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Research Article

ANALGESIC AND CNS DEPRESSANT ACTIVITY OF METHANOLIC EXTRACTS OF *CISSUS VITEGENIA* AND *CISSUS PALLIDA*

Sudha Parimala[1]*, V. Hemanth Kumar[2], S. M. Shanta Kumar[2], R. Suthakaran[3], A. Tamil Selvan[3]

1. Department of Pharmacognosy, RBVRR Women's College, Hyderabad.
2. Department of Pharmacognosy, V.L.College of Pharmacy, Raichur.
3. Department of Pharmaceutical Chemistry, Teegala Ram Reddy College of Pharmacy, Hyderabad.

***Corresponding Author: Email**: sudhaparim@yahoo.com

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ABSTRACT

The main aim of the present study was to evaluate analgesic and CNS depressant activity of methanolic extracts of stem and roots of *Cissus pallida* and aerial parts of *Cissus vitegenia* in experimental animals. The analgesic activity was evaluated by Eddy's hot plate method and CNS depressant activity was evaluated by using digital actophotometer. The study was carried out by using two different doses (200 and 400mg/kg body weight) of both the extracts. The preliminary pharmacological screening showed that both the extracts showed moderate analgesic activity and significant CNS depressant activity.

Keywords: *Cissus pallida, Cissus vitegenia,* CNS depressant activity, analgesic, methanolic extract.

INTRODUCTION

Analgesia, The International association for the study of pain (IASP) defined pain as an unpleasant sensory and emotional expression associated with actual/ potential tissue damage of described in term of such damage[1]. Pain is the most common reason for physical consultation. It is a major symptom in many medical conditions can significantly interfere with a person quality of life and general functioning[2]. It is a part of the body defense system, producing reflexive retraction from the painful stimulus and tendencies to protect the affected body part while it heal.[3, 4]

Locomotor activity CNS depressants:

Anxiety is an unpleasant emotional experience of daily living characterised by a series of apprehension, uneasiness or impending distress this feeling is usually associated with changes in autonomic nervous system and behaviour and it affects 1/8th of the total population worldwide and has become a very important area of research in psychopharmacology.[5, 6] Currently the drugs which are used in the treatment relieve the symptoms and offer palliative relief of a temporary nature[7]. *Cissus* is a genus of approximately 350species of woody vines in the grape

family (Vitaceae). They have cosmopolitan distribution though majority are found in the tropics.

Cissus pallida is a climbing shrub found commonly distributed on bushes hedges and occasionally on hill slopes, leaves are simple, cordate, lobed, pubescent, dentate and acuminate. Flowers are pale yellow coloured in dichotomous cymes. Berries are ovoiod, turn purple when ripe.

Cissus pallida is a erect shrub/lianas with simple leaves which are cordate, serrate, acuminate. Flowers are pale yellow in cyamose pericles, sepals four, petals four with red tippedovate, stamens four, ovary bilocular, ovules 2/oculate, Berries pyriform. It is found commonly distributed in scrub jungles[9].

Acute toxicity studies

The acute toxicity studies were performed to study the acute toxic effects according to OECD guideline 423 Acute oral Class method to determine the minimum lethal dose of the drug extracts. Swiss albino mice of either sex weighing between 18-25gm were used for the study. The methanolic extracts of *C.pallida* and *C.vitegenia* were administered orally to different groups of overnight fasted mice at the dose 30, 100, 300, 1000 and 2000mg/kg body weight. After the administration of the extracts, animals were observed continuously for the first 8hrs for any toxic manifestation. Thereafter observations were made at regular intervals for 24hrs. Further the animals were under investigation upto a period of one week[10].

Animals used

Adult mice weighing between 20-35gms were used for the evaluation of analgesic and CNS depressant activity. The animals were divided into 12groups each containing 6 animals each. The experiments were performed in the morning according to the guidelines for the care of laboratory animals[11].

Extraction and preparation of sample

The aerial parts *C.vitegenia* and stem, roots of *C.pallida* were air dried until free from moisture. Then they were subjected to size reduction to get coarse powder of desired particle size. The powdered drug was subjected to extraction with methanol in a Soxhlet extractor, temperature was maintained on an electric heating mantel with thermostat control. The extracts were then concentrated to 3/4th of their original mass using rotavap apparatus. The concentrated extract were then transferred to a china dish and evaporated on a thermostat controlled water bath till it formed a thick paste. The thick mass was vacuum dried in a dessicator till it is free form moisture. The alcohol extracts were administered orally as suspension by triturating with 5% Tween 80.

Locomotor activity

Adult albino mice of either sex were randomly divided into 6 groups of 6 mice each. The first group served as control (received 0.1ml/10g saline), second group served as positive control (received Diazepam 5mg/kg I.P) while the third group received 200mg/kg and fourth group received 400mg/kg body weight of methanolic extracts of *C.pallida* and fifth and sixth group received 200 and 400mg/kg body weight of *C.vitegenia* respectively. The locomotor activity was studied half an hour of administration of the test and standard drugs with digital actophotometer which operated on photoelectric cell connected with a counter.

A count is recorded when the beam of light falling on the photocell of the actophotometer is cut of by animal. The percentage inhibition of locomotor activity shown by the extracts is calculated using the following formula[11]

Percentage inhibition + Vc – Vt/Vt.100

Vc – Control reading

Vt – Test Reading

Eddy's hot plate

The animals were divided into 6 groups of 6 animals each. Group 1 served as control (received 0.1ml/10g saline) Group 2 served as standards and were injected pentazociine (10mg/kg s.c.) Group 3 and 4 received 200mg/kg and 400 mg/kg body weight of *C.pallida* and group 5 and 6 received 200 and 400mg/kg body weight of *C.vitegenia* methanolic extracts orally. The animals were placed on the not plate maintained at 55°C, one hour after their respective treatment the response time was noted as the time at which the animals reacted to the pain stimulus either by paw licking or jump response, whichever appeared first. The cut of time for the reaction was seconds[12].

RESULTS AND DISCUSSION

The extracts have shown the presence of carbohydrates, tannins, proteins, alkaloids flavonoids, sterols and saponins. The maximum non lethal dose was found to be 200mg/kg body weight. Hence 1/10th and 1/8th of dose was taken as effective dose. Eddy's hot plate method the extracts showed

Table: 1 Analgesic Activity.

S.No.	Group	0 hour	1hour	2hour	3hour	4hour
1	Control	2+0.25	2.33+0.21	2.5+0.22	3+0.25	3.33+0.21
2	Pentazocine (10mg/kg)	3.16+0.3	5.33+0.42	8+0.44	9.83+0.166	9+0.258
3	C.*pallida* 200 mg	2.66+0.21	2.83+0.3	3.83+0.4	6+0.36	7.33+0.33
4	C.*pallida* 400mg	2.83+0.3	3+0.25	4.83+0.166	7.66+0.42	8+0.33
5	C.*vitegenia* 200mg	2.16+0.3	3+0.25	3.66+0.49	5.5+0.42	7.83+0.3
6	C.*vitegenia* 400mg	3.16+0.3	3.33+0.21	3.5+0.42	5.66+0.33	8.16+0.3

Table: 2 CNS depressant activity.

S.No	Treatment	Dose	Locomotor activity scores in 10 mins Before	After treatment	Percentage change in activity
1	Control	0.1ml	326.166+2.810	327.166+1.662	----------
2	Diazepam	2mg/kg	347.166+5.199	78.666+4.104	77
3	C.*pallida*	200mg	416.667+3.896	276.833+5.850	33.56
4	C.*pallida*	400mg	429.333+4.924	262+4.837	38.98
5	C.*vitegenia*	200mg	359+5.639	220.667+5.071	38.72
6	C.*vitegenia*	400mg	328.667+3.712	182.5+5.117	44.47

significant analgesic activity at 400mg/kg body weight dose when compared to standard drug, where as the rest of the extracts at 200mg/kg body weight have shown moderate analgesic activity.

In the CNS depressant activity assessed by actophotometer using diazepam as standard drug the extracts have shown moderate CNS depressant activity at 400mg/kg body weight dose. Extracts have exhibited mild CNS depressant activity at 200mg/kg body weight.

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