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EVALUATION OF ANALGESIC ACTIVITY STUDIES OF VARIOUS EXTRACTS OF LEAVES OF *EUPATORIUM ODORATUM* LINN

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ABSTRACT

Eupatorium odoratum Linn is found all over tropical Asia, western Africa and in parts of Australia. It is also found in Koraput district and extensively used traditionally by the tribal people as anti-inflammatory, analgesic, antiprotozoal agent's e.t.c. Extraction of the leaves of the plant *Eupatorium Odoratum* using different solvents like petroleum ether, chloroform, ethanol and their analgesic activity studies has been envisage in this present research work. All the different extracts such as petroleum ether extract, chloroform extract and ethanolic extract has been subjected to analgesic activity studies. It has been found that only ethanolic extract ($P < 0.01$) shows maximum analgesic activity at a dose of 300 mg/kg whereas petroleum ether extract and chloroform extract shows moderate activity at the same dose when compared with the standard drug aspirin.

KEYWORDS: *Eupatorium odoratum*, Extraction, analgesic, Aspirin, NSAID.

INTRODUCTION

Eupatorium Odoratum is a shrub of the sunflower family native to North America, from Florida and Texas to Mexico and the West Indies ^[1] (Family: Asteraceae). It is now found all over tropical Asia, Western Africa and in parts of Australia. It is sometimes grown as a medicinal and ornamental plant. It is used as a

traditional medicine in Indonesia. It is now considered more closely related to other genera in the tribe Eupatorieae^[2]. Boneset although poisonous to humans and grazing livestock, has been used in folk medicine^[3]. The literature survey reveals that various parts of *Eupatorium odoratum* possesses many activities like immunomodulator^[4], antispasmodic, hepatoprotective^[5], antiprotozoal, antidiabetic, antihypertensive, anti-inflammatory, antipyretic etc. The aqueous extract of the leaves of *Eupatorium Odoratum* has been found to show numerous pharmacological activity such as anti-inflammatory^[6], analgesic, antibacterial^[7], antifungal^[8], antiadrogenic^[9] etc. In this research work the leaves of *Eupatorium Odoratum* was extracted using different solvents like petroleum ether, chloroform and ethanol. All this extracts are then subjected to analgesic activity studies. It has been found that the ethanolic extract also shows significant analgesic activity.

MATERIALS AND METHODS

Plant material: *Eupatorium odoratum* leaves were collected from local area of koraput (Orissa) India. The taxonomical identification of the plant was done by Biju Patnaik Plant Garden and Research center, M, S. Swaminathan research foundation, Jeypore (K), Orissa.

Extraction of the leaves of *Eupatorium odoratum*: The dried leaves were powdered. 150g of powder was subjected to extraction using Soxhlet apparatus with various solvents like petroleum ether, chloroform and ethanol. The solvent was then removed under reduced pressure which will give a greenish-black coloured sticky residue. The prepared extracts were then subjected to analgesic activity studies.

Animals: Experiments were performed on albino mice of either sex weighing around 20-25 g, divided into five groups each containing six animals. Test extract was prepared as a fine homogenized suspension in tween-80 (2% w/v). Aspirin (10 mg/kg) was used as standard drug. All the animals were approved by the ethics committee of the institute.

Acetic acid induced writhing method: Acetic acid solution at a dose of 10 ml/kg (0.6%) was injected by i.p. route and the number of writhes during the following 15 min. period was observed. The test groups received different extracts of the leaves of *Eupatorium odoratum* at different dose levels prepared as suspension in 2% tween-80 orally. The standard group received Aspirin (10 mg/kg i.p.) and the control group received 1 ml of 2% tween-80 solution. Significant reductions in the number of writhes by drug treatment as compared to vehicle treated animals were considered as a positive analgesic response. The percent inhibition of writhing was calculated^[10].

RESULTS

All the three extracts exhibits significant analgesic activity using Acetic acid induced writhing method in mice. The ethanolic extract at a dose of 300mg/kg showed maximum analgesic activity with respect to the activity showed by the standard drug aspirin. The petroleum ether extract and chloroform extract showed moderate analgesic activity at a dose of 300mg/kg each as compared to the ethanolic extract.

Table no. 1: Effect of different extracts of *eupatorium odoratum linn.* on acetic acid induced writhing in mice.

Sl. No.	Groups	Dose	No. of writhings (Mean±SEM)	Percent Inhibition
1	Control (Vehicle)	10ml/kg	38.3±2.09	-
2	Standard (Aspirin)	10mg/kg	12.0±2.1	68.66
3	Pet. Ether extract	300mg/kg	29.3±2.23	23.49
4	Chloroform extract	300mg/kg	16.0±1.84*	58.22*
5	Ethanol extract	300mg/kg	14.2±2.5**	62.92**

All values are expressed in(**Mean±SEM**) for n=6.

P* <0.01 at 1% level of significance using ANOVA followed by Dunnet's t-Test.

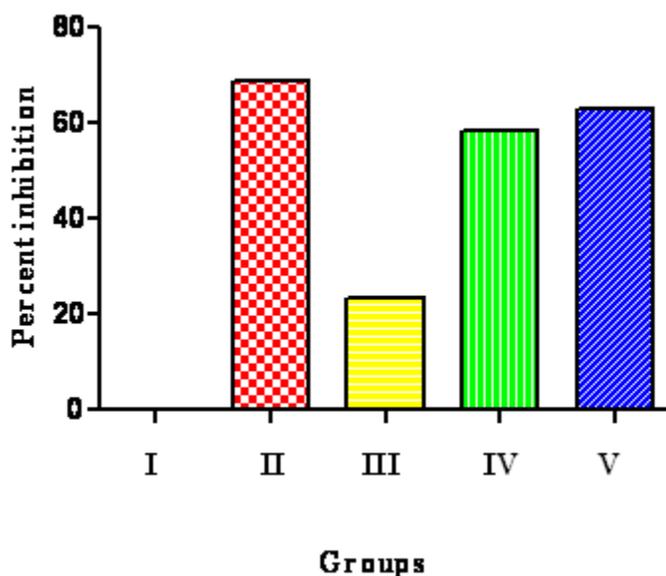


Figure no. 1: Effect of different extracts of *Eupatorium Odoratum linn.* On Acetic acid induced writhing in mice.

Group I – Control group, group II – Standard group, group III – Petroleum ether extract, group IV – Chloroform extract, group V – Ethanolic extract.

DISCUSSION

The analgesic activity of leaves of *Eupatorium odoratum Linn.* was studied in this present research work.

The leaves were powdered and extracted with different solvents. The analgesic activity for acute pain was found maximum for ethanolic extract at a dose of 300mg/kg. However, the petroleum ether extract and chloroform extract showed moderate activity at the same dose i.e. 300mg/kg when compared with standard drug aspirin.

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