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**IN VITRO ANTHELMINTIC ACTIVITY OF CRUDE EXTRACT OF FLOWERS
OF BOUGAINVILLEA SPECTABILIS WILD AGAINST PHERETIMA
POSTHUMA**

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ABSTRACT

The present study aimed to evaluate the *in-vitro* anthelmintic activity of Ethanolic and Aqueous extract of flowers of *Bougainvillea spectabilis wild* against worms *Pheretima Posthuma*. Each extract was been studied at a concentration of 10, 20, 30, 40, 50 mg/ml which involves assessing time paralysis and time of worm death. Both extracts displayed a dose-dependent manner of anthelmintic activity. The most relevant activity was observed against the worm at the highest concentration of 50 mg/ml. The normal guide and control were for albendazole (10 mg/ml) and distilled water. The present study indicates the wild *Bougainvillea spectabilis* flowers possess the anthelmintic activity.

Keywords: - *Bougainvillea spectabilis*, Anthelmintic, *Pheretima Posthuma*, Albendazole.

INTRODUCTION

Gastrointestinal parasites pose a severe threat to living inventory manufacturing in developing countries. Anthelmintics are the agents that either stun or kill parasitic worms (helminths) from the body. Helminthes infections with parasites are worldwide issues with serious social and economic consequences in third world countries. Paper Flower, *Bougainvillea spectabilis* is reported to have medicinal values including anticancer, antidiabetic, antihepatotoxic, anti-inflammatory, antihyperlipidemic, antimicrobial, antioxidant and antiulcer properties. The phytoconstituents such as alkaloids, flavonoids, glycosides, phenolics, phlobotannins, quinones, saponins, tannins and terpenoids were reported as the basis of therapeutic properties. The other important constituents which contribute to the remedial properties are bougainvinones, pinitol, quercetagenin, quercetin and terpinolene. Published information on these update properties of *B. spectabilis* was gathered by the use of different database platforms, including Google Scholar, Science Direct, PubMed, SciFinder, and Scopus. This review article has attempted to suggest *B. spectabilis*, to be one of the choices in the traditional medicinal plant. Paper Flower, *Bougainvillea spectabilis* is reported to have medicinal values including anticancer, antidiabetic, anti-hepatotoxic, anti-inflammatory, antihyperlipidemic, antimicrobial, antioxidant and antiulcer properties.

Plants are the reservoir of successful chemotherapy and can provide useful natural antimicrobial sources. *Bougainvillea* is an ornamental herb, which was also used as an anti-inflammatory, anti-diabetic, antimicrobial and antiviral agent in medicine. [3]

Alkaloids, flavonoids, furanoids, glycosides, phenols, phlobotannins, quinones, saponins, hormones, tannins, and terpenoids are the phytochemical compounds isolated from *Bougainvillea spectabilis* flowers. The other active constituents are bougainvinones peltogynoids, essential oils including methyl Salicylate, Terpinolene, α -(E)-ionone, Pinitol, B-Sitosterol, Quercetin, and Quercetin-3-O-Rutinoside. Also, *Bougainvillea spectabilis* leaf extract phytochemical constituents revealed that the contents of tannins, saponins, glycosides, flavonoids, alkaloids, phytate, and oxalate are present. [4]

The chemical constituents of this *Bougainvillea spectabilis* having different activities like antibacterial property, antihyperlipidemic property, antidiabetic property, antifertility property, antioxidant property, anti-inflammatory property, and antiulcer property.

MATERIAL AND METHODS

Bougainvillea Spectabilis wild. (Test), Albendazole (STD), Ethanol, Distilled water, etc.

Experimental animal

For the anthelmintic study Indian adult earthworms, *Pheretima Posthuma* obtained from local wet soil and washed with normal saline to remove all of the fecal material. Earthworms were authenticated by the Department of Zoology, Balwant College, Vita. The earthworms off 6-8 cm in length and 0.2-0.3 cm in width were used for all the experimental protocol.

Collection and authentication of plant material

The flowers material *Bougainvillea Spectabilis wild* was procured from vita and Authenticated by botany department, Balwant College, Vita.

Extraction procedure

The flowers were washed with water & shade-dried (at 30°C 168 hrs) & powdered successive solvent was performed with ethanol & water. The dried flower about 10 gm was exhaustively extracted by hot continue extraction using Soxhlet apparatus 500 ml ethanol & extraction was performed for the varying period (2, 5, 8, 10 and 12 hrs) & aqueous extraction was performed by decoction method taking 10gm at 40-45°C for 2 hrs respective in 500ml distilled water. The concentration mass was vacuum-dried to obtain constant weight.

Preliminary phytochemical investigation ^[5,6]

The extracts were subjected to Phytochemical tests for Alkaloids, flavonoids, and Glycosides as per standard procedures.

Anthelmintic activity:^[7-9]

The anthelmintic activity was performed according to the method of Ghosh *et al.*, on adult Indian earthworm *Pheretima posthuma* as it has anatomical and physiological resemblance with the intestinal roundworm parasites of human beings. *Bougainvillea spectabilis* medicinal Plants anthelmintic action of extracts, equally sized Indian earthworms consisting of six earthworms in each group were released into 50 ml of the desired formulation. Group first serve as a control, receive only normal saline, Group second serve as a test, receive different

concentrations of (10, 20, 30, 40, 50 mg/ml) ethanolic extract of *Bougainvillea spectabilis*, Group second serve as a standard, receive standard drug albendazole (1mg/ml). Observations were made based on the time taken to immobilize or destroy individual worms. Paralysis has been said to occur when the worms don't even get it even in normal saline. Death was concluded with the loss of their motility from the worm followed by their fading body color. Results are shown. ^[8]

RESULTS AND DISCUSSION

Table No. 1 Preliminary Phytochemical screening of Ethanolic extract of flowers of the plant *Bougainvillea spectabilis wild*

Sr. No.	Phytochemical Tests	EBS
1.	Alkaloids	++
2.	Flavonoids	++
3.	Glycosides	++

(+=Present, EBS= Ethanolic extract of *Bougainvillea spectabilis wild*.)

Table No. 2 Anthelmintic Potential of ethanolic extract of flowers of *Bougainvillea spectabilis Wild*.

Treatment	Concentration (mg/ml)	Time of Paralysis (min)	Time of death (min)
Control (saline water)	-	-	-
Standard (Albendazole)	10	15	35
EBS	10	58	95
	20	40	65
	30	32	54
	50	24	39



Figure No. 1 Anthelmintic Activity

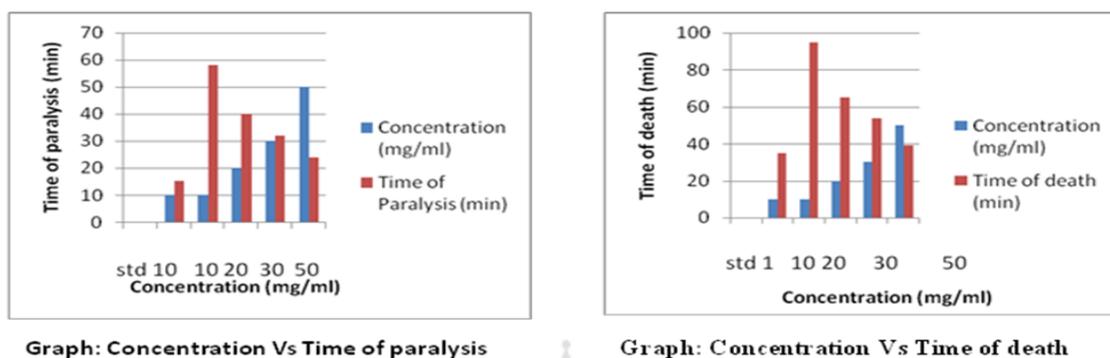


Figure No 2: Anthelmintic activity of ethanolic extract of flowers of *Bougainvillea spectabilis* Wild.

Multiple concentration (10, 20, 30, 40 & 50 mg / ml) of *Bougainvillea spectabilis* w. ethanolic & aqueous extraction of leaves. Assessed for anthelmintic *in-vitro* operation. The percentage yield of ethanolic and aqueous extract was obtained 10.5 & 7.3% w/w respectively. Preliminary phytochemical screening extract revealed the presence of saponins, carbohydrates, glycosides, phenols & were already identified in the flowers of *Bougainvillea spectabilis* w. Indian adult earthworms *pheretima posthuma* were selected because of their ready availability, anatomical & physiological resemblance with human intestinal roundworms parasites of human beings.

The literature review reveals that the compounds containing phenols, flavonoids, terpinolene responsible to produce anthelmintic activity. The earthworm's external mucilaginous layer is slimy & consists of complex polysaccharides. It allows earthworms to travel by ciliary motion. Some damage to mucopolysaccharide can cause paralysis and death to the outer layer. Therefore, the anthelmintic behavior of the ethanolic extract of *Bougainvillea spectabilis* wildflowers can be due to the presence of flavanoids & phenols that contribute to

damage a layer of mucopolysaccharides & leads to paralysis & death. Therefore, further study should be held out to understand the effective constituent responsible for anthelmintic activity.

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