



Anthelmintic activity of aqueous leaf extract of *Caesalpenia bonducella* on *Pheretima posthuma*

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ABSTRACT

Caesalpinia bonducella is a very important medicinal plant to which we are using in our folk medicines from the beginning of our civilization. This plant has many medicinal properties. This plant has been used in different system of medicines for the treatment of different diseases of human and ruminants. *Caesalpenia bonducella* (L) belongs to family *Caesalpinaceae*, a prickly shrub widely distributed all over the world specially in tropical regions. All parts of the plant have medicinal properties. In Indian traditional system of medicine it has been considered as a very important plant to treat various ailments. It is very popular in Ayurveda, Siddha, Unani and Homeopathic system of medicine. This plant has reported Antidiabetic, Antioxidant, Antimicrobial, Anthelmintic and Antibacterial properties. Helminth infections are common among human and livestock. Today, the principal mode of control of gastrointestinal parasites is based on commercial anthelmintic medicine, but with increase of anthelmintic resistance, there is need of traditional herbal anthelmintic medicines. In present communication aqueous extracts of leaves of *Caesalpenia bonducella* were investigated for their anthelmintic activity against *pheretima posthuma*, With using various concentration and observation of paralysis and death time of the worm showed significant anthelmintic activity.

Key words: Anthelmintic, *Caesalpinia bonducella*, *Pheretima posthuma*.

Introduction

Caesalpenia bonducella (L) Flem. Belongs to *Caesalpinaceae* family, commonly known as kantkaranja is a prickly shrub found throughout India. The leave of *Caesalpinia bonducella* are traditionally used for the treatment of various diseases. It has many therapeutic properties like

antipyretic,antidiuretic,antihelminthic,antibacterial,antidiarrheal,antiviral,antiamoebic and antiestrogenic .Phytochemical screening of the extract revealedthe presence of alkaloids,saponins,flavonoids,triterpenoids,tannins and steroids.Purpose of this investigation is to evaluate the antihelminthic properties of aqueous leaves extract of *Caesalpinia bonducella*.

Materials and Method

The *Caesalpinia bonducella* leaves were collected from Rampur village of Katihar district of Bihar in July 2021.

Preparation of extracts

The leaves were dried in shade and crushed in and electric grinder and by using soxhelt extraction using water as solvent.Aqueous extract is prepared from standard methods. Piperazine citrate (10mg/ml) was used as comparater drug.

Animals

Indian earthworms (*Pheretima posthuman*) were collected from moist soil and cleaned with water.The experiment was done on adult earthworm due to their anatomical resemblance with the *Ascaris lumbricoids*.

Anthelmintic activity

50 ml of aqueous concentration containing 10, 50 and 100 mg/ml in distilled water was taken and five adult earthworms were placed in it. Observation were made for the time taken to cause paralysis and death of the individual worms, mean time for paralysis(P) in meanwhile noted when no movement of any sort could be observed , except when the worm shaken vigorously. Time of death(D) in min was recorded after ascertaining the worms neither moved when shaken vigorously nor when dipped in worm water (50°C).

Table 1: Anthelmintic activity of aqueous extracts of *Caesalpinia bonducella*

Test subs	Concentration(mg/ml)	Time taken for paralysis(P) in min	Time taken for death(D) in min
Aqueous extract	10	30	70
”	50	20	49
”	100	9	32
Piperazine citrate	10	18	59

Result and discussion

Phytochemical screening of *Caesalpinia bonducella* showed the presence of diterpenoids, flavonoids, steroids, tannins and resins. Table1 shows that aqueous extract exhibited anthelmintic activity in dose dependent manner giving shortest time of paralysis (P) and death (D) with 100mg/ml concentration. Aqueous

conteration caused paralysis time 9 min and death time 32 min. against earthworm with 100mg/ml concentration. The reference drug Piperazine citrate showed ththe same at 18 and 59 minutes. By increasing chloride ion in worm muscle membrane produces polarization and reduced xcitability leads to muscle paralysis, 100mg/ml of aqueous extract of *Caesapenia bonduc* shows same activity. These anthelmintic activities are due to presence of phytochemicals like alkaloids, saponins, flavonoids, triterpenes, tannins and steroids.

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