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RESEARCH ARTICLE

Analgesic activity of the leaves of *Tacoma gaudichaudi*

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ABSTRACT

According to the International Association for the Study of Pain (IASP), pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage". Where Medicinal herbs have been used for centuries for therapeutic purposes. Many of these herbs with analgesic activity had been used without any adverse effects[4]. Tecoma Gaudichaudi from the family is one of the medicinal plant and some of the methods are followed to prove its analgesic activity.

Keywords: *Analgesic, gaudichaudi, medicinal plant*

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CONTENTS

1. Introduction

The World Health Organization (WHO) defined health as "a complete state of physical, mental, and social well-being and not merely the absence of disease or infirmity[1]. The tribal and rural population of India largely depends on medicinal plants for their health care as well as for their livestock. This attracted the attention of several botanists that lead to an array of reports on ethnomedicine. The evaluation of these drugs is primarily based on phytochemical, pharmacological and allied approaches including various instrumental techniques such as chromatography, microscopy and others[2] .

Drugs which are used presently for the management of pain and inflammatory conditions are either steroidal like corticosteroids or non-steroidal like aspirin. All of these drugs possess more or less side and toxic effects like renal failure, allergic reactions, hearing loss or they may increase the risk of haemorrhage by affecting platelet function [3] . According to the International Association for the Study of Pain (IASP), pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage". Common drugs for pain relief such as aspirin and morphine have been widely used in recent

decades. In most instances, these analgesic drugs, particularly opioids and nonsteroidal anti-inflammatory drugs (NSAIDs), can only relieve 50% of the pain in about 30% of patients . In addition, many of these drugs cause serious side effects. Studies have shown that opiates cause physical dependency, tolerance, and addiction while NSAIDs usually cause gastrointestinal disorders[4]. As such, research to discover other alternatives to treat pain is crucial. Medicinal herbs have been used for centuries for therapeutic purposes. Many of these herbs with analgesic activity had been used without any adverse effects[4].

Fig: 1

Tecoma Gaudichaudi from the family Bignoniaceae is commonly known as Gaudichaudi, Yellow Bell, and Trumpet Bush. The small tree is indigenous to India, Bangladesh, and West indies.[5] The present study aimed to evaluate the analgesic activity of Aqueous extract of Tecoma Gaudichaudi in animal models.[5]

2. Materials and Methods

Source of plant: leaves of tecoma gaudichaudi collected from the medicinal garden of A.M. Reddy memorial college of pharmacy.

Preparation of extract

The leaves of Tecoma Gaudichaudi were collected and shade dried at room temperature and grinded coarsely before extraction. The leaves were extracted by hot maceration by using distilled water .The resulting extract was collected into air tight container. Thus, the prepared extract was used for further pharmacological evaluation.

Phytochemical analysis of different Crude extracts[30]

Extracts were tested for the presence of active principles such as Triterpenoids, Steroids, Glycosides, Saponins, Alkaloids, Flavonoids, Tannins, Proteins, Free Amino Acids, Carbohydrates and Vitamin C. Following standard procedures were used.

Analgesic Activity:

Eddy's hot plate method:[32]

Eddy's Hot plate method the analgesic activity of AATG was assessed using hot plate method of Eddy The temperature was maintained at 55 ± 0.20C. Animals licked their limbs and jumped as an indication of pain. These mice's were treated with suspensions as follows:

Group I ------control group (normal water in 0.5% gum acacia).

Group II----standard Diclofenac Sodium (25mg/kg by the IP route)

Group III---low dose I (250 mg/kg per oral)

Group IV---- high dose (500 mg/kg per oral)

One hour after dosing group specific drugs, mice were placed on the hot plate and the time until both licking and jumping occurs was recorded by a stop watch. The reaction time was determined at 0, 30, 60, 90 and 120min. A cut-off time of 20 sec was considered.

Fig: 2 - EDDYS Hot Plate

3. Results and Discussion

Table No.01: Preliminary Phytochemical tests

S.NO	Phytochemical tests	Inference
1	Test for Alkaloids	+ve
2	Test for Flavanoids	+ve
3	Test for Sapoins	+ve
4	Test for Glycoside	+ve
5	Test for Phenols	+ve
6	Test for Tannins	+ve

Acute Oral Toxicity study

Dose fixation was done by referring previous paper of Tecoma Gaudichaudi article on analagesic activity of aqueous extract of Tecoma Gaudichaudi leaves against analgesic by Eddys hot plate method in mice.

Eddy's Hot plate method:

The result of the effect of aqueous extract of Tecoma Gaudichaudi on the duration of jumping response is shown in table 02 and figure no . The animals treated with 500 mg/ Kg, p.o of AETG and Diclofenac Sodium 25mg/Kg, p.o showed significant effect in jumping time but not 250mg/Kg, p.o of AETG when compared with control.

Table No.02

Group	Treatment	DOSE mg/Kg	Reaction Time In Minutes				
			0	30	60	90	120
I	Control	normal water in 0.5% gum acacia	0	0	0	1	0
II	Standard	Diclofenac Sodium (25mg/kg by the IP route	0	13	17	9	4
III	Low dose(AETG)	250 mg/kg per oral	0	1	1	0	0
IV	High Dose(AETG)	500 mg/kg per oral	0	10	12	6	2

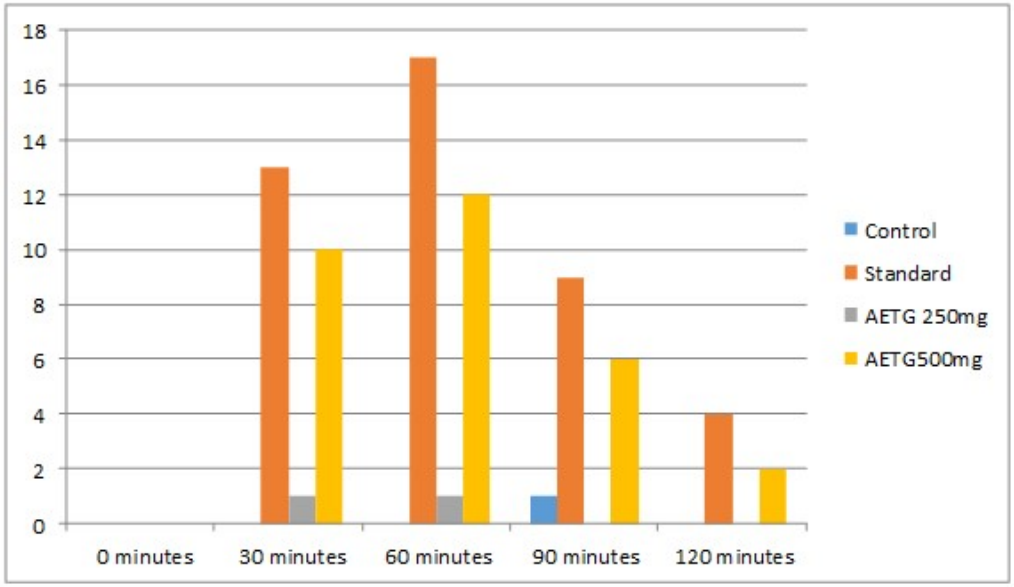

Fig.3 Histogram of Aetg on Jumping Response Time by Using Eddys Hot Plate Method

Discussion

Phytochemical screening:

The phytochemical screening on test of AETG leaves showed the presence of constituents like tannins, alkaloides, glycosides, phenols, flavonoids.

Acute toxicity studies:

Dose fixation was done as per OECD guideline 420 (modified, adopted 23rd march 2006).

Analgesic activity:

Any damage of tissue is linked with pain and inflammation. Analgesics drugs can act on peripheral or central nervous system. Peripherally acting analgesics drugs act by inhibiting the generation of impulses at chemo-receptors site of pain, whereas centrally acting analgesics not only raise the threshold for pain and also alter the physiological response to pain and repress the patient's anxiety and apprehension. Pain and inflammation are an essential prelude to the repair process. In the hot plate method, nociceptive reaction toward thermal stimuli in mice is a well-validated model for recognition of opiate analgesics as well as numerous types of analgesics drugs from spinal origin. Our studies have shown analgesic activity of aqueous extract of Tecoma gaudichaudi in the present study showed superior effect in non-narcotic models, the activity was more important in non narcotic model (Eddys hot plate method) only. The aqueous extract having flavonoids, alkaloids, tannins, phenols and glycosides. Hence, significant analgesic activity in aqueous extract might be recognized to the presence of these bioactive principles. Further detailed study is required for clear understanding of mechanism of action.

4. Conclusion

In conclusion, it can be interpreted that AETG possesses shows potential analgesic activity, which are probably peripherally mediated through inhibition of prostaglandin synthesis as well as central inhibitory mechanism and may be of potential benefit for management of pain. Additional studies on isolation and fractionation of the active components from the leaf of *Tecoma gaudichuadi* and study on its mechanism of action to ascertain their analgesic activity will throw light on mode of action.

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