

In vitro anthelmintic activity of roots of *Capparis zeylanica* linn.

Ravindra D. Bendgude*¹, Manish S. Kondawar², Sandeep B. Patil², Rupali V.Hirave³

1. SVERI'S College of Pharmacy, Pandharpur, Maharashtra, India.
2. Appasaheb Birnale College of Pharmacy, Sangli, Maharashtra, India.
3. Sahyadri College of Pharmacy Methawade, Sangola, Maharashtra, India.

*Corresponding author: ravibendagude@rediffmail.com

ABSTRACT:

Helminth infections are among the most common infections in man; in developing countries they pose a large threat to public. These infections can affect most population in endemic areas with major economic and social consequences. The *Capparis zeylanica* Linn is commonly known as 'Indian caper'. The all parts of plant being used from the period of Susruta as acrid, anthelmintic, analgesic, antipyretic, antimicrobial, immunomodulatory effect. The present study was undertaken to evaluate anthelmintic activity of different extracts of roots *Capparis zeylanica* Linn. [Cappardiaceae] The different successive extracts namely petroleum ether, ethanol and aqueous using *Pheretima posthuma* as test worms. The different concentrations (0.1%, 0.2% and 0.5%) of various extracts were tested in the bioassay which involved determination of the time of paralysis (P) and time of death (D) of the worms. Albendazole was included as standard reference and normal saline as control. The results of present study indicated that the crude ethanolic extract and aqueous extracts significantly demonstrated paralysis and also caused death of worms in dose dependent manner, as compared to standard reference albendazole. While petroleum ether extract shows weak anthelmintic effect further studies are in process to isolate the active principles responsible for the activity.

Key words: *Capparis zeylanica* Linn, anthelmintic activity, *Phertima posthuma*, albendazole.

INTRODUCTION:

The *Capparis zeylanica* Linn is commonly known as 'Indian caper'. The roots of plants were widely used in small pox, gout, sedative purpose [1]. *Capparis* species has been reported to have counter-irritant, febrifuge, diuretic, piles [2] antimicrobial, anthelmintic [3], anti-inflammatory[4] .and antidote to snakebite [5-7] The modern

phytochemical screening of the plant has shown the presence of fatty acids [8] , flavonoid [9] and alkaloids[10] in its leaves . An attempt was made to evaluate the anthelmintic activity of different extracts of *Capparis zeylanica* Linn roots. The roots of *Capparis zeylanica* Linn were collected in month of July 2009 from rural area of Solapur district .The plant was authenticated by approved botanist. The powdered root (500gm) was extracted successively with petroleum ether, ethanol and aqueous using a soxhlet apparatus.

MATERIAL AND METHODS:

Plant Material

The root of *Capparis zeylanica* Linn were collected from the local areas of Solapur district, Maharashtra, India and authenticated by approved botanist and specimen voucher was deposited in the same institute.

Preparation of Extracts-

500g of shade dried coarsely powdered root of *Capparis zeylanica* Linn was extracted exhaustively for 72 hours in a soxhlet apparatus with petroleum ether, ethanol and water extract was carried out by maceration process.

Experimental methods:

The anthelmintic assay was carried out as per the method of described [11, 12] with minor modification. The assay was performed on adult Indian earthworm *Phertima posthuma* due to its anatomical and physiological resemblance with the intestinal roundworm parasite of human beings. 0.1%, 0.2%and 0.5% dilutions of petroleum ether extract, ethanol prepared in propylene glycol, and aqueous extract were prepared in normal saline. Albendazole with normal saline to obtain 0.1%, 0.2%, 0.5% solution used as standard. Normal saline and propylene glycol served as control. All dilutions of test, standard, and control were prepared into different Petri dishes. Six earthworm of nearly equal size were placed in each of there Petri dishes at room temperature. The time taken for complete paralysis and death was recorded. External stimuli were applied to ascertain the paralysis time. The time taken by worm to become motionless was considered as paralysis time and lethal time was ascertained by death of motionless worm.

RESULT AND DISCUSSION:

The results of anthelmintic activity are shown in Table no.1. In the present study it was observed that all the extracts have shown positive response to certain degree of

anthelmintic activity. Where as ethanol extract of plant shown significant activity as compare to standard.

Table No. 1: Anthelmintic Activity of different extracts of *Capparis zeylanica* Linn.

Sr.No	Test Substances	%Concentration	Time taken for paralysis (min) ± SEM	Time taken for death (min) ± SEM
1.	Control (Normal saline)	-	-	-
2.	Albendazole (Standard)	0.1	74 ±2.13	-
		0.2	62±1.581	-
		0.5	54.25±1.515	-
3.	Petroleum ether extract	0.1	164.25±1.634*	250±1.118*
		0.2	91±1.118*	186.25±2.19*
		0.5	68.25±1.293*	107.25±2.055*
4.	Ethanol extract	0.1	97.5±0.872*	169±2.512*
		0.2	65±1.802*	101.5±1.952*
		0.5	56±1.457*	84.25±1.780*
5.	Aqueous extract	0.1	162±1.581*	195.25±1.34*
		0.2	106±2.150*	126.25±2.534*
		0.5	74±1.581*	94±3.879*
6.	Control Propylene Glycol	5%	-	-

*P<0.05 when compared to control. Values are expressed as mean +_SEM

CONCLUSION:

In conclusion, Traditional uses of plant *Capparis zeylanica* Linn as powerful anthelmintic activity has been confirmed and ethanol extract displayed profound anthelmintic activity in study. Further, it would be interesting to isolate the possible phytoconstituents which may be responsible for the anthelmintic activity and to possible mechanism of action.

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