

# Clinical study of Intestinal worms during childhood: A Review

\* Dr. Shadab Jamal<sup>1</sup>, Dr. Rizwana Shaikh<sup>2</sup>, Dr. Mohd. Saleem Shaikh<sup>3</sup>,  
Dr. Gazala Shamim<sup>4</sup>, Dr. Abdul Rehman Shaikh Sabir<sup>5</sup>

\*<sup>1</sup> Assistant Professor (HOD), Dept. of Amraz e Atfa, M.I.J.T. College, Versova. Mumbai.

<sup>2</sup> Professor (HOD) Dept. of Ilmul Qabalat was Amraz Niswan, A.G. Unani Medical College, Akkalkuwa.

<sup>3</sup> Professor (HOD) Dept. of Amraz e Atfal, A.G. Unani Medical College, Akkalkuwa.

<sup>4</sup> Associate Professor, Dept. of Amraz e Atfal, Iqra Unani Medical College, Jalgaon

<sup>5</sup> Professor (HOD) Dept. of Ain Uzn Anaf Halaq w Asnan, Yunus Fazlani Medical College, Kunjkhedra,  
Aurangabad

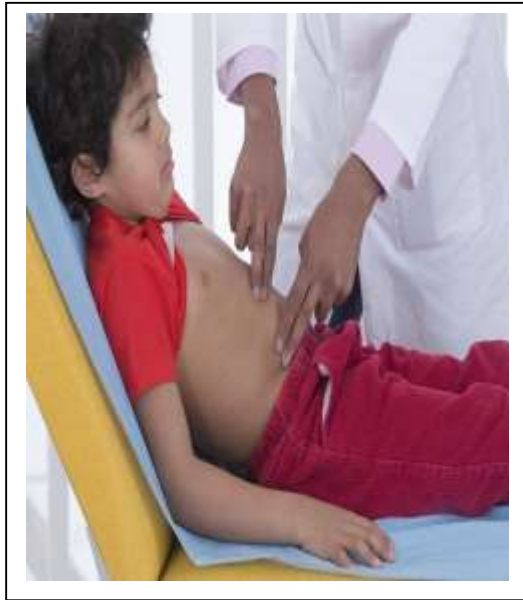
## ABSTRACT:

Helminthic infections continue to be the major health hazard to the people, especially those living in tropical developing countries. Although these infections do not cause significant morbidity and mortality when compared with many other parasitic infections, they do cause substantial, but often less measurable effects. For example, infections with gastrointestinal helminths often lead to mal-absorbtion, diarrhoea, anaemia and other states of poor health, particularly in infants and school-age children. Though there are several synthetic anthelmintics available at the present time against these parasites, the fact remains that a large proportion of the world's population still does not have access to, or cannot afford to pay for modern medicines, particularly in remote rural areas in poor countries. There is thus an urgent need for newer and inexpensive drugs that are able to act for longer periods before resistance sets in. In this context, traditional medicines, based largely on medicinal plants, offer a major and accessible source of health care to people living in developing countries. In recent years, there has been a rapid increase in new reports of the antiparasitic activity of natural products, both from scientific studies and from studies into the traditional uses of these products for treating diseases. Thus, plant/herbal based medicines are gaining a lot of attention and forming an integral part of the primary health care system the world over. Reports from around the world include an exhaustive list of plants that have been found to possess significant activity against helminth parasites. In several of such studies based on traditional use information, the crude extract of the plant has been tested for its putative anthelmintic properties, while in others the active ingredients responsible for the activity have also been identified and characterized to establish their mode of action. North-east India is known for its vast resources of medicinal plants.

**Keywords:** Warm infection in children, Anthelmintic plants in India , Traditional medicine, Phytochemicals, Intestinal helminths, Pin Warm, Hook warm and Tape warm,

## I. Introduction:

World Health Organization in the year 2007 reported that over one billion of the world's population is chronically infected with intestinal helminthiasis. Worm infection was among the



**Fig. 1. Warm infection in Children**



**Fig. 2. Mode of Round worm infection**

main problems of child nutritional deficiency, growth and health development. This malaise poses as one of greater health hazard, especially in developing countries. Lack of pure water, low socio-economic status and inadequate drainage of wastes are the main causes of this disease. Worm infection is one of the major causes of early age children with manifestation of malnutrition, anemia, and stunted physical and mental growth. Worm infection along with repeated gastrointestinal and upper respiratory tract infection contributes to high morbidity and mortality.

According to Unani concept, presence of worms always depends on mal-temperament or imbalance of phlegmatic temperament and unhealthy mode of living. A Unani medicine prescription is based on the totality of the mental and physical reactions to treat worm infections and cover the level of susceptibility and tendencies and the behavioral pattern. Thus selected herbal medicine helps to modify the physis. As Ibn Sina describes in Cannon of Medicine that physician is likewise a preserver of physis. The physician should know the things that derange health and cause disease, and how to remove them from patients. It is possible only by advising a correct line of treatment after detailed case taking, along with the improvement of living environment. The best way to cure the patient is the application of drugs on temperamental basis.

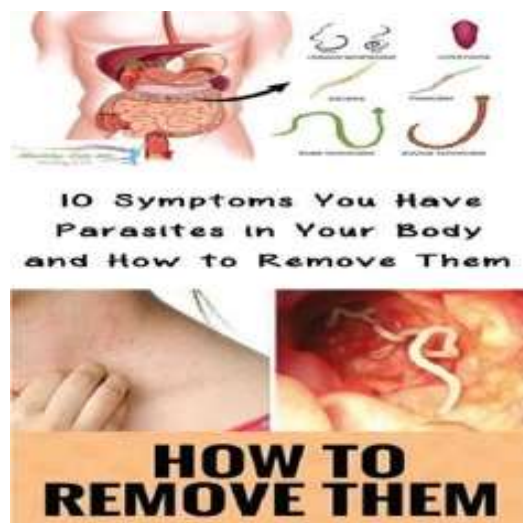


Fig. 3. Symptoms of worm infection

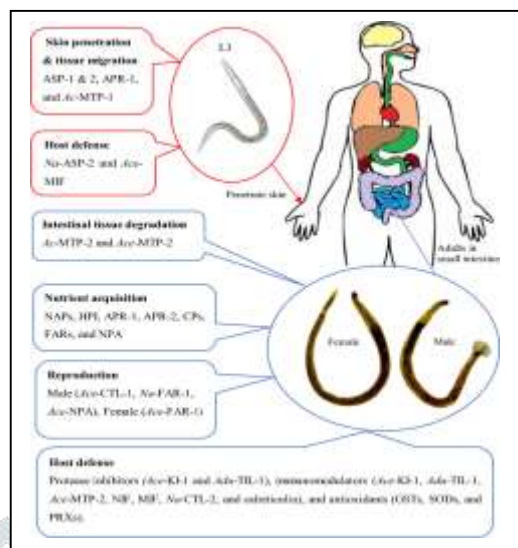


Fig. 4. Intestinal worm infection

Not only the medicine, but also the awareness about sanitation has an important role in disease prevention and cure of worm infection. Though Unani system physicians offer significant scope in the treatment of worm infection but it lack systematic clinical evidence based approaches in this regard. Hence a systematic study to assess the scope of herbal medicine in the treatment of worm infection is a need rather than a desire. Intestinal worm infestations are widely prevalent in tropical and subtropical countries and occur where there is poverty and poor sanitation. Soil-transmitted helminth (STH) infections form the most important group of intestinal worms affecting two billion people worldwide and the main species which infect are *Ascaris lumbricoides*, (roundworms), *Trichuris trichiura*, (whip worms) and *Necator americanus* / *Ancylostoma duodenale* (hookworms)<sup>1</sup> According to World Health Organization, globally there are 1221–1472 million cases of Ascariasis, 750–1050 million cases of Trichuriasis and 740–1300 million cases of hookworm infestation.<sup>2</sup> These STHs are also considered Neglected Tropical Diseases (NTDs) as they inflict considerable morbidity and mortality, though entirely preventable. The burden of disease due to these intestinal parasites is an estimated 22.1 million disability-adjusted life-years lost for hookworm, 10.5 million for *Ascaris*; and 6.4 million for *Trichuris*.<sup>3</sup> Approximately 10,500 deaths each year are due to complications of Ascariasis and 65,000 deaths per year are due to anaemia caused by hookworm infection. WHO recommends periodic administration of albendazole 400 mg or mebendazole 500 mg for control of STH. The global target is to eliminate morbidity due to STH in children by 2020.





Fig. 5. Life cycle of Tape worm

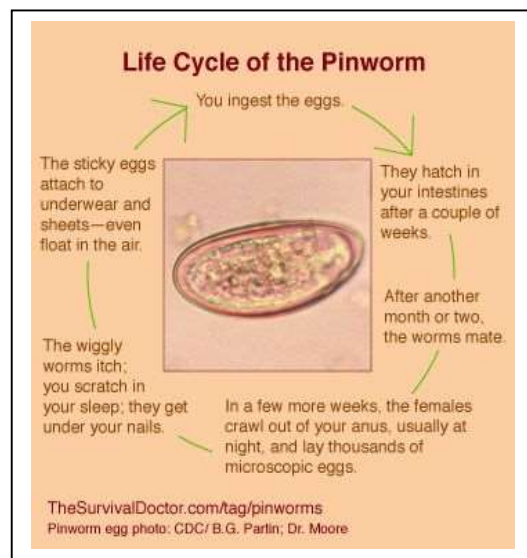


Fig. 6. Life cycle of Pin Warm

The present station where this study has been carried out is located in a mountainous region in northern part of the country and is known to be highly endemic for Intestinal worm infestations, mainly STH. With this in the backdrop, the present study has been undertaken to assess the parasite load in the target population with primary focus on STH; and evaluate the efficacy of anthelmintic drugs using a protocol which was standardized in terms of the treatment and follow up i.e. repeat stool test 14–21 days after the administration of standard doses of drugs to evaluate the cure rate (CR). Soil-transmitted helminth (STH) diseases (“helminth” means parasitic worm) are of major importance in developing countries. They are caused by infection with roundworm, hookworm or whipworm, and can include diarrhea, abdominal pain, intestinal obstruction, anemia, and retarded growth and cognitive development. Children become infected by ingesting roundworm and whipworm eggs that have matured in soil contaminated by human feces, or by walking barefoot in contaminated soil where human hookworm eggs have hatched, producing larvae that penetrate the skin. Schistosomiasis, another major parasitic disease among children in some developing countries, can also cause impaired growth and development and can lead to severe health problems later in life. It is caused by a helminth that spends part of its life cycle in certain types of snail and penetrates the skin of people when they stand or swim in water where the snails live. The helminth causing onchocerciasis (“river blindness”) is transmitted by the bite of a type of blackfly that breeds near flowing water. It can cause itching and impaired vision in children, and lead to blindness in adulthood. Children are infected with the helminth causing lymphatic filariasis through mosquito bites. Damage to the lymphatic system in children is mostly asymptomatic, but can become symptomatic by puberty and lead to swollen arms and legs and an enlarged, fluid-filled scrotum in adulthood. Intestinal worms, also known as parasitic worms, are one of the main types of intestinal parasites. Common types of intestinal worms include:

1. Flatworms, which include tapeworms and flukes,
2. Roundworms, which cause ascariasis, pinworm, and hookworm infections

## II. Symptoms of Warm infection in children's.

Roundworm infection is a type of parasitic illness.

This is an illness in which an organism lives inside the body of another creature.

It's caused by a type of roundworm. The worms live and grow inside the body and may cause symptoms.

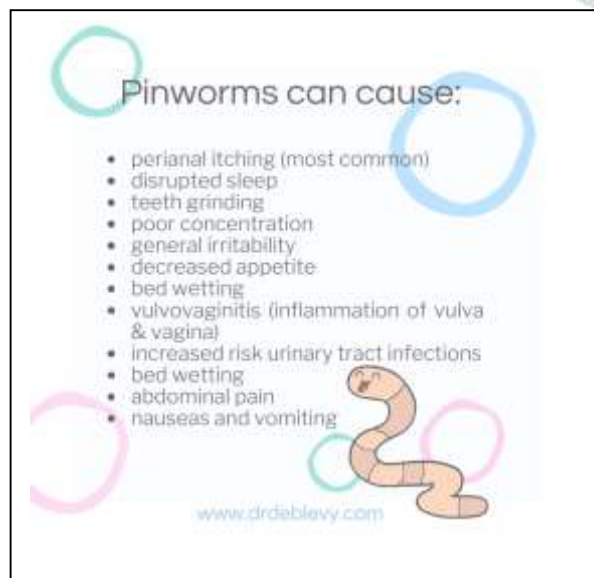
Common symptoms of intestinal worms are:

1. Diarrhea, nausea, or vomiting
2. Gas/bloating
3. Fatigue
4. Unexplained weight loss or failure to grow
5. Abdominal pain or tenderness
6. Worms coming out of the nose or mouth
7. Stomach pain
8. Coughing
9. Loss of appetite
10. Fever
11. Wheezing

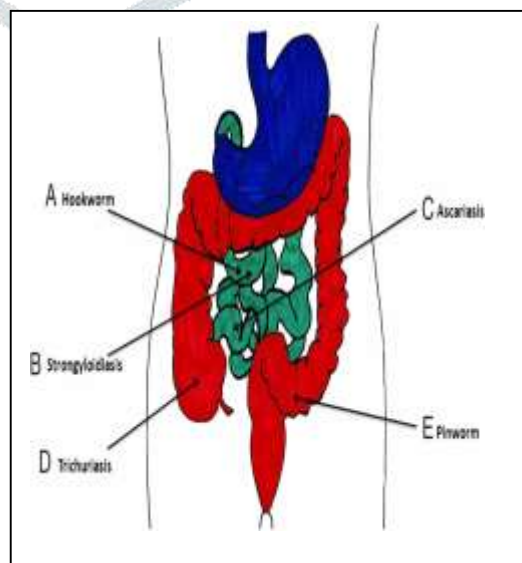
## III. Causes of warm infection in children

One way to become infected with intestinal worms is eating undercooked meat from an infected animal, such as a cow, pig, or fish. Other possible causes leading to intestinal worm infection include:

1. Consumption of contaminated water
2. Consumption of contaminated soil
3. Contact with contaminated feces
4. Poor sanitation
5. Poor hygiene



**Fig. 8. Causes of Pin worm infection**



**Fig. 9. Intestinal site of warm infection**

Roundworms are typically transmitted through contact with contaminated soil and feces. Once you've consumed the contaminated substance, the parasite travels into your intestine. Then they reproduce and grow in the intestine. Once they reproduce and become larger in amount and size, symptoms may appear. Children are particularly susceptible to intestinal worms. That's because they may play in environments with contaminated soil, such as sandboxes and school playgrounds. Older adults are also at increased risk due to weakened immune systems. According to the World Health Organization (WHO), about 10 percent Trusted Source of people in the developing world are infected with intestinal worms. People in developing countries are at the highest risk due to drinking water from contaminated sources and because of decreased sanitation levels. Roundworm infection is the most common type of worm infection in the world. It is rare in the U.S. Roundworm eggs live in soil that is contaminated by feces. The eggs can get into the body through the mouth. The infection can then spread from person to person through infected feces. Roundworms can live inside the small intestine for up to 2 years. The worms are about as thick as a pencil. They can grow to be about 13 inches long. They reproduce very quickly. Female roundworms may lay more than 200,000 eggs a day. These eggs leave the body through bowel movements. If a child swallows a roundworm egg, it passes down into the intestine and hatches into a baby worm (larva). Larvae can pass through the intestine wall into the bloodstream. They then travel through the lungs up into the throat. They are then swallowed again and return to the small intestine. There they grow into adult worms.

#### **IV. Diagnosis of worm infection.**

If you have any of the above symptoms, and especially if you have traveled out of the country recently, you should make an appointment with your doctor. Your doctor may then carry out an examination of your stool. It may take several stool samples to confirm the parasite's presence. Another test is the "Scotch tape" test, which involves applying tape to the anus several times in order to retrieve pinworm eggs, which can be identified under a microscope. If worms or eggs are not detected, your doctor may carry out a blood test to look for antibodies your body produces when it's infected with a parasite. Additionally, your doctor may take an X-ray or use imaging tests such as computed tomography (CT) or magnetic resonance imaging (MRI) depending on the extent or location(s) of disease suspected.

#### **V. Treatment of worm infection.**

Some types of intestinal worms, such as tapeworms, may disappear on their own if you have a strong immune system and healthy diet and lifestyle. However, depending on the type of intestinal worm infection, one may require treatment with an antiparasitic medication. Serious symptoms shouldn't be ignored. See your doctor if you:

1. Have blood or pus in your stool
2. Are vomiting daily or frequently
3. Have an elevated body temperature
4. Are extremely fatigued and dehydrated

Your treatment plan will be determined based on the type of intestinal worm you have and your symptoms. Tapeworm infections are usually treated with an oral medication, such as Praziquantel (Biltricide), which paralyzes the adult tapeworm. The Praziquantel causes the tapeworms to detach from the gut, become dissolved, and then pass out of your body through your stool. Common treatments for a roundworm infection include Mebendazole and Albendazole. Symptoms typically begin to improve after a few weeks of treatment. Your doctor will most likely take and analyze another stool sample after treatment is complete to see if the worms have disappeared. Intestinal worms increase your risk for anemia and intestinal blockages. Complications occur more frequently in older adults and in people who have suppressed immune systems, such as people with HIV or AIDS infection. Intestinal worm infections can pose a higher risk if you're pregnant. If you're pregnant and are found to have an intestinal worm infection, your doctor will determine which antiparasitic medication therapy is safe to take during pregnancy and will monitor you closely while you are treated during pregnancy.

## **VI. Prevention of Warm infection in children.**

To prevent intestinal worms, regularly wash your hands with soap and hot water before and after using the toilet and before preparing or eating foods. You should also practice food safety:

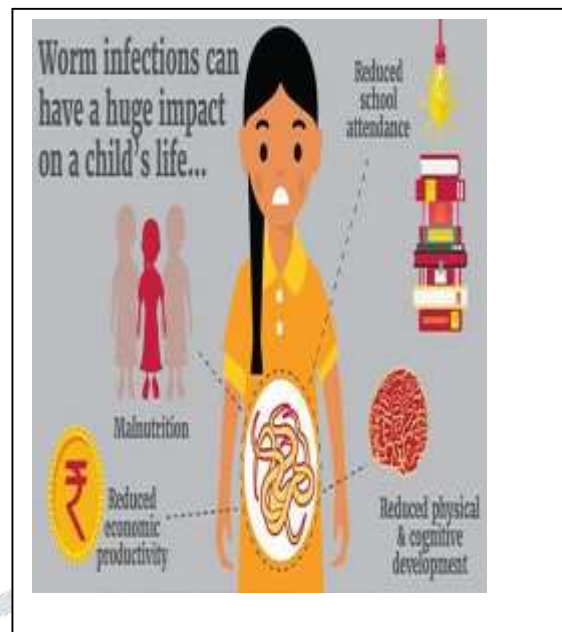
1. Avoid raw fish and meat
2. Thoroughly cook meat to temperatures of at least 145°F (62.8°C) for whole cuts of meat and 160°F (71°C) for ground meat and poultry
3. Let cooked meat rest for three minutes before carving or consuming
4. Freeze fish or meat to -4°F (-20°C) for at least 24 hours
5. Wash, peel, or cook all raw fruits and vegetables
6. Wash or reheat any food that falls on the floor

If you're visiting developing countries, cook fruits and vegetables with boiled or purified water before eating, and avoid contact with soil that may be contaminated with human feces. Roundworms tend to be more common in warm, wet, tropical countries. They are more common in countries where





**Fig. 10. Preventions of worm infection**



**Fig. 11. Worm infection in children**

1. People live in poverty
2. There is inadequate disposal of human feces
3. Crops are fertilized with human feces

Your child may be at risk for roundworm infection if he or she has been adopted from a developing country. Or if you have traveled to a place where roundworms are common. Children are more likely to be infected after playing in contaminated soil and putting their contaminated hands into their mouths. A child may also be infected after eating unwashed fruits and vegetables that were grown in contaminated soil. After treatment, infection can happen again. This is common in areas where roundworm infection is widespread. To prevent a roundworm infection:

1. Be aware of the risk when traveling in developing countries where soil may be contaminated by feces.
2. Wash, peel, and thoroughly cook fruits and vegetables before eating.
3. Wash your hands and teach your children to wash their hands with soap and water after being outside, before handling food, and after going to the bathroom.

### **Key points about roundworm infection in children**

1. Roundworm infection is a type of parasitic illness. It's caused by a type of roundworm *Ascaris lumbricoides*.
2. Roundworm eggs live in soil that is contaminated by feces. The eggs can get into the body through the mouth. The infection can then spread from person to person via infected feces.
3. Symptoms may include worms in a bowel movement or coming from the nose or mouth, vomiting, and stomach pain.
4. In most cases, roundworms can be easily treated by taking a medicine that kills the worms in about 3 days.



After treatment, infection can happen again. This is common in areas where roundworm infection is widespread. Take steps to prevent a repeat roundworm infection.

## VII. Herbal drugs used in treatment of worm infection.

In India, the history of medicinal uses of plants dates back to 3500-1800 B.C. wherein the Rig-Veda mentions a number of plants with different healing practices. However, a vast majority of knowledge on the subject has also been inherited through folklore that persists in several societies. With respect to use of anthelmintic plants, a perusal of literature reveals that in the beginning quite a few studies on anthelmintic activity of traditional anthelmintic plants, their oils or extracts frequently employed earthworm, *Pheritima posthuma* as a test worm. The essential oil of Piper betle (Piperaceae) has revealed anthelmintic effect on earthworms in vitro. Anthelmintic studies of the essential oils of *Cymbopogon nardus* (Graminaceae), *C. citratus* (Graminaceae) and *Zanthoxylum alatum* (Rutaceae) have revealed that the oil of *C. nardus* has very good effect against earthworms, while the oils of *C. citratus* and *Z. alatum* have moderate activity. Merely on the basis of some morphological similarity of parasitic roundworms with earthworm, the workers in their studies very often advocated that substances which kill and/or are toxic to earthworms may also bring the similar actions in parasitic worms and thus may result in their withdrawal from the host. It may be mentioned here that an easy availability of earthworm might prompted early workers to use them as a suitable test agent but it may be mentioned here that except a morphological similarity, the earthworm do not share any anatomical or physiological resemblance to common round worms. In later years, however, helminth parasites from all three major groups were utilized as experimental models to evaluate the efficacy of plants as anthelmintic. The test parasites which have more frequently been used to evaluate the anthelmintic efficacy of plants are the ones which



Fig. 12. Drugs used in Treatment of worm infection

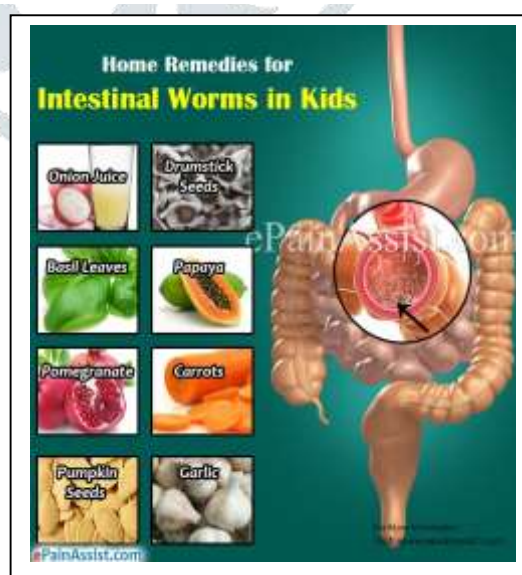


Fig.13. Common fruits used in treatment of worm infection

are readily available from locally slaughtered domestic animals and include parasitic species such as, *Ascaris suum*, *Ascaridia galli*, *Setaria*, *Haemonchus contortus*, *Trichinella spiralis*, *Taenia* spp., *Hymenolepis diminuta*, *Raillietina echinobothrida*, *Fasciola hepatica*, *Fasciolopsis buski*, *Gastrothylax cruminifer*, and *Paramphistomum* spp. for in vitro studies, while anthelmintic activity of some plants has been tested in vivo in sheep/goats infected with *Haemonchus* or mixed species of gastrointestinal nematodes or experimental models such as *Hymenolepis diminuta* infections in albino rats and some monogeneans, *Dactylogyrus intermedius* (Monogenea) in goldfish fish have also been employed. With regard to plant parts, it emerges that different parts of plant such as roots, tubers, stems, leaves, flowers, fruits and seeds or the plant as a whole have been used to evaluate the anthelmintic efficacy. However, in general, the leaves of medicinal plants have been put for anthelmintic investigation rather more frequently. In a similar manner, aqueous or alcoholic extracts, decoctions, essential oils and dried powders of plant parts have constituted as the common the test materials. In few cases, the phytochemical examination of concerned plants has also been made and the active principle has been isolated and tested for putative anthelmintic



**Fig. 14. Common dry Species used in treatment of worm infection**



**Fig. 15. Home Remedies for worm infection**

activity. In all these studies, comparisons of plants' efficacy has been made with one or other synthetic anthelmintic drug namely, praziquantel, albendazole, piperazine citrate, etc. The deformation of parasite's oral sucker and its sensory papilla, as revealed by scanning electron microscopic observations, was postulated to be the possible mode of action of plant. Crude extracts of *Alpinia nigra* was reported to possess significant flukicidal activity against *Fasciolopsis buski*. The leaf extract of *Spilanthes oleracea*, a traditional anthelmintic plant of Meghalaya, was reported to possess significant activity against *Orthocoelium dinniki*. It was reported to bring about surface alterations in worm's tegument. The north east region of India is endowed with vast potentials of medicinal plants. The native tribes of the region have a good tradition of using several plants in their own traditional medicine system. A number of studies have been made in the recent past to identify and

scientifically validate the efficacy of several of such plants which are frequently used as popular anthelmintics among natives of the region. *Flemingia vestita* Benth. (Fabaceae) is considered to be a lesser-known tuberous crop of north-east India. The fleshy tubers of the plant along with the peel are consumed by natives of Meghalaya and other north-eastern states to cure intestinal-worm infections. During past two decades, a number of studies have been made on its root-tuber extract and/or active principle,



**Fig. 16. Home Remedies for Tape warm infection**



**Fig. 17. Home Remedies for Tape warm infection**

genistein to establish its credentials as an anthelmintic. Yadav and Tandon reported its in vitro efficacy activity against *A. suum*. Its crude extract was also found to be quite effective against *Artyfechinostomum sufrartyfex* and *Fasciolopsis buski*. Vacuolization and pit formation was also recorded in these parasites when treated in vitro with its root-tuber peel extract. In another study the exposure of *R. echinobothrida* to its active principle, genistein caused spontaneous loss of movement of cestode parasite followed by structural alteration in its tegumental architecture. Genistein was found to alter the activity of some glycolytic enzymes and nitric oxide synthase of *R. echinobothrida*<sup>1</sup>. Roy and Tandon<sup>179</sup> investigated the trematocidal activity of *Cannabis sativa* (Cannabinaceae), a traditional anthelmintic plant of Meghalaya, against *F. buski*. The crude extract of plant was reported to possess better trematocidal activity than Oxytocyanide. Temjenmongla and Yadav<sup>180</sup> studied the in vitro anticestodal efficacy of nine plants that are used in the indigenous system of medicine by Naga tribes in northeast India to cure intestinal-helminth parasitic infections using *R. echinobothrida*, as a model test parasite. The authors found that the leaves of *Psidium guajava*, *Houttuynia cordata* and stalk of *Lasia spinosa* possess a profound anticestodal efficacy, whereas the leaves of *Clerodendrum colebrookianum*, *Lasia spinosa* and *Centella asiatica* possess a moderate efficacy and *Curcuma*





**Fig. 17. Home Remedies for Tape worm infection**



**Fig. 18. Home Remedies for Tape worm infection**

longa, *Cinnamomum cassia*, *Gynura angulosa*, *Lasia spinosa* (stem) and *Aloe vera* show a negligible degree of in vitro anticestodal activity. Yadav and Tangupt<sup>181</sup> studied the anthelmintic activity of a few selected plants used in the traditional medicine system of Naga tribes in Manipur and reported that plants namely, *Strobilanthes discolor* (leaf), *Adhatoda vasica* (leaf), *Butea minor* (seeds), *Solanum myriacanthum* (fruits), *Trifolium repens* (shoots) and *Zanthoxylum rhetsa* (leaf) possess moderate to high degree of in vitro anthelmintic activity against adult *Hymenolepis diminuta*. The stem bark extract of *Acacia oxyphylla*, a traditional anthelmintic plant of Mizo tribes, have been demonstrated to exhibit profound anthelmintic effects on fowl cestode, *R. echinobothrida*<sup>182</sup>. The ethanolic extract from the root bark of *Millettia pachycarpa*, traditionally used as a remedy for gastrointestinal infections among the Mizo tribes of north-east India, was tested in vitro against *R. echinobothrida* and reported to be possessing significant anthelmintic property. Scar formation in the tegument surface of worm and alternation of several carbohydrate metabolism related enzymes were suggested as mode of action of plant crude extract<sup>183</sup>. Lachhandama et al.<sup>184</sup> observed that *Millettia pachycarpa* brings out its anthelmintic activity by causing scar formation in worm's tegument surface and by altering several carbohydrate metabolism related enzymes in the extract treated worm. Dasgupta and Roy reported the anthelmintic activity of *Acacia oxyphylla* (Leguminosae), used traditionally by the natives of Mizoram against intestinal worm infections. It was observed that the extract brings out its anthelmintic actions against fowl cestode, *R. echinobothrida* by altering the structural and functional integrity of its tegument. *Lysimachia ramosa* Wall (Primulaceae) was recorded to be possessing in vitro efficacy against *F. buski*, *A. suum* and *R. echinobothrida* from domestic fowl. The alcoholic extract treated parasites revealed complete inactivation and flaccid paralysis that was followed by death at varying periods of time. The SEM observations revealed conspicuous deformity of the surface architecture in all the parasites exposed to the test plant extract. Besides in vitro studies, lot of traditional anthelmintic plants of north-eastern region of India has also been studied for their putative



anthelmintic activity employing various animal models. The anticestodal efficacy of *Trifolium repens* L. (Fabaceae), a folk-lore medicinal plant of Naga tribes of Nagaland state, was also established by Tangpu et al.<sup>40</sup>, using experimentally induced *H. diminuta* infections in albino rats. In this study, the aerial shoot extract of the plant significantly reduced the mean EPG and worm recovery rate in the treated animals when compared to praziquantel. Tangpu et al. studied the anticestodal efficacy of *Strobilanthes discolor* T. Anders (Acanthaceae), an ethnomedicinal plant of Naga tribes of north-east India, using *H. diminuta* -rat experimental model. On the basis of its effects on eggs per gram of feces (EPG) counts and percentage worm recovery rates, the authors concluded that extract bears remarkable anthelmintic activity against larval cestodes. While its efficacy was observed to be almost comparable with that of a standard drug, Praziquantel in adult cestode infections. Temjenmongla et al. investigated the anticestodal efficacy of *Psidium guajava* L. (Myrtaceae), a folk lore medicinal plant of Naga tribes, and found that treatment with its leaf extract results into host clearance of parasites in *H. diminuta*-albino rat experimental model. The anticestodal efficacy of *Lasia spinosa* (L.) Thwaites (Araceae) leaves have also been well established in experimentally induced *H. diminuta* infections in albino rats, where their extract have been recorded to reduce the faecal egg counts of treated animals by 83.2%<sup>189</sup>. Yadav and Temjenmongla<sup>190</sup> reported the anthelmintic activity of *Gynura angulosa* DC. (Asteraceae), a folk lore anthelmintic plant of native tribes in northeast India, using *Trichinella spiralis*-mouse model. The study revealed that its leaf extract possesses significant efficacy against adults, migrating and encysted larvae of *T. spiralis*. The 1600 mg/kg dose of extract resulted into about 73% reduction in the muscle encysted larvae. Likewise, *Adhatoda vasica* Nees (Acanthaceae), another traditionally used anthelmintic plant of Naga tribes, has also been reported to bear profound anthelmintic efficacy against experimental Hymenolepiasis in albino rats. Its leaf extract was observed to show better anthelmintic efficacy when compared with 5 mg/kg single dose of praziquantel. The *Zanthoxylum rhetsa* DC (Rutaceae) leaf extract when tested in *H. diminuta*-rat animal model showed a high degree of efficacy against larval stage and a moderate level of efficacy against immature and adult stages of tapeworm.

## Conclusion:

On the basis of findings it can be concluded that the major factors associated with worm infestation are: gender, parent's occupation as agriculture, size of family 5 persons or more, eating junk food, drinking impure water, bathing irregularly, hand washing with only water, nail biting and helping in gardening. Since ancient time traditional herbal medicinal plants have been a part of human life. India has a huge plant bio-diversity and is known worldwide for its rich flora of herbal and medicinal plants. Treatment with herbal drugs is easily available and cost effective for developing countries. It is worthwhile to mention here that herbal drugs are the best affordable way to overcome infectious diseases. From the perspective of side effects associated with synthetic drugs, herbal drugs represent a better cure of human diseases. Lately, parasitic diseases have become major health problems especially in developing countries and an indiscriminate use of synthetic drugs has led to development of resistance in parasites. In this article we have attempted to present a review of the medicinal

plants used for treatment of parasitic diseases in the Indian sub-continent. Anti-helminthic plants like *Butea monosperma* and *Piper betel* have great efficacy against helminthic parasites whereas some herbal plants like *Andrographis paniculata* have potent anti-leishmanial effects. Artemisinin, which is derived from *Artemisia annua* is one of the most effective herbal drugs. The active constituent of majority of the medicinal compounds isolated from plants species are known to be secondary metabolites. The exact mechanism underlying the mode of action of herbal compounds is not clearly understood and till date only mechanism that has been proposed is for Artemisinin. Morbidity due to intestinal worm infestation, particularly STH, is a global health problem affecting nearly two billion people in more than 100 countries. High prevalence of intestinal worm infestation is an indicator of poor living conditions and low standards of sanitation in a society. The present study reveals high prevalence of intestinal worms in the study population and calls for long term control measures to improve their sanitary and living conditions, including treatment of infected individuals and provision of potable water. The impact of these measures would be further enhanced through an organized health education programme, which will encourage healthy behaviour and lead to reduction in soil contamination and illness. Needless to say, that with existing understanding of helminth ecology and the availability of low cost drugs; goal to eliminate intestinal helminthiasis as a public health problem is achievable.

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