IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203
HUMAN

Human Journals
**Research Article**
May 2017 Vol.:9, Issue:2


# Evaluation of *In Vitro* Anthelmintic Activity of *Acacia farnesiana* (L)

IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203
HUMAN

**Srikanth.M, Suresh Kasala*, Prasad.M,Arun Raj.M, Ramanjaneyulu.K, Himabindhu.J**

*Department of Pharmacognosy, Vishnu Institute of Pharmaceutical Education and Research, Narsapur, Medak, 502313, Telangana*

**Submission:** 2 May 2017
**Accepted:** 7 May 2017
**Published:** 25 May 2017



**Keywords:** Anthelmintic activity, *Acacia farnesiana*, *Pheretima posthuma*, Albendazole.

**ABSTRACT**

The present study aimed at the evaluation of *in vitro* anthelmintic activity of methanolic leaf extract of *Acacia farnesiana.* The activity was performed at five different concentrations (25mg/ml, 50mg/ml, 75mg/ml, 100mg/ml) respectively. The study conducted against Indian earthworm *Pheretima posthuma*. In this study Albendazole used as a standard drug. The results were noted in terms of time for paralysis and death respectively. The methanolic leaf extract of *Acacia farnesiana* shows significant effect at highest concentration such as 100 mg/ml on Indian earthworm (*Pheretima posthuma).*

## INTRODUCTION

Helminth infections are among most widespread infections in human beings. Majority of the infections are due to helminths. These are generally restricted to tropical regions and cause hazard to health and contribute prevalence of undernourishment, anemia, eosinophilia and pneumonia [1]. The World Health Organization (WHO) reveals that over two people are suffering from parasitic infections due to worms [2]. Intestinal infections with worms can more easily treated than those infections that occur in other locations in the body [3]. Control of helminthiasis has therefore been the center of focus in biomedical research since time immemorial. Anthelmintics from natural source play a key role in the treatment of these parasite infections without side effects, when compared to synthetic drugs [4]. It is estimated that by the year 2025, about 57% of the population in developing countries will be influenced [5]. Helminth infections are now being recognized as cause of many acute as well as chronic ill health among the various human beings as well as cattle's. More than half of the population of the world suffers from infection of one or the other and majority of cattle's suffers from worm infections [6]. Most of the existing anthelmintics produce side effects such as abdominal pain, loss of appetite, nausea, vomiting, headache and diarrhea [7].

*Acacia farnesiana* is a medicinal plant that grows throughout the tropical parts of Indian subcontinent, particularly sandy soils of river beds of Northern India [8].

## PLANT COLLECTION AND AUTHENTICATION

The leaves of the plant *Acacia farnesiana* were collected in the month November in Narsapur, Medak District, Telangana, India. The plant was authenticated by D. Venkateshwara Rao, Deputy Director, Telangana. Forest Academy, Dullapally, Hyderabad, Rangareddy District.

## MATERIAL USED

In the present study Albendazole, Carboxy Methyl Cellulose (CMC), Water, Saline were used during investigation of anthelmintic activity. All the material were used in laboratory grade.

## WORMS COLLECTION

The Indian earthworms *Pheretima posthuma* were collected from water logged areas. The earthworms have anatomical and physiological resemblance with the intestinal roundworm parasites of human beings [9,10,11].

## PREPARATION OF PLANT EXTRACT

The leaves of *Acacia farnesiana* was shade dried and crushed into powder and sieved to get a coarse powder. The powder was subjected to soxhletion using methanol for 72 hours. The solvent was evaporated using rotary evaporator then the extract was used for evaluation of anthelmintic activity.

## PREPARATION OF CONCENTRATIONS

The methanolic extract of *Acacia farnesiana* was made into four different concentrations such as 25mg/ml, 50mg/ml, 75mg/ml and 100mg/ml by dissolving in normal saline. Albendazole was used as reference drug by using 0.5% w/v Carboxy Methyl Cellulose (CMC) as a suspending agent.

## ANTHELMINTIC ASSAY

The anthelmintic activity was carried according to standard method [12]. The activity was evaluated in adult earthworm. Test samples of the plant extract were prepared at the various concentrations such as 25mg/ml, 50mg/ml, 75mg/ml, 100mg/ml by dissolving in normal saline. Adult earthworms were placed in petri dish containing extracts. Albendazole was used as standard drug. Observations were made for the time taken for paralysis was noted when movement of any sort could be observed except when the worms were shaken vigorously. Time for death of worms was recorded after ascertaining that worms neither moved when shaken vigorously.

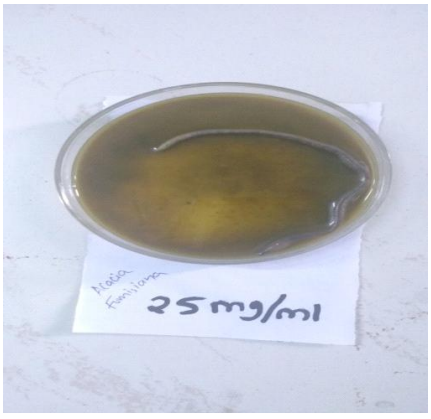
## RESULTS AND DISCUSSION

The methanolic extract of *Acacia farnesiana* produced a potent anthelmintic activity against *Pheretima posthuma* when compared with standard drug such Albendazole. This activity was

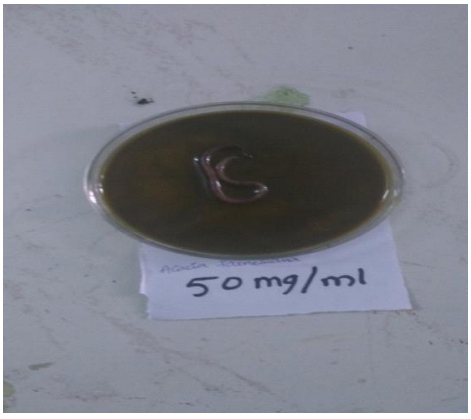
concentration dependent. As the concentration increases the extract produce maximal effect. The highest concentration took less time to paralyze as well as death of the earthworm.

**Table 1: Anthelmintic activity of methanolic extract of *Zaleya decandra* and standard Albendazole.**

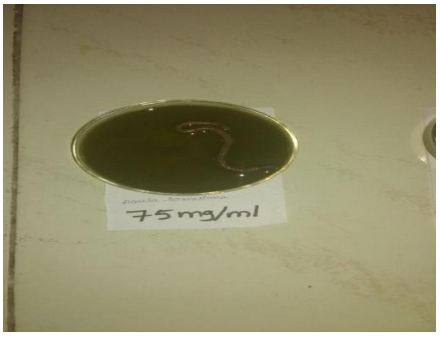
| **Extract** | **Concentrations (mg/ml)** | ***Pheretima posthuma*** | |
|---|---|---|---|
| | | **Paralysis (min)** | **Death (min)** |
| **Methanolic extract** | **25 mg/ml** | 28±1.34 | 40±0.18 |
| | **50 mg/ml** | 24±0.94 | 37±0.62 |
| | **75 mg/ml** | 20±.09 | 34±0.57 |
| | **100 mg/ml** | 18±0.61 | 32±0.99 |
| **Albendazole** | **25 mg/ml** | 30±0.43 | 41±1.38 |
| | **50 mg/ml** | 25±0.60 | 37±0.59 |
| | **75 mg/ml** | 21±0.81 | 35±1.38 |
| | **100 mg/ml** | 20±1.4 | 33±0.92 |

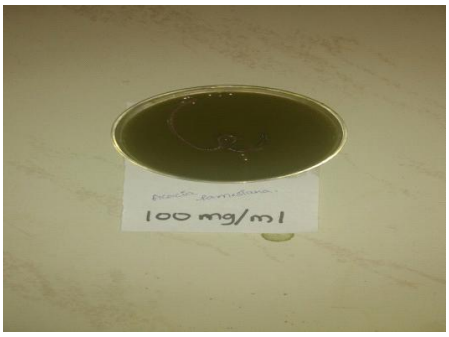



**25 mg/ml**




**50 mg/ml**




**75 mg/ml** **100mg/ml**

## CONCLUSION

From the results, the methanolic extract of *Acacia farnesiana* has paralytic effect on Indian earthworm *Pheretima posthuma.* The product of Acacia farnesiana is used as an anthelmintic agent. Further, the active constituents responsible for anthelmintic activity can be explored.

## ACKNOWLEDGEMENT

The authors sincerely thankful to our chairman Shri. K. V. Vishnu Rajugaru and our college Vishnu Institute of Pharmaceutical Education and Research Principal Dr. Ramesh Alluri and staff members for support towards our project.

## REFERENCES

1. Bundy D A. Immunoepidemiology of intestinal helminthic infection I: The global burden of intestinal nematode disease. Trans Royal Soc Trop Med Hyg 1994;8: 259-261.
2. Jabbar A, Raza MA, Iqbal Z, Khan MN. An inventory of ethnobotanicals used as anti helmintics in southern Punjab (Pakistan) Journal of ethnopharmacology 2006; 108:152-154.
3. Dash GK, Suresh P, Kar DM, *et al.* Evaluation of *Evolvulus alsinoids* Linn. For anthelmintic and antimicrobial activities. J. Nat. Rem.2002; 2:182-185.
4. Kishore Kumar V, P. Satheeshkumar and T.Venkatachalam, Investigation of anthelmintic activity of *Pergularia daemia;* Pharmacophore 2014, Vol.5(1),44-48
5. Clewes CAN, Shaw C. Parasites. British Medical Bulletin 2000; 56(1):193-208.
6. Dwivedi A, Dwivedi S, Sitoke AK, Patel R, Jhade D. Anthelmintic activity of a polyherbal preparation. Ethnobotanical Leaflets 2009; 13:n259-262.
7. Devi K, Indumathy S, Rathinambal V, Uma S, Kavimani S, Balu V. Anthelmintic activity of Astachurna. International Journal of Health Research 2009;2(1):101-103.
8. Binokingsley, Swaminathankayarohanam. Pharmacogn mag, 2004, Apr-Jun; s283-287.
9. T Ghosh, TK Maity, Bose A, Dash GK. Indian J nat Product 2009;16-19.
10. Tripathi KD. Essentials of Medical Pharmacology, 6th edition New Delhi, Jaypee publication; 2008:808.
11. Vigar Z. Atlas of Medical parasitology. 2ndEdn. PG publishing House, Singapore, 1984; 216-217.
12. T. Ghosh, TK Maity, Bose A, Dash GK. Indian Journal of Natural Product 2009; 16-19.