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Editorial Article

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Ethno-Helminthology - Newer Perspective for Discovery of Newer Anthelmintic Drugs

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Article Info

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Editorial

For a long period of time, helminthic manifestation is a serious health problem around the world and more specifically to the third world countries. The moderate temperature as well maximum humidity in tropical zone is very optimum environment for its growth and manifestation. Lacks of proper health education, improper sanitation as well malpractices due to illiteracy, the people in this area are majorly affected by helminthes. They were major sufferer of several serious long-term complications included malnutrition, iron-deficiency anemia, dysentery along with rectal prolapse due to severe helmintic infestation. It may lead to high morbidity as well mortality for man and other higher mammals. Several reports mentioned that helminth-affected persons are more prone to other severe infective diseases like HIV, malaria or tuberculosis may be due to repression of immune response made by these harmful parasites [1]. A large numbers of people around the globe were sufferer of severe illness associated with different helmintic parasites. It was also pathetic situation that half of the above population were school going children having massive helmintic manifestation [2].

Helminthes were classified under two phyla namely platihelminthes and Aschelminthes. Trematodes and Cestodes are major categories of parasites are under the phylum Platihelminthes. Nematodes are chief helminthes parasites under phylum Aschelminthes [3].

The extent of suffering due to helminthes manifestation was incalculable. As per literature survey, approximately one billion persons were infected with the roundworm *Ascaris lumbricoides* which is the largest intestinal nematode infecting humans prevalent in tropical and subtropical areas. *Ascaris* produces congestion, irregular respiration, edema, spasms of coughing as well bloody sputum commonly characterized by heavy pulmonary infections. It may cause bowel obstruction, abdominal pain, vomiting, restlessness etc. The larvae of the helminthes may wander into such abnormal sites as the brain, spleen, gallbladder, bile ducts, liver, lymph nodes, peritoneal cavity causing inflammation, lesions, blockage of circulation may lead to death of infected person. *Trichuris trichiura* which is known as whipworm, has a versatile distribution, but it is more frequently encountered among the poor in the tropical and subtropical round the world. Young children most commonly infected even found in southeastern part United States. It produces the diseases called trichuriasis, characterized by abdominal pain, constipation, diarrhea, vomiting, fever as well associated with colitis, bloody diarrhea and prolapse of the rectum. *Dracunculus medinensis*, also known as the guinea worm, was reported in the Old Testament infecting Israelites during their travels into the Sinai Penninsula. This parasite is prevalent in Africa, India, and the Middle East, is estimated about 48 million humans are presently infected. It may invade the brain producing cerebral lesions and death. Humans and other natural vertebrate hosts include cats, dogs, swine, mice, raccoons, squirrels, opossums, bobcats, bears, foxes, and coyotes are

sufferer of roundworm parasites (*Trichinella spiralis*). It may causes to fatal infections producing difficulty in breathing, mastication and speech. Hemorrhages of the skin, circumorbital edema, mucous membranes, vasculitis, and neurological manifestations were also found. Two species of hookworm, namely *Ancylostoma duodenale* and *Necator americanus*, are infecting humans seriously. They produce fever, headache, dyspnea, nausea, excessive coughing, pharyngeal soreness and pneumonitis along with intermittent abdominal pains, nausea, vomiting, flatulence, and diarrhea. It may produce blood loss as much as 200 ml per day per patients with heavy infections. Filariasis produces several problems to human developing of elephantoid limbs and organs with dermal hypertrophy. 700 million people are suffering from filariasis. Loiasis is a disease resulting from infection with *Loa loa*, well known as African eye-worm [4].

In the treamatodes major categories of helminthes are intestinal flukes, liver flukes, pulmonary flukes, blood flukes etc. *Fasciolopsis buski*, well known as intestinal flukes, is an intestinal helminthes of pigs and humans. This fluke is widespread in China, Indonesia, Thailand, and Vietnam. It may produce acute intestinal obstruction, anorexia, nausea, vomiting, abdominal pain, diarrhea, edema etc. Three genera namely *Fasciola*, *Clonorchis* and *Opisthorchis* are well known as liver flukes which produce fibrosis and hyperplasia of the biliary epithelium may lead to portal cirrhosis. *Paragonimus westermani*, well known as pulmonary flukes, is the causative agent for endemic hemoptysis or paragonimiasis in regions of Africa, China, Thailand, Indonesia, Central and South America, and the South Pacific countries. Cerebral paragonimiasis often results in intracranial calcification, epilepsy and impaired vision. Trematodes belonging to the genus *Schistosoma* inhabited in the circulatory system, well known as blood flukes. *Schistosoma japonicum* occurs in China, Cambodia, Japan, Korea, Taiwan, Laos, Thailand, affecting 270 million, causing one of the more serious diseases, schistosomiasis associated with hematuria (blood urine), cystitis (inflammation of the urinary bladder), and dysuria [4].

Under cestodes, *Taenia solium* is potentially the mainly serious tapeworm of humans; the adult worm may develop cysticercosis. In heavy infections, the larvae *T. solium* may develop in the brain, eyes or heart, causing numerous serious problems such as epileptic attacks, paralysis, blindness, disequilibrium, and hydrocephalus as a result of blockage as well inadequate drainage of cerebrospinal fluid [4].

In theoretical survey plants were found having rich source of versatile secondary metabolites with good resource of therapeutically effective components. Anthelmintics isolated from different plant sources may be utilized as an excellent alternative for the treatment of different dreadful parasitic infestation. Extensive research work in the field of medicinal plants may help to produce numerous potential anthelmintic drugs [5]. In different research, it was observed that different plants possessed significant anthelmintic activity against different hazardous parasites [6-10].

To find newer novel anthelmintic medicine it is very important to introduce a new subject as 'Ethno-helmintholgy' which will be the study of medicinal plant having traditional uses of treating helminthes. This will help to design newer methods for establishing successful anthelmintic medicine of plant origin.

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