



Analgesic activity of *Mukia maderaspatana* (Linn) by tail immersion method

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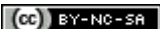
ABSTRACT

Mukia maderaspatna is a well reputed herb that belongs to Cucurbitaceae family. It is literarily recommended in siddha medicine and used in practice for various ailments. The existing research studies suggest *Mukia maderaspatna* has Antiplatelet, Antihyperlipidemic, Antihyperglycemic, Anti-oxidative Anxiolytic, Anti-hypertensive and Antimicrobial activities. The objective of this study is to explore the analgesic activity of the fresh leave sap of *Mukia maderaspatna*. This is evaluated by using tail immersion method in albino rats. The fresh leaf sap of *Mukia maderaspatana* (Linn) is found to have a good analgesic property.

Keywords: *Mukia maderaspatana* (Linn), Analgesics, Tail immersion method, Flick response

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INTRODUCTION

Analgesics are defined as the substances which decreases pain sensation by increasing pain threshold to external stimuli. Noxious pain stimuli can be developed by thermal, chemicals and physical pressure. The objective of this study is to evaluate the analgesic activity of *Mukia maderaspatna* fresh leave sap by tail immersion method in albino rats. *Mukia maderaspatana* (Linn) is an annual monoecious plant which has scandent or prostrate stems, very hispid, leaves are variable in size, densely covered with white hairs. Its flowers are pale to bright-yellow in color. Male and female flowers lie in same axil. Male flower is pedicellate, whereas that of female is sessile.

MATERIALS AND METHODS

Materials: The leaves of *Mukia maderaspatana* (Linn) were collected from local areas of Nilaveli, Sri Lanka. It was authenticated at Botany division of Unit of Siddha medicine. The provision of utensils such as Disposable syringe, heating mantle, stop watch, mice feeding needle and chemicals are given by the Experimental pharmacology division of Trincomalee Campus.

Drugs: Fresh leave sap of *Mukia maderaspatana* was tested at the dose of 100mg/kg in each group of experimental models. Diclofenac sodium was used as the standard drug in tail immersion model at a dose of 10 mg/Kg of body weight of mice.

Experimental protocol: Animals were selected, weighed (25-30 g) and divided in to three groups

(n=3), namely control group, standard drug group and test drug group.

Method: The tail immersion method was used to evaluate the central mechanism of analgesic activity. Here the painful reactions in animals were produced by thermal stimulus that is by dipping the tip of the tail in hot water. Albino mice were divided in to three groups of six animals in each group.

The animals were kept fasting for 16 hours with water adlibitum. Group 1- was treated orally with sterile normal saline (100mg/kg) and served as control group. Group2- was administered Diclofenac (10mg/kg,) and served as standard group. Group3- was treated with the leaf extract of *M.maderaspatna* orally (100mg/kg) and served as test group. After administration of the above drugs, the basal reaction time was measured at a regular intervals of 30 minutes, by immersing the tail tips of the mice (Last 1-2 cm) in hot water heated at temperature of temperature (55 ± 1) °C. The actual flick responses of mice i.e. the time taken in seconds to withdraw it's tail from hot water source was calculated and results were compared with the test group and the control group.

Statistical analysis: Data obtained from pharmacological experiments statistically analyzed using SPSS/16 software and it was expressed as Mean \pm SD. The Difference between the control and the test group in this experiment was tested using ANOVA and the Values of P<0.05 were considered statistically significant.

Table-1: Analgesic activity of *Mukia maderaspatna* leave sap

Treatment Dose (mg/Kg)		Tail flick latency in minutes. (X \pm SEM)				
		30	60	90	120	180
Diclofenac sodium	10	5.71 \pm 0.21	9.61 \pm 0.10	7.57 \pm 0.25	5.25 \pm 0.31	5.01 \pm 0.23
Distilled water	100	2.37 \pm 0.40	3.37 \pm 0.21	2.17 \pm 0.11	2.12 \pm 0.11	2.37 \pm 0.12
Mukia Maderaspatana fresh leaf sap	100	4.00 \pm 0.18	6.25 \pm 0.22	5.5 \pm 0.25	4 \pm 0.18	3.50 \pm 0.23

Table-2: Anova table of the analgesic study

		Sum of squares	D f	Mean square	F	Sig
Temperature	Between group	3.275	2	1.638	6.03	.005
	Within group	10.580	39	271		
	Total	13.85	41			

RESULT AND DISCUSSION

The present study is attempted to elicit the analgesic effect of *M.maderaspatna*. Analgesic effect of thermal stimuli could be elicited through opioid receptors or through modulation of several neurotransmitters. In the above study, the leaf sap has shown statistically significant analgesic property. The analgesic effect of the leaf sap is comparatively less than the standard drug

Diclofenac. But it is twofold more than the analgesic effect of control group which justifies the effectiveness of the leaf sap.

CONCLUSION

It could be concluded that fresh leave sap of *M. maderaspatna* has analgesic property. A further study is suggested to identify the chemical constituents of this herb which is responsible for the analgesic property.

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