



THE INVITRO INVESTIGATIONAL STUDY OF ANTHELMINTIC ACTIVITY OF PINEAPPLE CORE EXTRACT

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ABSTRACT

This study explores the invitro anthelmintic activity of pineapple core extract. Considering global health, helminth infections are a significant issue. Nowadays increasing resistance to conventional anthelmintics explain the necessity of novel therapeutic agents. This study aims the potential utilizing of agricultural by product in developing sustainable and effective anthelmintic treatments. Pineapple cores, typically discarded as waste contain bioactive compounds including bromelain, which have demonstrated potential pharmacological properties. The objective of this research was to evaluate the efficacy of pineapple core extract against common parasitic worms. Pineapple cores were processed to obtain a crude extract of different concentration (25 mg/ml, 50 mg/ml) which was then subjected to qualitative and phytochemical analysis to identify active constituents present in it. The anthelmintic activity was assessed using adult earthworm as a model organism. Results indicates that the pineapple core extract exhibited significant anthelmintic activity. It requires future study to find out the specific constituents that is responsible for the activity.

KEYWORDS: Pineapple core extract, Helminth infection, Earth worm, Anthelmintic activity.

INTRODUCTION

In the world most people affected by helminth infections. In developing countries, they cause major threat to public health and that will lead to the problems like malnutrition, Anaemia, eosinophilia. Helminthic infection is rarely fatal but is a major cause of morbidity. Several therapeutic agents are used nowadays but the resistance developed by GIT helminths demands phytotherapies.^[1] In ancient times, the use of medicinal plants and phytotherapies are emerged. In the discovery of new drugs there is a considerable contribution given by variety of existing plants and phytochemical studies.^[2] *Ananas comosus* is commonly known as pineapple belonging to the family *Bromeliaceae*.^[3] There are several phytoconstituents available in different parts of pineapple like core, peel, root, leaves etc. due to the richness of constituents, pineapple has different pharmacological actions.^[4]

MATERIALS AND METHODS

Preparation of plant extract

Fresh plant material of *Ananas comosus* was collected from Kalpetta, Wayanad. The authenticated plant were dried under shade and powder it. 20 g core of ananus comosus were extracted using Soxhlet apparatus using ethanol solvent.^[5]

Preliminary phytochemical analysis

Extract was subjected to qualitative chemical test for the detection of various core constituents.^[6,7]

Anthelmintic activity assay

The anthelmintic activity was carried out on adult Indian earthworms, *Pheretima posthuma*. All formulation and standard drug preparations were freshly prepared before starting the experiment. Four groups of approximately equal size earthworms in each group were used for the present study. *Pheretima posthuma* was placed in petri dish containing two different concentrations (25mg/ml, 50mg/ml) of formulation and standard (100mg/ml).

Group 1: Control (normal saline)

Group 2: Standard (albendazole – 100mg/ml)

Group 3: Formulation (low dose – 50mg/ml)

Group 4: Formulation (high dose – 100mg/ml)

Time for paralysis was noted either when any movement could not be observed except when the worms were shaken vigorously or when dipped in warm water. death was included when the worms lost their motility.^[8]

RESULTS

Preliminary phytochemical screening

Preliminary phytochemical analysis of the ethanolic extract of pineapple core showed the presence of different phytoconstituents and is depicted in Table – 1.

Observation table for phytochemical test of formulation

Sl. No.	Compound	Formulation
1	Alkaloid	+
2	Glycosides	+
3	Terpenoids	+
4	Flavonoids	+
5	Saponins	+
6	Carbohydrate	+
7	Tannins	+

Anthelmintic activity

The time taken for paralysis and death of earthworm after treating with control, test, standard is depicted in table 2.

Table 2: Anthelmintic activity of ethanolic extract of pineapple core.

SL. NO.	GROUP	CONCENTRATION (mg/ml)	TIME FOR PARALYSIS (min)	TIME FOR DEATH (min)
1	Vehicle (Normal saline)			
2	Standard drug (Albendazole)	10 mg/ml	31±0.5774	66±0.5774
3	Core extract (low concentration)	25 mg/ml	48±0.5774	81±0.5774
4	Core extract (high concentration)	50 mg/ml	41 ±0.5774	72.33±0.574

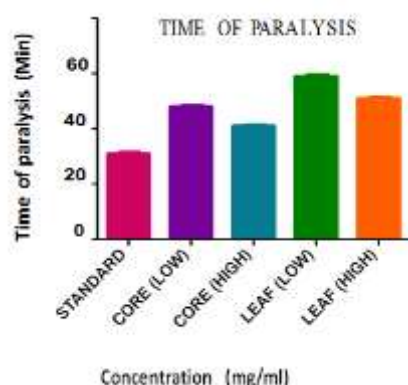


Figure 1: Graph showing time of paralysis.

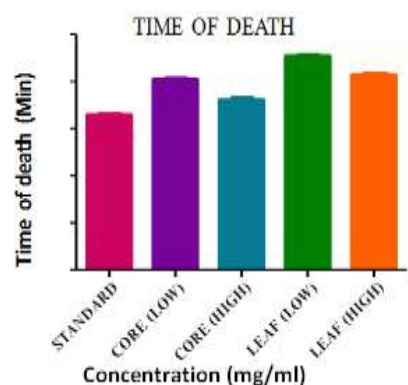


Figure 2: Graph showing time of death.

DISCUSSION

The aim of the present study was to carry out the preliminary phytochemical screening of ethanolic extract of pineapple core and to evaluate the anthelmintic activity of the same. In phytochemical analysis tannins, flavonoids, carbohydrates, alkaloids, saponins. Tannins are found to bind to glycoprotein on the cuticle of the parasite and cause death and this might be the reason for anthelmintic activity of the ethanolic extract of pineapple core. The anthelmintic activity showed that ethanolic extract pineapple core extract have potent anthelmintic activity.

CONCLUSION

Finally, it can be concluded that all concentration of pineapple core extract shows significant anthelmintic activity. Further study needed for isolation and characterization of the particular chemical moiety for the activity.

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REFERENCE

1. Andreia F Oliveira, Livio M Costa Junior, Aldilene S Lima, Carolina R Silva, Maria N S Ribeiro, Jose W C Mesquista, Claudia Q Rocha, Maecelo M P

- Tangerina, Wager Vilegas. Anthelmintic activity of plant extracts from Brazilian Savanna. *Veterinary parasitology*, 2017; 236: 121-127.
2. M H Babu, J K Rao, T V V S R Reddi. Ethnoveterinary medicine of eastern ghats adjacent deccan region in Pullaiah. Oakville apple academic press inc., 2017.
 3. Mohd Ali, M., Hashim, N., Abd Aziz, S. and Lasekan, O. Pineapple (*Ananas comosus*): A comprehensive review of nutritional values, volatile compounds, health benefits, and potential food products. *Food Research International*, 2020; 137: 109675.
doi:<https://doi.org/10.1016/j.foodres.2020.109675>.
 4. Sipra Banerjee, Sayan Pal, Sanjukta Biswas, Anirudha Das, Debashis Maity. Pharmacological activity of pineapple (*Ananas Comosus*); A comprehensive review.
 5. Samirakargutkar, S Brijesh. Anti-inflammatory evaluation and characterization of leaf extract of *Ananas comosus*. *Inflammo pharmacology*, 2018; 26: 469-477.
 6. Kirtikar K R, Basu B D. Indian medicinal plants, 2006; 2: 936-938. 8.
 7. Khandelwal K R. Text book of practical Pharmacognosy. 11th eddition. Pune. Nirali prakashan, 2004; 149-155.
 8. Karale S S, Godad A P, Yashodhan B W and Suhas A S. Evaluation of in vitro anthelmintic activity of *Ceratophyllum demersum* Linn. *Indian drugs*, 2010; 47(8): 63-65.