



## EVALUATION OF ANTHELMINTIC ACTIVITY OF METHANOLIC EXTRACT OF *EUPHORBIA NIVULIA*

S. Gopi Krishnan\*, S. Sanjeevi Raja, J. Vinith Kumar A. S. Joselin and A. Michael Jessika

Department of Pharmacology S.A.Raja Pharmacy College, Raja Nagar, Vadakkangulam, Tamilnadu, India.

\*Corresponding Author: S. Gopi Krishnan

Department of Pharmacology S. A. Raja Pharmacy College, Raja Nagar, Vadakkangulam, Tamilnadu, India.

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### ABSTRACT

Medicinal plants have been discovered and used in traditional medicinal practice. Medicinal plants produce different chemical compound for its therapeutic potential its widely used now a days as a modern medicine. Various species of *Euphorbia nivulia* have been extensively studied for their pharmacological activity. The present study was to evaluate the methanolic extract of *Euphorbia nivulia* against earthworm at four different concentration (5,10,20,30mg/ml). The anthelmintic activity of methanolic extract are compared with standard drug albendazole (10mg/ml). Animal treated with distilled water was taken as a normal control and standard drug solution was prepared in distilled water. Anthelmintic activity was evaluated by noting time required for paralysis and death of worms by extracts. The data shows that methanolic extract (30mg/ml) possess comparable anthelmintic activity with standard drug. The results shows that the present study indicates that medicinal plant has the potential to be used as anthelminthic property.

**KEYWORDS:** *Euphorbia nivulia*, Earthworm, Albendazole.

### INTRODUCTION

Gastro intestinal parasitic helminthes produces serious problem in human beings and animals. Helminthes causes more morbidity and greater economic and social deprivation among human and animals<sup>1</sup>. It can be cured by anthelmintics, are the agent that expel parasitic worms from the body. In olden days many medicinal plants were used to treat the worm infections. Literature survey reveals the plant *Euphorbia nivulia* belongs to the family Euphorbiaceae posses anthelmintic property on adult earthworm (*Pheritima Posthuma*). The Present study was to evaluate the in vitro anthelmintic activity of methanolic extract of *Euphorbia nivulia*. It has a multifarious medicinal properties such as anti inflammatory, anti oxidant, anti microbial, anti diabetic properties.

### MATERIALS AND METHODS

The plant material was collected from young matured plant from the western hills village belt around Srivilliputtur and authenticated by the botanist. The whole plant was collected in bulk, washed to remove adhering dust, dried under shade and pulverised in a mechanical grinder. The powder was passed through sieve number No: 40 and used for further studies.

### Preparation of the Extract

The freshly collected whole plant were chopped into pieces and shade under dried at room temperature (32-35°C) to constant weight for 5 days. The plant material was extracted with Methanol by cold maceration method. The extract was concentrated and dried under reduced pressure.

### Phytochemical Evaluation<sup>[2]</sup>

#### Test for reducing sugars (Fehlings test)

The methanolic extract of plant extracts was added with boiling fehling's solution A and B in a test tube. The solution was observed for a colour reaction.

#### Test for anthraquinones

The plant extract was boiled with 10 ml of sulphuric acid and filtered and added with 5ml of chloroform. Layer was separated with 1 ml of dil ammonia. The resulting solution was observed for colour changes.

#### Test for Terpenoids

The plant extract was added with 2 ml of chloroform. Concentrated sulphuric acid was carefully added to form a layer. A reddish brown colour was confirmed for the presence of terpenoids.

**Test for flavonoids**

The plant extract was heated with 10 ml of ethyl acetate and the mixture was filtered and 4 ml of the filtrate was shaken with 1 ml of ammonia solution. A yellow colour indicates the presence of flavonoids.

**Test for Saponins**

The plant extract was added 5ml of distilled water in a test tube. The solution was shaken vigorously and observed for a stable froth. It was added 3 drops of olive oil and shaken until the formation of emulsion.

**Test for tannins**

The plant extract was added with water and allow to boiled in test tube and then filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or black coloration.

**Test for alkaloids**

The plant extract was diluted to 10 ml of acid alcohol boiled and filtered. To 5 ml of filtrate was added 2 ml of dilute ammonia. 5 ml of chloroform was added and shaken gently to extract the alkaloid base. The chloroform layer was extracted with 10 ml of acetic acid and divided into two portions. Mayer's reagent was added to one portion and Dragendorff's reagent to other portion. The formation of cream and brown colour indicated the presence of alkaloids.

**Animals**

*Pheretima posthuma* (Adult Indian earthworm) of about 5-7 cm long were used for the present study.

**Standard drug**

Albendazole suspension in the concentration of 10 mg/ml was used as the standard to compare the test result.

**Anthelmintic activity**

*Pheretima posthuma* (Indian adult earth worm) of about 5- 7 cm long were selected randomly for the study.<sup>[4-6]</sup>

The earth worm were acclimatized under the laboratory conditions before the study. The animals were divided into 6 groups of each 3 animals. Albendazole suspension of 10 mg/ml served as a standard drug, four different concentration (5,10,20,30mg/ml), normal saline as control. The animals were placed in their respective petri dish. The time taken for complete paralysis and death were recorded. The mean paralysis and mean death were recorded. The time taken for the worms to become motion less was noted as paralysis time and to ascertain death, each worm was frequently applied with external stimuli, which stimulates or induce movements in the earth worm if alive.



**Fig. 01: Anthelmintic activity of methanolic extract of *Euphorbia nivulia*.**

**Table 01: Anthelmintic activity of methanolic extract of *Euphorbia nivulia*.**

Treatment	Concentration (mg/ml)	Time taken for Paralysis (min) X±S.D	Time taken for Death (min) X±S.D
Control (NS)	---	---	---
Standard (Albendazole)	10mg/ml	31.79 ±1.442	52.54± 0.751
Methanolic extract of <i>Euphorbia nivulia</i>	5mg/ml	43.88 ±1.133	63.97 ±0.792
	10mg/ml	43.37 ±0.826	82.67 ±1.545
	20mg/ml	23.20 ±0.884	71.22 ±1.450
	30mg/ml	23.66 ±0.519	76.78 ±1.166

All values are mean ± SEM analysis by one way ANOVA

**RESULTS**

The yield of the methanolic extract of *Euphorbia Nivulia* showed the phytochemical studies indicates the presence of alkaloids, flavonoids, saponins, glycosides and tannins. The methanolic extracts of *Euphorbia nivulia* were used to evaluate anthelmintic activity and showed

the effect in dose dependent manner. The mean ±SEM values were calculated. As per the data from statistical analysis methanolic extract of 30mg/ml has taken less time to produce paralysis indicates more time to cause death of earthworms when compared with standard drug.

## CONCLUSION

The present study revealed the methanolic extract of *Euphorbia nivulia* shows invitro anthelmintic activity. *Euphorbia nivulia* may be consider as valuable plant in both ayurvedic and modern drug development areas of its versatile medicinal uses. As per the literature review data of *Euphorbia nivulia* plant posses significant therapeutic properties in various disease conditions. Further studies required for the active mechanism for this activity by using in vivo model for its effectiveness and pharmacological properties

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