



Evaluation of Analgesic Activity of *Ipomoea staphylina* in Acetic Acid Induced Writhing Reflux in Mice

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ABSTRACT

The present study was designed to investigate the analgesic activity of the Methanolic extract of *Ipomoea staphylina*. Therefore the search for a better tolerated analgesic appears to be a necessity. *Ipomoea staphylina* is used as a folk medicine for the treatment of analgesic in India. Present study revealed that the plant *Ipomoea staphylina* possesses a significant analgesic activity as evidenced in acetic acid induced writhing reflux in mice method, which supports the folkloric claim of the analgesic activity of the plant. Our finding supports the reported therapeutic use of herb *Ipomoea staphylina* in tribal medicine for the treatment of analgesic. The most active extracts can be subjected to isolation and used for the therapeutic as analgesic and also to undertaken further pharmacological studies.

Keywords: Analgesic, Convolvulaceae, Herbal drugs, *Ipomoea staphylina*.

INTRODUCTION

Traditional medical practices are an important part of the primary health care system in the developing world herbal medicines are comparatively safer than synthetic drugs. Plant-based traditional knowledge has become a recognized tool in search for new sources of drugs and nutraceuticals.¹

According to World Health Organization (WHO) more than 80% of the world's population relies on traditional medicine for their primary healthcare needs. Use of herbal medicines in Asia represents a long history of human interactions with the environment. Plants used for traditional medicine contain a wide range of substances that can be used to treat chronic as well as infectious diseases. A vast knowledge of how to use the plants against different illnesses may be expected to have accumulated in areas where the use of plants is still of great importance.²

Ipomoea staphylina Linn family Convolvulaceae commonly called as onnankodi, Thendra teega *Ipomoea staphylina* is Perennial, large straggling or climbing, woody, glabrous, shrubs Common, Gregarious in heavy masses on thickets, trees etc, Plains to 1200 m. Sri Lanka through India to China.³ Flowers Pink, numerous, in lax panicles, with a darker throat in crowded showy clusters. Flowering peaks from December-March. Leaves are ovate, 6-15 x 4-10 cm, base sub-cordate, margin entire, apex acute, glabrescent, and petiole up to 7 cm long. Fruit a capsule ovoid, glabrous, seeds 4, clothed with long white silky hairs, Seeds oblong, fruiting from January onwards.⁴

The plant *ipomoea staphylina* Linn has been used in different systems of traditional medication for the treatment of diseases and ailments of human beings. It has been reported as the analgesic,⁵ anti-inflammatory,⁶

anti-diarrheal,⁷ gastro protective effect.⁸ For this all reasons we take a plant to bring out and official manner by the thorough investigation on this plant such as phytochemical, pharmacological and analytical studies on the leaves of *ipomoea staphylina* Linn.

MATERIALS AND METHODS

Plant materials

The plant *ipomoea staphylina* is widely found throughout India. They found along the sides of the lake. For our project work the plant *ipomoea staphylina* was collected from Abdullapuram which is about 12km away from Vellore. The plant was identified by Dr. P. Jayaraman Ph.D., a director of plant anatomy research center, Tambaram, Chennai; who authenticated the plant with available literature. The fresh plant material leaves were collected and shade dried. The dried leaves material was powdered by using mixer grinder and sieved by using sieve no: 60 then the final uniform powder was used for the extraction of active constituent of the leaves.

Preparations of plant extract

The dried and ground plant powder (250gm) was extracting successively with methanol and water by using soxhlet apparatus for 24 hrs. All the extracts were evaporated on a water bath and finally dried in vacuum. The extractive value of the residue (percentage yield) was calculated. The yield of methanol and aqueous extracts were 15.5 %w/w and 17.8 %w/w. Extracts were dried in a desiccator and preserved in refrigerated condition. Both petroleum ether and methanol extracts were suspended in 0.3 % CMC just before administration to rats.

In-Vivo Analgesic Activity³⁶⁻³⁹

Analgesic activity of two extracts was evaluated by acetic acid induced writhing reflux in mice. Painful reaction in animals may be produced by the chemicals such as



phenylquinone, bradykinin etc. Like that, acetic acid pain reaction which is characterized as a writhing response. Construction of abdomen, turning of trunk (twist) and extension of hind legs are taken as reaction to chemically induced pain. Analgesics (both narcotic and non-narcotic) inhibit writhing response.

Requirements

Animal: Swiss albino mice (20-25g) either sex.

Drugs and chemicals: Diclofenac sodium (standard), Acetic acid (1%v/v).

Test compounds: Methanolic and aqueous extracts of *Ipomoea staphylina*.

Method

Treatment Protocol

Group-1: Treated as normal control received 10ml/kg of normal saline through orally.

Group-2: Treated as Standard control received 10mg/kg of Diclofenac sodium through Intraperitoneally.

Group-3: Treated as treatment control received 200mg/kg Methanolic Extract of *Ipomoea Staphylina* administered through orally.

Group-4: Treated as treatment control received 200mg/kg Aqueous Extract of *Ipomoea Staphylina* administered through orally.

Both the extracts were administered half an hour prior to the acetic acid administration. Note the onset on writhing. Record the numbers of abdominal contractions, trunk twist and extension of hind limbs as well as the number of animals showing such response during a period of 10 minutes was noted and the percentage of reduction in reaction time was calculated using the following ratio:

% reduction = (control mean - treated mean/control mean) x100

Table 2: Analgesic Activity of Meis and Aeis by Acetic Acid Induced Writhing Reflex in Mice

Treatment	Dose (mg/kg)	No. of writhing	% reduction in reaction time
Group I Normal control	Inject 1%v/v acetic acid 1ml/100g of body weight	48.0 ± 4.6	0.00%
Group II Std control	10mg/kg I.P.Diclofenac sodium	7.58 ± 0.98	84.20%*
Group III Treatment control	200mg/kg MEIS through orally	18.6 ± 2.10	61.25%*
Group IV Treatment control	200mg/kg AEIS through orally	17.5 ± 2.30	63.54%*

Values are expressed as mean ± SEM; Values were find out by using one-way ANOVA followed by Newman's keuls multiple range tests; *Values were considered significant at P< 0.01.

CONCLUSION

In present study *Ipomoea Staphylina* was taken to evaluate *in vivo* analgesic activity. Present study revealed that the plant *Ipomoea Staphylina* possesses a significant

RESULTS AND DISCUSSION

The methanol soluble and water-soluble extractive values were found to be 15.5 % and 17.8% w/w respectively. The results of extractive value were given in Table 1.

Table 1: Extractive Values of Leaves of *Ipomoea Staphylina Linn*

Plant name	Part used	Methanol soluble extractive	Water soluble extractive
<i>Ipomoea staphylina linn.</i>	Leaves	16.3%w/w	18.5%w/w

Analgesic Activity

The table 2 values show that analgesic activity of both extracts such as MEIS and AEIS by acetic acid induced writhing reflex. The Methanolic and aqueous extract of *ipomoea staphylina* show significant analgesic activity after acetic acid induced writhing model at 200 mg/kg I.S when orally administrated in mice compared to standard drug Diclofenac Sodium 10 mg/kg dose level.

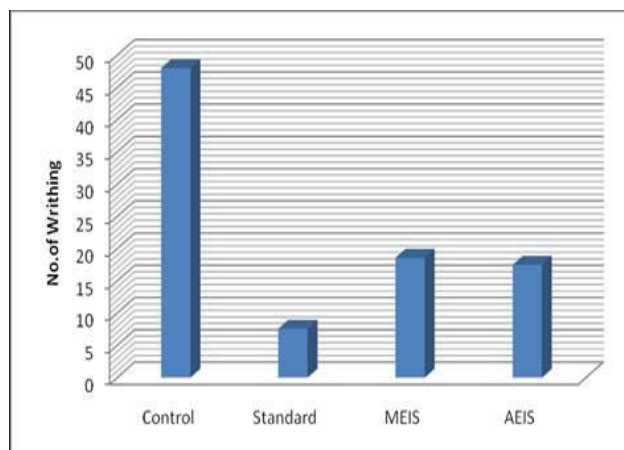


Figure 1: Shows Effect of Methanolic and Aqueous leaf extract of *Ipomoea Staphylina* on Acetic acid Induced Writhing Reflex in Mice

analgesic activity in acetic acid induced writhing reflex in mice, which supports the folkloric claim of the plant. Further studies are needed to isolate the active constituents, elucidate structure and mechanism of action of these extracts.

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