CNS DEPRESSANT ACTIVITY OF ETHANOLIC EXTRACT OF *PHYSALIS.MINIMA* LINN. FRUIT

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Summary

The aim of the present work is to evaluate the CNS depressant activity of an ethanolic extract of *Physalis minima* Linn. (EEPM) 50 and 100mg/kg, by photoactometer. Extracts and standard drug (diazepam 2mg/kg) was administered 30 min before the tests. The results showed that EEPM significantly decreased locomotor activity in animals pretreated with EEPM.

Key words: *Physalis minima* Linn, CNS depressant, Photoactometer, Diazepam.

Introduction

Physalis minima Linn. (Solanaceae) is well known to the Indian medicinal system as a remedy for spleen disorder and as a tonic, diuretic and purgative (1). The fruit is said to be appetizer, bitter, diuretic, laxative and tonic. Extracts from the plant has shown anti-cancer activity (2). *Physalis minima was* shown to contain l-3, dihydrophysalin B, 5/3,6 epoxyphysalin B (physalin F), and 6,7- dihydro-6-hydroxydehydrophysalin B (3,4). It contains about 6% sugar, 2.7% protein, 1.2% ash, 0.6% tannin and 0.5% pectin. A good quantity of vitamin C is also present.

Materials and methods

Plant collection and extraction

Fresh fruits of the plant *Physalis minima* was collected from an area in Lucknow .The fruits (500g) were washed and cut into pieces and mixed with ethanol (1000 ml) and allowed to stand for 24 h, with occasional shaking. The macerate was decanted and filtered, through cloth, then through Whatsman filter paper no.1 and evaporated to dryness under reduced pressure on a rotary evaporator. Before use, the extract was dissolved in dimethylsulphoxide for oral administration

Animals

Male albino mice (Swiss strain) weighing 20-30 g were housed under standard laboratory conditions, in groups of six each. The animals had free access to food and water. The ethical committee of the institute approved the protocol of the study.

CNS Depressant Activity (5)

Locomotor Activity Testing

Mice were divided into four groups (n=6). First group received vehicle only, second group received diazepam (2 mg/kg, i.p.). Third and fourth groups received EEPM 50 mg/kg and 100mg/kg, orally. Mice were placed individually in Photoactometer. Basal reaction time was noted before and 30 min after the treatment. The count is recorded when the beam of light falling on the photocell of Photoactometer is cut off by mice.

Statistical Analysis

The data is presented as mean ± SEM. The data was analyzed by one-way ANOVA followed by Dunnet's test. $P < 0.01$ was considered significant.

Result and Discussion

EEPM in doses of 50 and 100 mg/kg produced significant ($P < 0.01$) reduction in locomotor activity as compared to the control animals. The diazepam-treated group also revealed a decrease in locomotor activity [Table 1].

Locomotor activity is considered as an index of alertness, and a decrease indicates a sedative effect (6). The extract induced a motor depressant effect, indicating a skeletal muscle relaxant and sedative effect of the plant (7). The anxiolytic, anticonvulsant, muscle relaxant, and sedative-hypnotic actions of the benzodiazipines make them the most important $GABA_A$ -modulating drugs. The mechanism of CNS depressand action of EEPM might involve an action on GABAergic transmission.However, further studies are needed to ascertain this. Earlier reports on the chemical constituents of plants and their pharmacology suggest that plants containing flavonoids, saponins, and tannins possess activity against many CNS disorders(8). Phytochemical tests of EEPM revealed the presence of flavonoids and tannins. It is possible that the mechanism of CNS depressant action of EEPM could involve the binding of any of these phytochemicals to the $GABA_A$ - benzodiazipines complex.

Table: 1 Effect of extracts of *P.minima* fruits on locomotor activity in mice

Treatment (Dose:mg/kg, i.p.)	Number of movements (for 5 min)		Reduction in Activity (%)
	Before Treatment	After 30 min Treatment	
Vehicle	707.8±40.2	652.3±46.5	8.0±2.6
Diazepam(2)	696.3±47.4	343.0±27.4	50.0±4.6*
EEPM (50)	572.5±70.9	264.2±48.9	55.1±45.5*
EEPM (100)	757.3±73.8	433.7±30.0	41.0±2.4*

Values are expressed as mean ± SEM; n=6, * $p<0.01$significant compared to vehicle.

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