ANALGESIC ACTIVITY OF *SAUSSUREA LAPPA*

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Summary

The ethanolic extracts of the root of *Saussurea lappa* (EESL), was prepared and evaluated for their analgesic activity. Both the chemical and thermal methods were used for the evaluation of analgesic activity in swiss albino mice. The ethanolic extract of the root exhibited significant analgesic activity in both the test.

Keywords: *Saussurea lappa*, Analgesic.

Introduction

Saussurea lappa C B Clarke, Syn. S. coustus (Falc), lipsch (Asteraceae) is a Himalayan species and occurs in the region from 2700- 4000m in Kashmir, Lahul Valley in Himachal Pradesh and Garhwal in Uttaranchal.[1, 2] The roots possess carminative, analgesic, anthelmintic and emmenagogic properties stimulate the brain and cure blood diseases and liver and kidney disorders.[3,4] They are prescribed in advance stages of typhus fever, rheumatism, nervous disorders, irregular menstruation, and heart diseases, to improve complexion, as hair wash to kill lice and to turn grey hair to black. Several studies on the roots of the plant have been reported for their anti-inflammatory, inhibit nitric oxide production, lipopolysaccharide (LPS) activated mouse peritoneal macrophage, antiangiogenic effect, tumour necrosis factor, antiviral activity, free radical scavenging and anti fatigue and anti ulcer. The phytochemical studies revealed the presence of resins, alkaloids, steroids and flavonoids. [5, 6, 7] In our present study we prepared extract form the roots for the evaluation of analgesics activity.

Materials and Methods

The powdered roots material was extracted exhaustively in a soxhlet apparatus with ethanol (95%). [8, 9] The combined extracts are dried under reduced pressure to secure a viscous brownish coloured residue. The extract was evaluated for their analgesic activity in both the acetic acid induced writhing and tail immersion test.

Evaluation of analgesic acitivty

I. Acetic acid induced Writhing

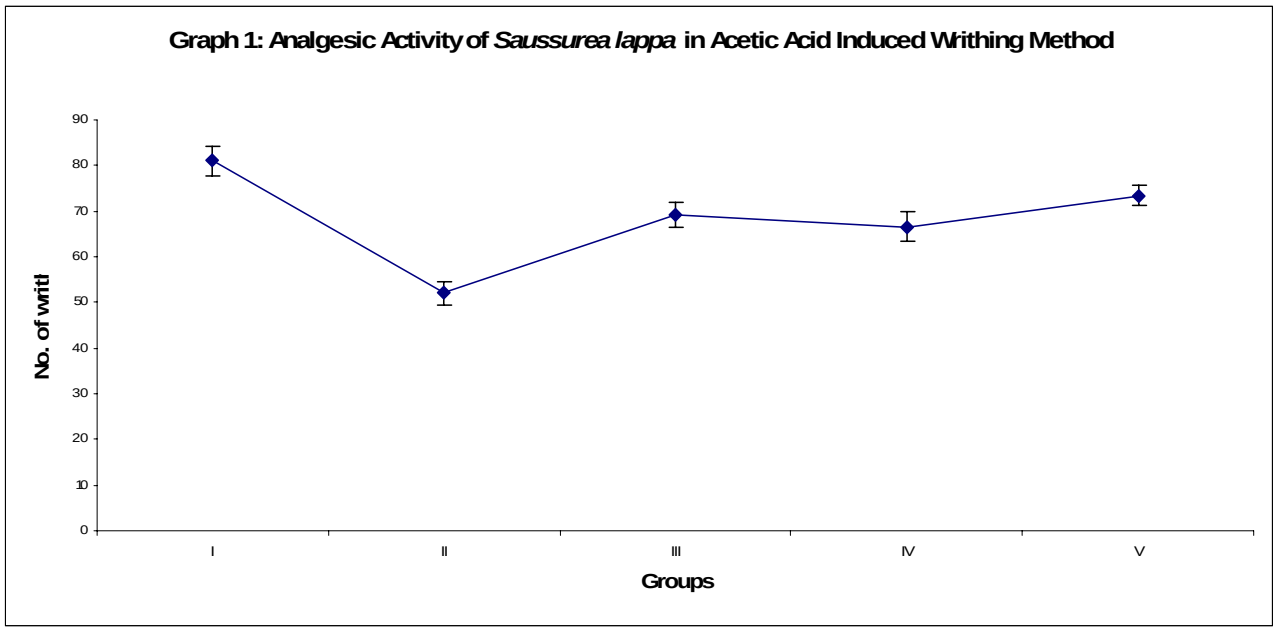
Male albino mice, 20-25g body weight were divided into five groups of five animals each. First group of the animals received acetic acid (0.1 ml of 1% v/v, i.p.) served as control, 2nd group served as positive control received Aspirin (300 mg/kg, i.p.) while the 3rd , 4th and 5th received ethanolic extracts respectively at a dose of 50, 100, 200 mg/kg, p.o. All doses of the extracts were administered orally 15 min prior to the

administration of acetic acid injection. The writhing effect indicated by the stretching of abdomen with simultaneous stretching of at least one hind limb, observed for 10 min and the percentage protection was calculated for analgesic activity. [10, 11, 16] The results are shown in Table I & Graph 1.

Table I: Analgesic Activity of *Saussurea lappa* in Acetic Acid Induced Writhing Method.

Sl no	Group	Dose	Number of wriths (10min/mouse)
I	Control	1% Acetic acid i.p.	81 ± 3.11
II	Standard	300 mg/kg, Aspirin	52 ± 2.71*
III	Ethanolic extract	50 mg/kg	69.2 ± 2.7**
IV	Ethanolic extract	100 mg/kg	66.6 ± 3.18***
V	Ethanolic extract	200 mg/kg	73.4 ± 2.13

Significant level * = P< 0.001; ** = P< 0.05; and *** = P< 0.02; Mean±SEM



II. Tail Immersion Test-

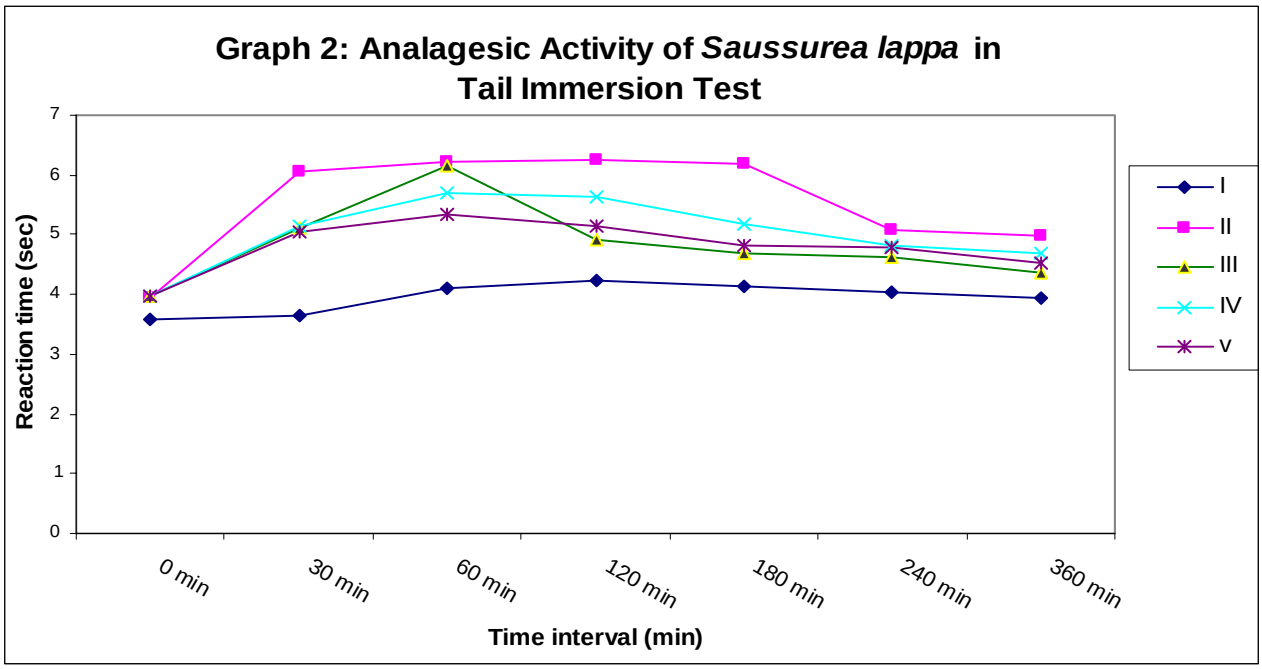
Healthy male albino mice, weighing 20-25g, divided into five groups each consists of five animals. Group one considered as control, group two received Pentazocine (10 mg/kg) served as positive control while group three, four and five received ethanolic extracts respectively at a dose of 50, 100 and 200 mg/kg, (p.o.). The animals are allowed to adapt to the cages for 30 min before testing. The lower 5 cm portion of the tail is marked. This part of the tail is immersed in a water bath of exactly 55^0 C within a few seconds the mice react by withdrawl the tail. The reaction time is recorded in 0.5 sec units by stopwatch. After each determination the tail is carefully dried. The reaction time is determined before and periodically after either oral

administration of the test substance, e.g., 0.5, 1, 2, 3, 4, & 6 hour. The cut off time of the immersion is 15 sec. [13, 14, 15,16] The results were statistically evaluated for its significance. The results are shown in table II & Graph 2.

Table II: Analgesic Activity of *Saussurea lappa* in Tail Immersion Test

Sl. No	Group	Dose	Reaction time (sec) ± S. D.						
			0 min	30 min	60 min	120 min	180 min	240 min	360 min
I	Control	1% w/v Sod. CMC	3.59±0.65	3.66±1.13	4.09±0.79	4.22±0.37	4.12±0.28	4.05±0.28	3.93±0.51
II	Stand-ard	Penta-zocin 10 mg/kg	3.95±0.31	6.05±0.64**	6.21±0.69**	6.25±0.63*	6.17±0.82*	5.08±1.16	4.99±0.80@
III	EtOH	50 mg/kg	3.98±0.13	5.11±0.51@	6.16±0.73**	4.9±0.56	4.69±0.37	4.61±0.75	4.37±0.69
IV	EtOH	100 mg/kg	3.97±0.31	5.15±0.53@	5.71±0.37**	5.62±0.43*	5.18±0.44**	4.81±0.73	4.69±0.59
V	EtOH	200 mg/kg	3.96±0.24	5.04±0.15@	5.34±0.40** *	5.15±0.40**	4.82±0.45** *	4.79±0.35@	4.54±0.28

Significant level *=P<0.001; **=P<0.01; ***=P<0.02; @=P<0.05; Mean±S.D.



Results and Conclusions

The analgesic activity of the root extracts in both the tests was compared with the activity of the standard drug. The ethanolic extract showed analgesic activities in both the acetic acid induced writhing and tail immersion test. The results revealed that the ethanolic extract possess significant central and peripheral analgesic properties.

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