	E.alba (200mg/kg) + Morphine (1.5mg/kg)	4.09 ± 0.99	2.25 ± 0.03*	2.78 ± 0.13*	2.61 ± 0.08**	1.92 ± 0.75

* Significant; ** Highly Significant; Values without Superscripts are insignificant.

Table 3. Effect of E.alba on writhing in albino mice.

GP. No.	Group (n=6)	Number of wriths/30min.	
		Mean	±S.E.
1.	Control (Vehicle)	71.83	4.79
2.	E.alba (50mg/kg)	70.16	5.41
3.	E.alba (100mg/kg)	65.83	3.54
4.	E.alba (200mg/kg)	58.77	3.35*
5.	E.alba (165mg/kg)	27.66	3.35**
6.	E.alba (200mg/kg) +aspirin (165mg/kg)	25.67	2.87**

* Significant; ** Highly Significant; Values without Superscripts are insignificant.

It isobvious from Table 1 to 3 that E.alba in the dose of 50mg/kg did not show may significant tail flick response during the whole observation. Whereas it was highly significant statistically in the dose of 100 mg/kg after 45 minutes and in the dose of 200 mg/kg after 45 minutes, respectively. E. alba in the dose of 50 mg/kg and 100 mg/kg did not show any significant response during the observation of mean reaction response. Where as it was significant statistically in the dose of 200mg/kg after 30mins and 45 mins of observation (Table2) The potentiation of morphine induced analgesic with the E. alba in the dose of 200mg/kg was observed insignificant statistically in tail flick response (Table 1) and during he observation of hot plate technique (Table 2).

Further, it is obvious from Table 3 E.alba in the doses of 50mg/kg and 100 mg/kg did not show any significant inhibition on writhings. Whereas it was statistically inhibited the writhings in the dose of 200mg/kg. The potentiation of aspirin induced analgesia with the trial drug in the dose of 200mg/kg was statistically insignificant.

The rat tail flick technique, the thermic stimulation method and acetic acid induced writhing paradigm have been extensively used to assess the antinociceptive activity of a large number of pharmacological agents. These methods have retained their popularity because of their sensitivity, specificity and reproducibility. In addition, centrally acting antinociceptive agents, with well defined effects on multiple neurotransmitter system, give a comparable positive response in the tail flick and hot-plate technique. In contrast, peripherally acting analgesic agents are effective only when evaluated by the writhing test (Bhattacharya et al. 1975, 1986). It is possible that the observed autinociceptive effect of the indigenous drug may be due to its central action or peripheral action. It would be rather premature to offer/explanation in terms of neurotransmitter, involved, since practically every known neurotransmitter; opoid and non opoid is involved in antinoicception was not proved. Further studies are required it resolve these issues.

Conclusion

1. Alcoholic extract of E.alba showed its significant antinociceptive effect in the dose if 200mg/kg.

2. Alcoholic extract of E.alba did not show any marked potentiation of antinociceptive effect of morphine, during the observations tests against the radient heat in the dose of 200mg/kg for each trial drug.

3. Alcoholic extracts of E.alba did not show any significant potentiation of the aspirin induced analgesia., using within test in the dose of 3200mg/kg for each trial drug.

The present study clearly indicated that E.alba has significant antinociceptive activity which can be used clinically for the management of pain.

However, there is an urgent need to evaluate the mechanism involved in their effects in order to rationalize what remains largely an empirical use of indigenous drugs.

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