

Anthelmintic activity of Tea (Camellia sinensis) extract

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ABSTRACT

The aim of present study was the evaluation of anthelmintic activity of Tea Powder (Camellia sinensis) extract in experimental adult earthworm's *Pheretima posthuma*. The alcoholic & aqueous extract of Tea Powder (Camellia sinensis) show potent anthelmintic activity.

Keywords: Tea Powder (Camellia sinensis), albendazole, *Pheretima posthuma*, anthelmintic activity, Helminths

INTRODUCTION

Helminths infections are among the most common infection in human beings and a major degenerative disease in world today, affected at least 1/3 people world population. The Helminths parasites are mainly live in human body intestinal tract, but they are also live in tissue, or their larvae migrate in to the tissue [1]. Anthelmintics are drug that either kill (vermin-cides) or, reduce the number of helminths parasites in the intestinal tract or tissues of the body [2]. Normally Helminths are a class of eukaryotic parasites Helminths (worms) can be divided into three groups: cestodes, or tapeworms; nematodes, or roundworms; and trematodes, or flukes [3].

Tea is the most popular drunk beverage in world. Tea contain more than 700 chemicals like caffeine polysaccharides, theobromine, gallotannic acid, vitamins (C, E and K), amino acids, which are closely related to human health.. The tea native to India, Sri Lanka, China, Japan. The tea was profound medicinal used as a CNS stimulant, diuretic [4]. Black dry tea is made by fermenting the heap of fresh tea leaves, and further drying. The literature survey revealed that there are no sufficient studies carried out regarding anthelmintic activity of Tea Powder (Camellia sinensis), so the present study was hence designed to determine anthelmintic effect of Tea Powder (Camellia sinensis), on *Pheretima posthuma* initial results are encouraging and head to evaluate extensively.

MATERIAL AND METHOD:

Collection & authentication of plant

The Tea powder collected from local Market of mandosaur, with brand name of Red Label®.

Extraction methodology

The dried tea material was pulverized into coarse powder in a grinder machine. The 200gm of dried tea powder extracted with ethanol by soxhlet apparatus. Solvent from each sample was filtered, squeezed off and evaporated off under reduce pressure in a rotary evaporator to obtain crude extract. The aqueous extract of tea powder is obtained by cold maceration process. Both extract are suspended in 1% Acacia in normal saline used as a vehicle for present study.

Experimental animal

Adult earthworm of the genus and species, *pheretima posthuma*, was collected from moist soil, and washed out in to normal saline water and the earthworms are divided into five groups. Each groups consisting of six earthworms (approximately equal size) Adult Indian earthworms *Pheretima posthuma* having anatomical and physiological resemblance with intestinal roundworm parasite of the human being. So *Pheretima posthuma* were used for

present study [5].

Standard drug

For present study Albendazole Taken as Standard Drug. The concentration of standard drug was prepared in 1% gum acacia in normal saline to give 25mg/ml concentration.

Anthelmintic investigation

The earthworms were used to determine anthelmintic activity of tea powder extract, the earthworm divided into five groups, each group consisting six earthworms. The earthworms were first treated with 1% gum acacia in Normal Saline, than treated with albendazole (25mg/ml), ethanol and aqueous extract (50,100 mg/ml) extract of. Tea powder Observations are made for the time taken to paralysis and death of individual worms. Paralysis was said to occur when the worms do not revive even in normal saline. Death was concluded when the worm lost their motility followed with fading away of their body color [6]. (Table 1)

RESULT AND DISCUSSION

In earthworms, the aqueous & alcoholic extract of tea powder (*Camellia sinensis*) show significant anthelmintic activity. The anthelmintic effect of tea powder extract is show in table1. The Extract shows Dose dependent activity. The Ethanol Extract (50mg/ml) Show Paralysis within 23.19 min & time of Death 34.17 min While the Ethanol Extract (100mg/ml) Show Paralysis within 17.07 min & time of Death 25.23 min. Similarly The Aqueous Extract (50mg/ml) Show Paralysis within 27.02 min & time of Death 47.07 min. While Aqueous Extract (100mg/ml) Show Paralysis within 21.19 min & time of Death 37.02 min. The Standard drug (Albenazole) Show Paralysis With in 18.16 min, & time of death 55.08 min. The observation of result show that the anthelmintic activity of ethanol extract is more potent compare to aqueous extract. The literature reports reveal that caffeine, theobromine, polysaccharides, gallotannic acid, vitamins (C, E and K), amino acids, flavanoides. Present in the plant extract know to possess anthelmintic activity. In the present investigation also the observed anthelmintic potential of test extract may be due to presence of similar phytoconstitutes, which was evident by prelim

Table 1: The Anthelmintic activity of tea extract

Sr. No.	Treatment	Concentration	Time Taken For Paralysis (min)	Time Taken For Death (min)
1.	Vehicle			
2.	Albendazole	25mg/ml	18.16±0.14	55.08±0.13
3.	Ethanol	50mg/ml	23.19±0.15	34.17±0.14
	Extract	100mg/ml	17.07±0.19	25.23±0.14
4.	Aqueous	50mg/ml	27.02±0.19	47.07±0.20
	Extract	100mg/ml	21.19±0.24	37.02±0.17

Result expresses as mean ± SEM from mix observation

CONCLUSION

From this study, we can say that the aqueous & alcoholic extract of tea powder has beneficial anthelmintic effect. Further pharmacological & biochemical investigation will clearly elucidate the mechanism of action and will be helpful in projecting this tea powder as a therapeutic target in helminths research.

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REFERENCE

- [1] Tripathi, K.P. "Essentials of medicinal pharmacology"; 5th Edition. Jaypee Brothers Medical Publishers (P) LTD., New Delhi, 2003, p. 759.
- [2] Sharma V.M. "Essentials of Pharmacology"; 3rd Edition. CBS Publishers Distributors., New Delhi, Bangalore, 2007, p.462.
- [3] Dr. Mahadik K.R., Dr. Kuchekar., Deshmukh K.R, "Concise Organic Pharmaceutical chemistry"; 19th edition. Nirali Prakashan., Pune, p. 8.1.
- [4] Kokate C K. Purohit A. P. and Gokhale S. B., "Pharmacognosy"; 43rd Edition. Nirali Prakashan., New Delhi, 2005, p. 13.73-13.74.
- [5] Chatterjee K.D. Parasitology, Protozoology and Helminthology, Guha Ray. Sree Saraswati Press Ltd. Calcutta, 1967 p.168-16
- [6] Turner, R. A. "Screening Methods in Pharmacology"; 3rd Edition. Academic Press Inc., London, 1965, p. 592.