
Antiulcer and Anticatatonic Activity of Alcoholic extract of *Evolvulus Alsinoides* (Convolvulaceae)

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The *In vivo* evaluation of the alcoholic extract of *Evolvulus alsinoides* revealed its marked antiulcer and anticatatonic activity.

EVOLVULUS *alsinoides* (convolvulaceae) is a perennial herb with a small woody branched root stock and occurs in tropical and subtropical countries. The plant is bitter, pungent, alexiteric and anthelmintic. It is used in bronchitis, biliousness, epilepsy, leucoderma, teething of infants, and loss of appetite. The plant is used as a febrifuge and as an alternative to oil to promote the growth of hair.¹ Eventhough there are several uses of this plant, reports²⁻⁴ on its medicinal properties are very few. In view of its usefulness in a large number of ailments in traditional medicine, we investigated the antiulcer and anticatatonic properties of the alcohol extract of *Evolvulus alsinoides*.

EXPERIMENTAL

The fresh whole plant of *E. alsinoides* Linn. was collected, shade dried, powdered (350 g) and was extracted with alcohol (95%) in a soxhlet extractor for 48 h. The alcohol extract on concentration under reduced pressure yielded a brownish green gummy solid (2.0 g). This crude extract was screened for its antiulcer and anticatatonic activities.

ANTIULCER ACTIVITY

Ulcer protective effect of the alcoholic extract of *E. alsinoides* was studied according to the modified

method of Shay *et al.* (1945).⁵ Healthy albino rats of either sex weighing between 150-200 g were fasted for 48 h before the experiment. The rats were divided into three groups of which each group contained five animals, and the drug administered for five days. Group I received 1 ml (1%) tween 80 orally, which served as the vehicle control. Group II received standard cimetidine at 200 mg/kg orally, and Group III was treated with the alcohol extract at a dose level of 200 mg/kg orally. All the rats received the ulcer inducing agent aspirin at 200 mg/kg orally, 30 min. after the drug administration. On the fifth day, after administration of the drug, the pylorus was ligated under ether anaesthesia, and after 4 h of the pylorus ligation, the animals were sacrificed and the contents of the stomach were collected carefully. The contents were then centrifuged at 1000 rpm for 10 min. In order to determine the acidity, the supernatant was titrated with NaOH (1N) using Topfer's reagent and phenolphthalein as an indicator for free and total acid. The stomach was opened, washed with luke warm saline and the ulcer lesions were noted through microscopic examination using a hand lens. The ulcers were scored as follows, zero for normal coloured stomach, 0.5 for red colouration, 1 for spot ulcers, 1.5 for haemorrhagic streaks, 2 for ulcers > 3 but < 5 and finally a score of 3 for ulcer > 5. Mean ulcer score for each animal is expressed as ulcer index. The results are presented in Table-1.

* For Correspondence

Table - 1: Antisecretory and ulcer protective effect of the alcohol (95%) extract of *Evolvulus alsinoides*

| Gr. No. | Average weight (g) | Treatment | Dosage (mg/kg) | gastric content (ml)* | pH | Acidity Free mEq* | (In NaoH) Total mEq* | Mean Ulcer score* |
|---------|--------------------|--|----------------|-----------------------|--------------|-------------------|----------------------|-------------------|
| I | 183 | Tween 80 (Control) | 1 ml (1%) | 1.9 (±0.2) | 3.21 (±0.01) | 40 (±2.1) | 72 (±2.7) | 1.375 (±0.2) |
| II | 190 | Cimetidine | 200 | 1.73 (±0.3) | 4.94 (±0.01) | 7.5 (±3.0) | 52 (±0.8) | 0.625 (±0.3) |
| III | 185 | Alcohol extract of <i>E. alsinoides</i> (sample) | 200 | 1.62 (±0.3) | 4.85 (±0.01) | 14.2 (±0.8) | 55 (±0.4) | 0.75 (±0.4) |

5 animals in each group

P > 0.05 when compared to control (student's 't' test)

* mean of 5 values

Table - 2: Anticatatonic activity of the alcohol (95%) extract of *Evolvulus alsinoides*

| Group | Average weight of animals (g) | Dose mg/kg | Mean values of catatonia at different time interval (min) | | | | | | |
|---|-------------------------------|------------|---|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | 5 | 15 | 30 | 45 | 50 | 90 | 120 |
| CPM** (Control) | 212 | 5 (i.p) | 0.5 (±0.35) | 1.38 (±0.77) | 2.5 (±0.57) | 3.0 (±0.5) | 3.0 (±0.50) | 2.5 (±0.57) | 3.5 (±0.0) |
| (Standard) Scopolamine + CPM** | 255 | 2 (i.p) | 0.12* (±0.12) | 1.13* (±0.37) | 0.88* (±0.37) | 0.38* (±0.23) | 0.25* (±0.14) | 0.63* (±0.31) | 0.25* (±0.14) |
| Alcohol (95%) extract of <i>E. alsinoides</i> + CPM** | 230 | 40 (i.p) | 0.0* (±0.0) | 0.12* (±0.13) | 0.0* (±0.0) | 0.63* (±0.38) | 0.75* (±0.75) | 0.5* (±0.5) | 0.88* (±0.75) |

* P < 0.05 when compared with control

** Chlorpromazine

ANTICATATONIC ACTIVITY

Anticatatonic activity of alcohol extract of *E. alsinoides* was determined according to the method reported by Kulkarni.⁶ Healthy albino rats of either

sex weighing between 150-200 g were divided into three groups of which each group contained five animals. The severity of catatonic response was observed in four stages. In the first stage the rat was placed normally on the table, and was scored zero,

when the rat moved normally. In the second stage the score was noted as 0.5, when the rat moved on touching or pushing. In the third stage the rat was placed on the table with front paws set alternatively on a 3 cm high block and the score was noted as 0.5 for each paw with a total of 1, when the rat fails to correct the posture in 10 sec. Lastly in the fourth stage, the front paws of the rat were placed alternatively on a 9 cm block and the score was noted as 1 for each paw with a total score of 2 for this stage when the rat fails to remove the paws. Thus for a single rat, the maximum possible score would be 3.5 revealing total catatonia. Chlorpromazine was injected to control animals and severity of catatonia at 5, 15, 30, 45, 60, 90 and 120 min was observed. Similarly second group of animals received scopolamine and the third group, received the alcohol extract, and after 30 min again they were treated with chlorpromazine. The severity of catatonia was noted. The injected doses are scopolamine 2 mg/kg. I.P., chlorpromazine 5 mg/kg. I.P. and the alcohol extract 40 mg/kg. I.P. The data is presented in Table 2.

RESULTS AND DISCUSSION

There is a significant decrease in free acidity ($P \leq 0.05$) and volume of gastric content ($P \leq 0.05$) of the extracts treated rats when compared with control. It also caused a highly significant increase in the pH ($P \leq 0.05$) of the gastric content. It is evident

from the results that the extract produced reduction in the intensity of gastric ulceration as observed from reduced ulcer index ($P \leq 0.05$) in the alcohol extract treated groups. Alcohol extract showed good antiscatonic activity at 5 to 90 minutes ($P \leq 0.05$) and its activity was decreased after 90 minutes.

Alcohol extract exhibited both antiulcer and antiscatonic activity and appears to have the potential used to control ulcer formation which is a major disease that affects human gastrointestinal tract. This extract may perhaps be useful to treat Parkinson's symptoms such as akinesia, rigidity and tremors.

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