



ANTHELMINTIC ACTIVITY OF PULP AND SEED EXTRACTS OF *CUCUMIS MELON*

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ABSTRACT

The present study was undertaken to investigate anthelmintic effect of ethanolic extracts of Pulp & seed of *Cucumis melon* L. in earthworms (*Pheretima posthuma*). The assay was performed *in vitro* using adult earthworm (*Pheretima posthuma*) owing to its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings for preliminary evaluation anthelmintic activity. Ethanolic extract of *Cucumis melon* L Pulp (EECMP) was used to dose of (20mg/mL) and ethanolic extract of *Cucumis melon* L seed (EECMS) was used to dose of (20mg/mL) and assay was performed *in vitro* using adult earthworm. Standard drug was Piperazine citrate (20 mg/mL) while distilled water used as control. The anthelmintic effect all the test solution and standard drug solution were prepared freshly

before starting the experiments. Observations were made for the time taken for paralysis was noted when no movement of any sort could be observed except when the worms were shaken vigorously. Time for death of worms were recorded after ascertaining that worms neither moved when shaken vigorously nor when dipped in warm water (50⁰C). We can conclude that ethanolic extracts of pulp & seed of *Cucumis melon* L. produced notable anthelmintic effect which appeared to be comparable with the effect produced by the standard (Piperazine citrate). The present study provides a quantitative basis for explaining the folkloric use of *Cucumis melon* L. as an anthelmintic agent.

KEYWORDS: Herbal medicine, *Cucumis melon* L., Ethanolic extract, Anthelmintic activity.

INTRODUCTION

Thousands of years ago the knowledge of drugs has accumulated by ancient physicians as a result inquisitive nature of men, so today it is said that nature has provided a complete store-house of remedies to cure many disease. Anthelmintic agents significantly reduced the anthelmintic effect which appeared to be comparable with the effect produced by the standard (Piperazine citrate).^[1] These drugs are also used in the treatment of toxemia oedema, hypertension, diuretics, pulmonary congestion and play vital role in pregnancy. Presently synthetic anthelmintic is available in market which is having significant side effects.^[2] A natural source serves as an additional source for the development of new antiulcer agents as they have significant biological activity. Various plant sources used as anthelmintic in different traditional medicine and Ayurveda; *Cucumis melon* L. is most common annual herb and whole plant used to treat various disorders.^[3] Review of the literature reveals that no pharmacological and clinical study was carried out to test the anthelmintic activity of this plant. The main purpose of the present study was to evaluate the anthelmintic activity of *Cucumis melon* L.^[4]

MATERIALS AND METHODS

Collection and authentication of plant materials: The plant material was collected from Hathras, UP, and authenticated from Birbal Sahni Institute of Palaeobotany, Lucknow, UP.

Extraction process: The pulp & seed of *Cucumis melon* L. were dried in shade. Then extracted in soxhlet assembly with Pet. Ether, ethanol and water successively. Each extract is concentrated by removal of the solvent. Extracted material is dried in hot-air oven below 50_C and pharmacological evaluation was done.^[5]

Preliminary phytochemical screening: All the extracts were screened for the presence of various secondary metabolites like glycosides alkaloids, carbohydrates, flavonoids, amino acids, Proteins and tannins [Table 1].^[6]

Experimental Animals: Adult earthworms (*Pheretima posthuma*), were collected near the swampy water along gajraula and kept in normal saline solution. The average size of earthworm was 6-8 cm. Earthworm and helminths were identified in Dept. of Zoology.

Anthelmintic activity: The anthelmintic assay was carried out as per the method of Ajaiyeoba *et al.* The assay was performed in *vitro* using adult earthworm (*Pheretima*

posthuma) owing to its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings for preliminary evaluation anthelmintic activity.^[7] Test samples of the extract was prepared at the concentrations, 20 mg/ml in distilled water and three worms i.e. *Pheretima posthuma*, of approximately equal size (same type) were placed in each nine cm Petri dish containing 25 ml of above test solution of extracts.^[8] Piperazine citrate (10 mg/mL) was used as reference standard and distilled water as control. This procedure was adopted for all different types of worms. All the test solution and standard drug solution were prepared freshly before starting the experiments. Observations were made for the time taken for paralysis was noted when no movement of any sort could be observed except when the worms were shaken vigorously.^[9] Time for death of worms were recorded after ascertaining that worms neither moved when shaken vigorously nor when dipped in warm water (50⁰C). All the results were shown in Table.2 and expressed as a mean.^[10]

± SEM of three worms in each group.



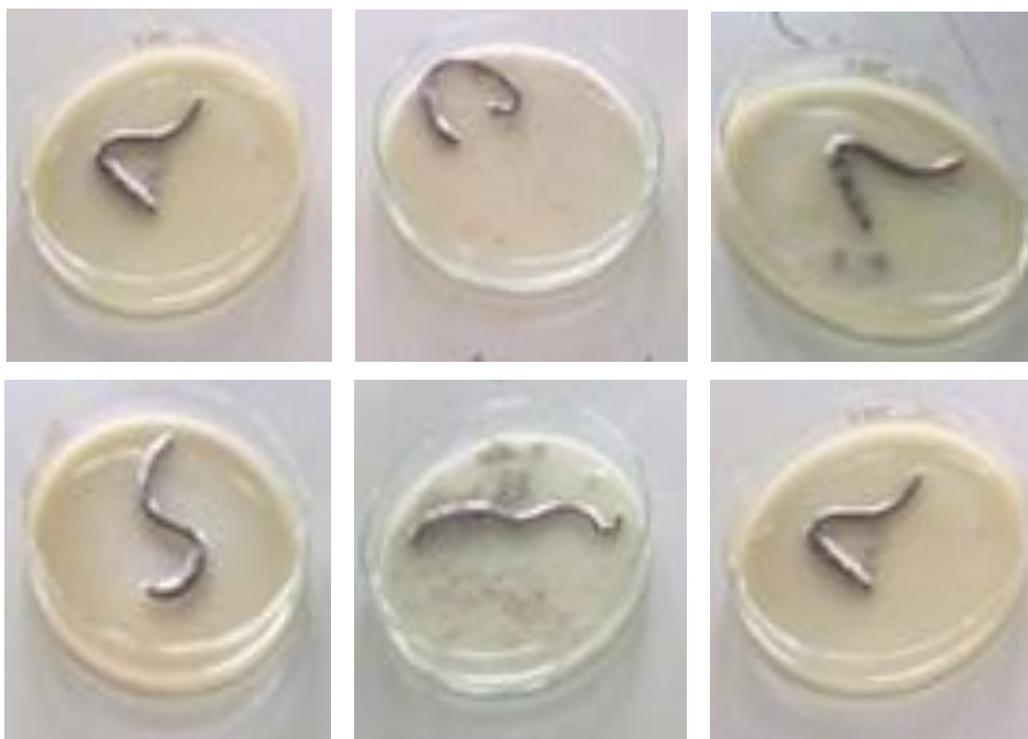


Figure No.5 Anthelmintic activity.

RESULTS

The preliminary phytochemical analysis showed the presence of Carbohydrates, Flavanoids, Proteins, Glycosides, Amino acids, Tannins, Saponin, and Alkaloids in all the extracts [Table 1]. All extracts were subjected to Anthelmintic activity.^[11]

Table 1: Preliminary phytochemical test of the ethanolic extract of pulp & seed of *cucumis melon* Linn.

Sr. No.	Phytochemical test	Ethanolic extract of <i>Cucumis melon</i> seed	Ethanolic extract of <i>Cucumis melon</i> pulp
1.	Carbohydrates	+	+
2.	Flavanoids	+	+
3.	Proteins	+	+
4.	Glycosides	+	+
5.	Amino acids	+	+
6.	Tannins	+	+
7.	Alkaloids	+	+
8.	Amino Acid	-	-
9.	Reducing sugar	+	+
10.	Mucilage	-	-
11.	Saponin	-	-

Effect of Anthelmintic activity of ethanolic extract of Pulp and seed of *Cucumis melon* L

In this anthelmintic study both ethanolic extracts of *cucumis melon* Linn produce paralysis as well as death of the worms.

Observations were made for the time taken for paralysis as well as death of worms when no movement of any sort could be observed. Time for death of worms were recorded after ascertaining that worms neither moved when shaken vigorously nor when dipped in warm water (50⁰C). All the results were shown in Table.2 and expressed as a mean.

Table 2: Effect of Anthelmintic activity of ethanolic extract of Pulp and seed of *Cucumis melon* Linn.

Groups	Treatment	Concentration	Time taken to paralysis and death of worms	
			Paralysis time (Min.)	Death Time (Min.)
Control	Drugless	5% DMSO in D.W.	A	A
Test	EECMP	20mg/ml	21.43± 0.3045	51.24 ± 2.817
	EECMS	20mg/ml	19.36 ± 0.5164	48.18± 2.06 2
Standard	Piperazine Citrate	20mg/ml	7.81±0.1651	41.60 ± 0.4347

Results are expressed as Mean± SEM, n=3 in each group, A=absent of activity

As shown in table 2 ethanolic extracts exhibited anthelmintic activity as in standards (i.e. Piperazine citrate,). Although, Piperazine citrate caused paralysis as well as death of worms. Furthermore the anthelmintic effect of ethanolic extracts of *cucumis melon* was comparable with the standard drugs, although it caused paralysis as well as death of worms.

CONCLUSION

The dried seeds were subjected to phytochemical work. The preliminary phytochemical investigation showed the presence of glycosides, flavonoids, carbohydrate, tannins in the ethanolic extract and glycosides, sterols, triterpenes and tannins in the chloroform extract.

The ethanolic extracts of pulp & seed of *Cucumis melon* L were employed for the pharmacological screening, these extracts showed significant anthelmintic activity. The results led to the conclusion that the EECMS exhibited better anthelmintic activity then the EECMP. Furthermore the anthelmintic effect of ethanolic extracts of *cucumis melon* was comparable with the standard drugs, although it caused paralysis as well as death of worms.

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