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Research Article

In-Vitro Anthelmintics Activity of Ethanolic Extract of *Samanea Saman* [Jacq] Merr Flower

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ABSTRACT

The present study focuses on the evaluation of the anthelmintic activity of Samanea saman (Jacq) Merr flower extracts. Herbal medicine has gained increasing importance due to its safety, affordability, and minimal side effects compared to synthetic drugs. Helminth infections remain a major global health concern, especially in developing countries, necessitating the search for effective plant-based alternatives.In this study, the flowers of Samanea saman were collected, authenticated, shade-dried, and subjected to extraction using ethanol and water. Pharmacognostic evaluation, including ash values, loss on drying, and foaming index, was performed to assess the quality and purity of the plant material. Preliminary phytochemical screening revealed the presence of bioactive constituents such as alkaloids, flavonoids, tannins, saponins, steroids, and glycosides, which are known for their pharmacological activities.The anthelmintic activity was evaluated in vitro using the earthworm Pheretima posthuma as the experimental model. Different concentrations (20, 40, and 60 mg/ml) of ethanolic and aqueous extracts were tested and compared with the standard drug albendazole. The results demonstrated that both extracts exhibited significant dose-dependent anthelmintic activity. The ethanolic extract showed higher efficacy, producing faster paralysis and death of worms compared to the aqueous extract, and showed comparable activity to the standard drug at higher concentrations. Further studies are recommended to isolate and characterize the active compounds responsible for the observed activity.

INTRODUCTION

The term "parasite" includes all of the known infectious agents such as viruses, bacteria, fungi, and helminthes. It has been estimated at 3 billion (3 x 10”) humans suffer from parasitic infections, plus a much greater number of domestic and wild animals do. Although these diseases constitute the most widespread human health problem in the world today, they have for various reasons also

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been the most neglected [1]. In theory, the parasitic infections should be relatively easy to treat because the etiologic agents are known in almost all cases. Furthermore, recent a important parasite. These advances have not only laid to rest the traditional view that parasites somehow depend on a living host for their existence but have also enabled us to study parasites by methods similar to those employed in investigations of bacteria, including biochemistry, molecular biology, and immunologic pharmacology. However, many problems remain to be solved before more effective chemotherapeutic agents will be discovered and made available for all of the parasitic diseases [2]. Helminthic is a parasitic infection caused by helminthes, commonly known as parasitic worms, which infect humans and animals. These infections are widely distributed across the world and are particularly prevalent in tropical and subtropical regions where climatic conditions, poor sanitation, and inadequate hygiene practices Favor the transmission of parasites. Helminth infections represent a significant global health problem and are responsible for considerable morbidity, especially in developing countries. According to global health reports, millions of people are affected by helminth infections each year, leading to chronic health problems and reduced quality of life.

Helminthic parasites primarily inhabit the gastrointestinal tract of humans and animals, although some species may also infect other organs such as the liver, lungs, and blood vessels. These parasites derive nutrients from the host body and may cause various pathological conditions, including abdominal pain, diarrhea, malnutrition, anemia, weight loss, and weakness. In children, helminth infections can lead to impaired growth, reduced cognitive development, and decreased productivity, poor weight gain, and increased susceptibility to other diseases. Therefore, effective control and treatment of helminth infections remain an important aspect of public health and veterinary medicine [3]. Anthelmintic are substances that are used to destroy or expel parasitic worms from the host body. These agents may act by killing the worms directly or by paralyzing them, allowing them to be removed from the host through normal intestinal movements. Over the years, several synthetic anthelmintic drugs have been developed and widely used for the treatment of helminth infections. Drugs such as albendazole, mebendazole, ivermectin, and piperazine have proven to be highly effective in controlling parasitic infections. These drugs act through different mechanisms, including interference with energy metabolism, inhibition of neuromuscular activity, and disruption of structural components of the parasites.

Although synthetic anthelmintic drugs are widely used, their prolonged and repeated use has led to several limitations. One of the major concerns associated with synthetic anthelmintic is the development of drug resistance among parasites. Continuous exposure to these drugs allows parasites to develop adaptive mechanisms that reduce the effectiveness of treatment. In addition to drug resistance, some synthetic anthelmintic may produce adverse side effects such as nausea, dizziness, abdominal discomfort, and allergic reactions. Furthermore, the high cost and limited accessibility of certain pharmaceutical drugs in rural and economically disadvantaged regions make treatment difficult for many populations. Due to these limitations, there has been growing interest in exploring alternative sources of anthelmintic agents, particularly those derived from medicinal plants. For centuries, plants have been used in traditional systems of medicine to treat various diseases, including parasitic infections. Herbal medicines are considered an

important part of primary healthcare in many parts of the world because they are relatively safe, affordable, and easily available. The therapeutic potential of medicinal plants is mainly attributed to the presence of various bioactive compounds known as phytochemicals.

Medicinal plants contain a wide range of secondary metabolites such as alkaloids, flavonoids, tannins, saponins, glycosides, terpenoids, and phenolic compounds. These phytochemicals are known to possess diverse pharmacological activities, including antimicrobial, anti-inflammatory, antioxidant, and anthelmintic properties. Several studies have demonstrated that plant-derived compounds can effectively interfere with the physiological and metabolic processes of parasitic worms. Some phytochemicals act by damaging the outer protective layer of the worms, while others disrupt their energy metabolism or neuromuscular coordination, ultimately leading to paralysis and death of the parasites [4]**.** In recent years, scientific research has increasingly focused on the evaluation of medicinal plants for their anthelmintic potential. The study of plant extracts and their active constituents has become an important area of investigation in the fields of pharmacognosy, phytochemistry, and pharmacology. Experimental evaluation of anthelmintic activity is commonly performed using laboratory models such as earthworms, which are considered suitable due to their anatomical and physiological similarities to human intestinal parasites. The assessment of parameters such as paralysis time and death time helps in determining the effectiveness of plant extracts compared with standard drugs. The exploration of plant-based anthelmintic agents offers several advantages. Herbal medicines are generally associated with fewer side effects, lower toxicity, and better environmental compatibility compared to synthetic drugs. In addition, the use of medicinal plants may provide a sustainable and cost-effective solution for controlling helminth infections, particularly in developing countries where access to modern healthcare facilities may be limited. The identification and isolation of active phytochemical compounds from medicinal plants may also lead to the development of new pharmaceutical drugs in the future. Therefore, the investigation of medicinal plants for their anthelmintic activity is of great scientific and therapeutic importance. Such studies not only help to validate the traditional medicinal uses of plants but also contribute to the discovery of novel bioactive compounds with potential applications in the treatment of parasitic infections. Continued research in this field may lead to the development of safer, more effective, and affordable anthelmintic agents that can play a vital role in improving global health and controlling helminth-related diseases [5]**.**

DEFINITION

Anthelmintic are drugs or substances that expel or destroy parasitic worms (helminthes) from the body, particularly from the intestines. These agents work either by stunning (vermifuge) the worms or by causing significant harm to the host [6]**.**

Types of Helminthes

a] Nematodes [7]

Nematodes are long, cylindrical unsegmented worms that are tapered at both ends. Because of their shape, they are commonly referred to as roundworms. Some intestinal nematodes contain a mouth with three lips, and in some the mouth contains cutting plates. The major nematode parasites of humans include the soil-transmitted helminthes (STHs sometimes referred to as

"geohelminths") and the filarial nematodes. Infection occurs after ingestion of embryonated eggs or tissues of another host that contain larval forms of the nematodes. Some of the nematodes (filarial worms and guinea worms) live in blood, lymphatics, and other tissues and are referred to as blood and tissue nematodes. Others are found primarily in the intestinal tract.

One group, hookworms, undergoes a developmental cycle in soil. The larvae penetrate the skin of humans, enter the venules, and are carried to the lungs, where they enter the alveoli, sometimes causing pneumonitis. The larvae then migrate up the trachea and are swallowed. In the intestine, they attach to the mucosa and, using the cutting plates and a muscular esophagus, feed on host blood and tissue fluid. This may result in vague abdominal pains, diarrhea, and, if many worms are present, anemia. Intestinal nematodes are acquired by ingestion of eggs from soil. These groups lack cutting plates and may not cause anemia. Still other nematodes, like pinworms, migrate from the anus to lay eggs, which are transmitted by fingers or through the air. The eggs are ingested, and the adult worm develops in the intestinal tract. In some cases, the appendix may be invaded, resulting in symptoms of appendicitis. In most cases, the symptoms are perianal pruritus and restlessness associated with the migration of the female worm through the anus to the perianal skin. Other nematodes, such as Ascaris spp, are ingested in egg form but have migration similar to that of the hookworm. The filarial worms differ from other nematodes in that they are threadlike and are found in blood and tissue. The infective larvae enter following the bite of an infected arthropod (fly or mosquito). They then enter the lymphatics and lymph nodes. Fever, lymphangitis, and lymphadenitis are associated with the early stage of the disease. Chronic infections may be characterized by elephantiasis as a result of lymphatic obstruction. Some species of filarial worms migrate in the subcutaneous tissues and produce nodules and blindness (onchocerciasis).

b] Cestodes [8]

Humans are the definitive hosts for *Taeniasaginata*, known as the beef tapeworm. This most common form of tapeworm usually is detected after passage of proglottids from the intestine. It is cosmopolitan, occurring most commonly in sub-Saharan Africa and the Midale East, where undercooked or raw beef is consumed. It can be prevented by cooking beef to 60°C for over 5 minutes. This infection rarely produces serious clinical disease, but it must be distinguished from that produced by Taenia Solium. Taeniasolium, or pork tapeworm, also has a cosmopolitan distribution; immigrant populations are a common source of infection in the United States. *Diphyllobothrium*latum, the fish tapeworm, is found most commonly in rivers and lakes of the northern hemisphere. *Hymenolepis nana,* the dwarf tapeworm, is the smallest and most common tapeworm parasitizing humans. Infection with this cestode is cosmopolitan, more prevalent in tropical than temperate climates, and most common among institutionalized children, including those in the southern United States. *H. nana* is the only cestode that can develop from ovum to mature adult in humans without an intermediate host. Humans serve as one of several intermediate hosts for larval forms of *Echinococcus* species that cause "cystic" (E. granulosis) and "alveolar" (*E. multilocularis* and E. *vogeli)* hydatid disease. Dogs are definitive hosts for these tapeworms.

c] Trematode [9]

Schistosoma haematobium, Schistosomiasis, and Schistosoma japonicum are the main species of blood flukes that cause human schistosomiasis;

less common species are Schistosoma *intercalatum* and *Schistosoma mekongi.* The infection affects about 200 million people, and more than 600 million are considered at risk. *Paragonimus westermani* and *other Paragonimus species,* which are also called lung flukes, of which P. *westermani* is the most common, are pathogenic for humans and carnivores. Humans become infected by eating raw or undercooked crabs or crayfish. Disease is caused by reactions to adult worms in the lungs and ectopic sites. Humans are only accidentally infected with Fasciola hepatica, the large liver fluke that exists worldwide and primarily affects herbivorous ruminants such as cattle and sheep. Eating contaminated freshwater plants such as watercress initiates the infection. Migratory larvae penetrate the intestine, invade the liver from the peritoneum, and eventually reside in the biliary tract. The acute illness is characterized by fever, urticaria, and abdominal symptoms, whereas chronic infection resembles that caused by other hepatic flukes.

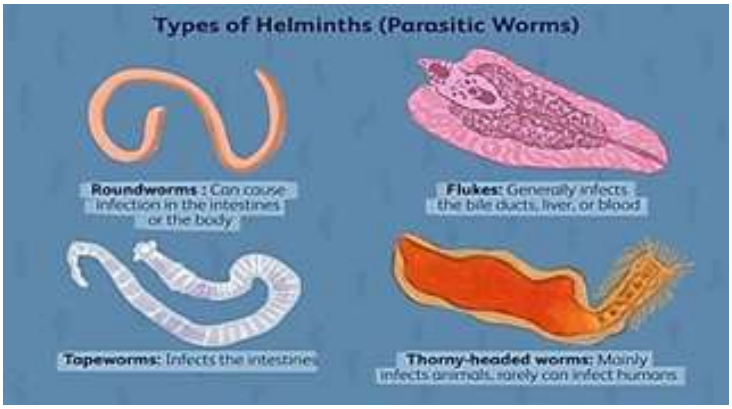


Fig no: 1 Types of helminths (Parasitic Worms)

Transmission of helminthic activity [10]

Helminthic diseases are transmitted when parasitic worms enter the human body through various routes such as contaminated food, water, soil, or insect bites, and the mode of transmission depends on the type of helminth. The most common route is the oral route, where a person ingests eggs or larvae through contaminated food or water, often due to poor hygiene and sanitation. Examples include *Ascaris lumbricoides* (roundworm), where eggs are swallowed from contaminated soil or food and *Hymenolepis nana* (dwarf tapeworm), transmitted through ingestion of eggs in contaminated food. Another mode is skin penetration, where larvae directly enter the body through the skin, especially in individuals walking barefoot or working in moist soil examples include *Ancylostoma duodenale* (hookworm) and *Strongyloides stercoralis*. Vector transmission also occurs when insects such as mosquitoes or flies carry and inject infective larvae into humans during blood feeding, as seen in *Wuchereria bancrofti*, which causes filariasis, and *Onchocerca volvulus*, responsible for river blindness. Additionally, infection can result from contact with contaminated soil or feces, where eggs are transferred to the mouth through unclean hands or objects, as in *Trichuris trichiura* (whipworm) and *Enterobius vermicularis* (pinworm). Finally, consuming undercooked meat or fish containing encysted larvae can lead to infection, with examples including *Taenia saginata* from undercooked beef.

Signs and Symptoms and Diagnosis of Helminthic Infections (Worm Infections) [11]

Helminthic infections are caused by parasitic worms that live in the intestine or other body

tissues, and their symptoms vary depending on the type of worm and site of infection. Common features include abdominal pain, nausea, vomiting, diarrhea or constipation, appetite changes, weight loss, fatigue, anemia, bloating, and itching around the anus, especially in pinworm infection. Specific manifestations differ: *Ascaris lumbricoides* may cause cough and visible worms; hookworms (*Ancylostoma duodenale*, *Necator americanus*) lead to ground itch and anemia; *Enterobius vermicularis* causes intense nocturnal anal itching; *Taenia* species result in passage of segments and possible vitamin B12 deficiency; *Trichuris trichiura* may cause bloody diarrhea and rectal prolapse; and filarial worms (*Wuchereria bancrofti*, *Brugia malayi*) produce lymphatic swelling (elephantiasis).

Diagnosis is based on clinical history and symptoms, supported mainly by stool examination for eggs or larvae, along with blood tests (eosinophilia, microfilariae, serology), urine tests for *Schistosoma haematobium*, and tissue biopsy in certain cases. Imaging techniques such as ultrasound, CT, and MRI help detect tissue involvement, while advanced methods like PCR and immunological tests (ELISA, Western blot, RDTs) provide accurate confirmation of infection [12].

Common treatment of helminthic infection[13]

Common treatment of helminthic infections involves the use of anthelmintic drugs that act by paralyzing worms or disrupting their metabolism. Drugs such as piperazine, ivermectin, and pyrantel pamoate cause paralysis of helminth muscles through effects on nerve transmission, leading to expulsion of worms. Others like niclosamide, albendazole, mebendazole, thiabendazole, and bithionol interfere with energy production or protein function by inhibiting glucose uptake or tubulin formation, ultimately causing worm death. Diethylcarbamazine enhances the host immune response by facilitating destruction of microfilariae. These drugs are usually given as single or short-course doses depending on the infection. Prevention of helminthic infections focuses on maintaining good personal hygiene, including handwashing and nail care, ensuring safe food and water by proper washing and cooking, and improving sanitation through proper waste disposal and avoiding open defecation. Protective measures such as wearing footwear and avoiding contaminated water sources are important, along with health education and periodic deworming programs, especially in endemic areas, as recommended by global health guidelines.

PLANT PROFILE



Fig no : 2 *Samaneasaman* (jacq) merr flower

Synonyms: Mimosa saman Jacq

Inga saman Wild

Family : Fabaceae (Leguminosae)

Subfamily : Mimosoideae

Common Names : Rain Tree

Monkey pod

Kingdom : Plantae - plants

Subkingdom: Tracheobionta – Vascular plants

Super division: Spermatophyta – Seed plants

Division : Magnoliophyta – Flowering plants

Class : Magnoliopsida – Dicotyledons

Subclass : Rosidae

Order : Fabales

Genus : *Samanea*

Species : *Samanea saman (Jacq)* merr

Collection of plant

Fresh flower of *Samanea saman*(jacq) merr (rain tree) should be collected during full bloom, to ensure the maximum phytochemical content and minimal moisture loss. The collected flower must be carefully cleaned to remove dust and foreign particles, then subjected to shade drying at a controlled temperature of around 25-35°C with relative humidity maintained between 40-60% to prevent microbial growth and preserve active constituents. Drying should continue until the material becomes crisp and moisture content is minimized. The dried flower should then be stored in an airtight, light-resistant container, ideally in a cool and dry place to avoid degradations.

Total ash

Weight accurately about 3gm of air-dried powdered drug was taken in a tarred silica crucible and incinerated by gradually increasing the temperature to make it dull red until free carbon, cooled and weighed and then percentage of total ash is calculated in 10% w/w.

Acid insoluble ash

The ash obtained as directed under total ash above was boiled with 25ml of 2N HCL for 5minutes. The insoluble matter was collected on ashless filter paper, washed with hot water, ignited and weighed, then percentage of acid insoluble ash was calculated in 2.3%w/w.

Water soluble ash

The total ash obtained was boiled with 25ml of water for 5minutes. The insoluble matter was collected on an ashless filter paper, washed with hot water and ignited for 15minutes at a temperature not exceeding 450°C. The weigh of insoluble matter was subtracted from the weight of total ash. The difference in weigh represents the water-soluble ash. The percentage of water-soluble ash was calculated in 1% w/w.

Loss on drying

About 1.5gm of powdered drug was weighed accurately in a tarred porcelain dish which was previously dried at 105°C in hot air oven to constant weigh and then weighed. From the difference in weight, the percentage loss of drying was calculated in 4.8% w/w.

Extraction of the plant material

Ethanolic extraction

About 50gm of the air-dried coarse powder of *Samanea saman* (Jacq) merr was macerated with 500ml of 90% ethanol in a closed flask for 3 days, shaking frequently during 6 hours and allowing stand for 72 hours, the extract was filtered and stored in an airtight container for further use.

Aqueous extraction

The crude aqueous extract of the *Samanea saman*(Jacq) merr flower was prepared according to the standard method. One hundred grams of the powdered plant material was mixed with 500ml of distilled water in a 1L flask and boiled for 1.5 h. It was allowed to cool to 40°C and then filtered using

whattmanNo.1 filter paper. The filtrate was then concentrated in a rotary evaporator and the extract stored at 4°C until required.

PHYTOCHEMICAL EVALUATION OF *Samanea saman* (Jacq) merr

Phytochemical evaluation of *Samanea saman* (Jacq) merr was performed on the pulverized plant material for the existence of various bioactive components such as alkaloids, flavonoids, tannins, steroids, saponins and glycosides.

Alkaloids

Dragendorff's, Mayer's and Wagner's tests were performed. To 2 ml of plant extract, a few drops of the respective reagents were added. The formation of an orange or reddish-brown precipitate (Dragendorff's), cream precipitate (Mayer's) and reddish-brown precipitate (Wagner's) indicated the presence of alkaloids.

Flavonoids

Shinoda test was performed by adding a few drops of magnesium turnings and concentrated hydrochloric acid to 2 ml of extract, resulting in a red coloration indicating flavonoids.

Tannins

Extract was used for following tests.

- One portion was treated with a few drops of ferric chloride solution.
- One portion was treated with lead acetate solution.
- One portion was treated with few drops of gelatine solution.
- One portion was treated with few drops of acetic acid solution.
- One portion was treated with dil. HNO_3solution.
- One portion was treated with few drops of dil. Iodine solution. The formation of blue-black, white precipitate, red colour, reddish yellow colour and transient yellow colour indicate the presence of tannins.

Steroids

Salkowski test was performed by adding chloroform and add equal volume of conc. Sulfuric acid to the extract. Bluish red, cherry red or purple colour is noted in chloroform layer confirms the presence of steroids.

Saponins

Foam test was carried out by shaking 2 ml of extract with distilled water for 15 minutes. The formation of stable, persistent froth indicated the presence of saponins.

Glycosides

Keller-Killani test was performed by adding glacial acetic acid containing ferric chlorideto 2 ml of extract, followed by careful addition of concentrated sulfuric acid. The formation of a reddish-brown ring at the inter face indicated the presence of glycosides.

EVALUATION OF ANTHELMINTIC ACTIVITY

Anthelmintic activity was carried out on adult earthworm, *pherithema posthuma*. *Pherithema posthuma* is commonly known as earthworms were collected from moist soil and washed with normal saline to remove all faecal matter and were used for the anthelmintic study. The earthworms of 3-5 cm in length and 0.1-0.2 cm in width were used for all the experimental protocol. Ten groups

were made as given below. each containing six adult earthworms and it must be of approximately equal size.



Fig no: 3 Earthworms collection

Group I - animals served as normal controls.

Group II - received 20mg /ml of ethanolic extract of *Samaneasaman*(Jacq) merr flower.

Group III - received 40mg /ml of ethanolic extract of *Samaneasaman(*Jacq) merr flower.

Group IV -received 60mg /ml of ethanolic extract of *Samaneasaman*(Jacq) merr flower.



A] 20mg **B] 40mg** **C] 60mg**

Fig no: 4 20, 40, 60 mg topical application of ethanolic extract in single Petri dish method

Group V - received 20mg /ml of aqueous extract of *Samaneasaman*(jacq) merr flower.

Group VI - received 20mg /ml of aqueous extract of *Samaneasaman*(jacq) merr flower.

Group VI - received 60mg /ml of aqueous extract of *Samaneasaman*(jacq) merr flower.



A] 20mg **B] 40mg** **C] 60mg**

Fig no: 5 20,40,60 mg topical application of aqueous extract in single Petri dish method

Group VIII - received 20mg/ml of Albendazole suspension.

Group IX - received 40mg/ml of Albendazole suspension.

Group X - received 60mg/ml of Albendazole suspension.



A] 20 mg **B] 40mg** **C] 60mg**

Fig no: 6 20, 40, 60 mg topical application of Albendazole suspension in single Petri dish method

The solutions of alcoholic extract, aqueous extract and albendazole were made in the concentrations of 20, 40, 60 mg/ml in the normal saline as vehicle. Groups of earthworms were released into 10 ml of desired formulations as made above, and one group was treating as control in normal saline. The observation was made for the time taken to cause paralysis and death of individual worms. Time for paralysis was noted when no movement of any sort could be observed expect when the worms lost their motility when dipped in warm water ($50^{O}C$).

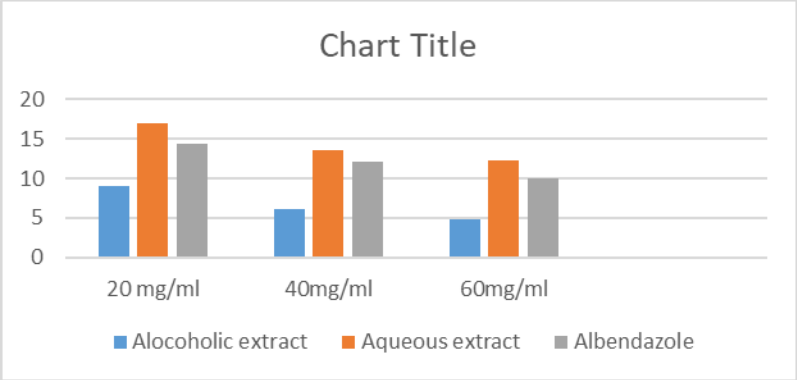
STATISTICAL ANALYSIS

All the values are expressed as mean ±S.E.M for groups of six animals each. Analysed by one way ANOVA and compared by using Tukey- Kramer multiple comparison test. The values are statistically significant at three levels, $^{***}P<0.00$ $^{**}P<0.01$ $^{*}P<0.05$ But ns if $p>0.005$.

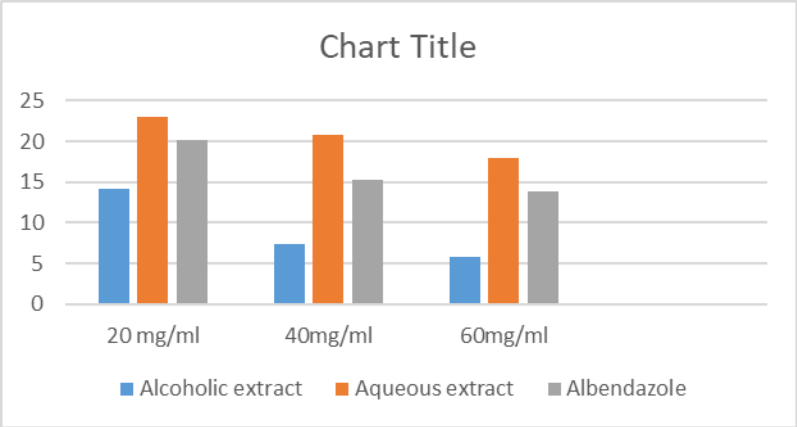
Table1: Anthelmintic activity of flower extracts of *Samanea*S*saman*(jacq) merr.

SR. NO	TREATMENT	DOSE (mg/ml)	TIME FOR PARALYSIS (min)	TIME FOR DEATH (min)
1	Control	----------	----------	----------
2	Ethanolic extract	20	9.00 ±0.25*	14.17 ±0.29*
3	Ethanolic extract	40	6.13 ±0.29*	7.32 ±0.32*
` 4	Ethanolic extract	60	4.85±0.10*	5.80±0.27*
5	Aqueous extract	20	16.98 ±0.20*	23.05 ±0.75*
6	Aqueous extract	40	13.50 ±0.18*	20.84±0.65*
7	Aqueous extract	60	12.33 ±0.60*	17.98 ±0.57*
8	Standard drug	20	13.35 ±0.30	20.15 ±0.18
9	Standard drug	40	12.01 ±0.23	15.32±0.22
10	Standard drug	60	10.05 ±0.40	13.80 ±0.70

Each value represents mean ± S.E (n=6) and was analysed by ANOVA Tukey-Kramer multiple comparison test. *p<0.001.



Graph: Comparison of Paralysis time of *Samaneasaman* (jacq) Merr extract with Albendazole



Graph: Comparison of Death time of *Samaneasaman* (jacq) Merr extract with Albendazole

CONCLUSION

The present study was undertaken to determine *in vitro* anthelmintic activity of the ethanolic extract from the flower *of SamaneaSaman*(jacq) merr.

The pharmacognostical studies made on the powdered flower of *SamaneaSaman*(jacq) merr like ash values, loss on drying, and foaming index gave valuable information.

The preliminary phytochemical investigation showed the presence of alkaloids, saponins, flavonoids, tannins, glycosides, phytosteroids.

The ethanolic and aqueous extract of *samaneasaman*(jacq) merr exhibited anthelmintic activity in dose dependent manner giving shortest time of paralysis and death with 60 mg/ml concentration in earth worm (*pheretimaposthuma)*. Tannins were shown to produce anthelmintic activities.

Further pharmacological and biochemical investigation are to be done to find out the active constituent responsible for anthelmintic activity and elucidate the possible mechanism of action.

REFERENCES

1. Rao BM, Naseeruddin SD, Rao NJ. In-vitro anthelmintic activity of pet-ether extract of Portula caoleracea Linn. Against Pheritima posthuma. Int J Applied BiloPharm Techno, 2013;4(1):34-7.
2. Evans WC. Trease and Evans pharmacognosy Ekevier Health Sciences; 2009; 27(15):1-603.
3. Khan R. M, Patel K L, Anthelmintic activity of proceri latex: Asian pacific Journal of Tropical Medicine, 2010;3(6): 449-451.

4. L. M. Katiki, Chagas A.C.S., Bizzo H.R., Ferreira J.F.S., Amarante A.F.T. Anthelmintic activity of Cymbopogon citratus essential oil against Haemonchus contortus. Veterinary Parasitology, 2011; 183(3–4), 258–263.
5. J. Keiser, Utzinger J. Efficacy of current drugs against soil-transmitted helminth infections. JAMA, 2008; 299(16): 1937–1948.
6. M. J. Hudson, Towers G.H.N. Plant-derived anthelmintics in traditional medicine. Journal of Ethnopharmacology, 1999; 64(2):117–126.
7. Stock SP, Blair HG. Entomopathogenic nematodes and their bacterial symbionts: the inside out of a mutualistic association. SYMBIOSIS-REHOVOT,2008; 46(2):65.
8. Engels D, Chitsulo L, Montresor A, savioli L. The global epidemiological situation of schistosomiasis and new approaches to control and research. Actatropica. 2002 ;82(2): 139-46.
9. Bennett AP, Robinson MW. Trematode proteomics: recent advances and future directions. Pathogens, 2021 Mar 16;10(3):348.
10. Donald A. P. Bundy Immunoepidemiology of intestinal helminth infections. Transactions of the Royal Society of Tropical Medicine and Hygiene,1994; 88(3): 259-261.
11. Arora, D.R. & Arora, B., Medical Parasitology, 4th ed. New Delhi: CBS Publishers & Distributors, 2010; 3(1): 215–230.
12. Anantha narayan, R. & Paniker, C.K.J., Textbook of Microbiology, 11th ed. Hyderabad: Universities Press,2017; 10: 690–705.
13. David H. Molyneux, Hotez P.J., Fenwick A. Rapid-impact interventions for neglected tropical diseases. PLOS Medicine, 2005; 2(11):1064–1070.

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