NATURAL SOURCES USED FOR TREATMENT AND PREVENTION OF FILARIASIS

Kishore Mendam*, B. Kavitha, S. Jithender Kumar Naik

Zoology Department, Osmania University, Telangana, India.

ABSTRACT

Filariasis is one of the four important in tropical and subtropical countries. Filarial nematodes are responsible for several diseases which include elephantiasis, river blindness and tropical Pulmonary Eosinophilia etc. The synthetic drugs used in controlling filariasis show several side effects. Current strategies to control filariasis are not thought to be completely safe. Hence, there is a need to search for effective, Non toxic natural compounds with Anti filarial potential. In this review, summarizes some natural sources having anti filarial potential.

KEY WORDS: Filariasis, Antifilarial potential, Natural Sources.

INTRODUCTION

Filariasis is caused by the nematode parasites Wuchereria bancrofti, Brugia timori and Brugia malayi. The filarial nematode Wuchereria bancrofti accounts for 91% of lymphatic filariasis infections while Brugia timori and Brugia malayi are responsible for the remaining 9% in south Asia and south East Asia.[1] Around 1.4 billion people are at risk of infection in 72 countries where filarial is endemic.[2] In 1997, the 50th world Health Assembly passed a resolution for the prevent and elimination of filariasis by 2020.[3, 4] In 2007 china and in 2008 Korea declared that elimination of filariasis and additional 05 countries were reported to no longer have any active transmission foci.[5] The tropical disease as human lymphatic filariasis is still prevalent in central India. This disease has been recognized by World Health Organization (WHO) as one of the ten diseases in its Tropical Disease Research (TDR) scheme highlighting the huge disease burden leading to 5.5 million DALYs. Consequently global programme was launched for elimination of filariasis (GPELF).[6] Elimination of Lymphatic Filariasis as public health problems is urgently required as it causes morbidity resulting into economic loss of developing countries.[7] Filariasis is classified into three
groups as Lymphatic Filariasis, Subcutaneous Filariasis, and Serous Cavity Filariasis. Lymphatic Filariasis is caused by the parasitic worms Wuchereria bancrofti, Brugia malayi, and Brugia timori. These worms occupy the lymphatic system, including the lymph nodes and these worms lead to the disease Elephantiasis. Subcutaneous Filariasis is caused by Loa loa (the African eye worm), Dracunculus medinensis (the guinea worm), Onchocerca volvulus, and Mansonella streptocerca. These worms occupy the subcutaneous layer of the skin. Serous Cavity Filariasis is caused by the worms Mansonella ozzardi and Mansonella-perstans which occupy the serous cavity of the abdomen. In all cases, the transmitting vectors are either blood sucking insects (fly or mosquito) or Copepod crustaceans in the case of Dracunculus medinensis. Different species of filarial parasites tend to affect different parts of the body, Wuchereria bancrofti can affect the arms, legs, breasts, vulva, and scrotum (causing hydrocele formation), while Brugia timori rarely affects the genitals. The adult worms residing in a tissue release microfilariae into the host's bloodstream. The blood circulating microfilariae are enter into an arthropod vector through bite. Microfilariae develop into infective larvae and from the vector which are transmitted into a new healthy host. The life cycle of a filarial worm is shown in Figure 1.

![Filaria Cycle](image)

FIGURE: 1

Herbal medicines from plant sources have extensive past and present use in treatment of several diseases. The importance of herbal products in modern medicine has been well acknowledged. Variety of herbal drugs originates from natural products.
**METHOD**

Medicinal herbs are selected through the study of their literature from the online journal and publications. The collected literature of the medicinal plants related to the plant family, parts used, physiological activities or pharmacological activities and plant derivative compounds are put in tabular form for the analyzation.

**TABLE-1: SOME MEDICINAL PLANTS HAVE ANTI FILARIAL POTENTIAL ACTIVITY.**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Plant Name</th>
<th>Family</th>
<th>Source</th>
<th>Use/physiological activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td><em>Xylocarpus granatum</em></td>
<td>Meliaceae</td>
<td>Bark</td>
<td>Anti-filarial activity, used traditional to treat cholera and fever.</td>
</tr>
<tr>
<td>10.</td>
<td><em>Andrographis paniculate</em></td>
<td>Acanthaceae</td>
<td>Leaf (leaves)</td>
<td>Anti-filaria, anti malarial activity and used to treat dysentery, theypus, cholera, bronchitis, influenza etc.</td>
</tr>
<tr>
<td>14.</td>
<td><em>Piper betle Linn.</em></td>
<td>Piperaceae</td>
<td>Leaves</td>
<td>Antiparasitic, anti tumor, antacid, anti fertility, anti filarial</td>
</tr>
</tbody>
</table>
Kishore et al. World Journal of Pharmacy and Pharmaceutical Sciences

<table>
<thead>
<tr>
<th>S.No</th>
<th>Organism</th>
<th>Order</th>
<th>Pharmacological activity/uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td><em>Psoralea corylifolia</em> Linn.</td>
<td>Fabaceae-papilionaceae</td>
<td>Fruits, seeds and leaves  Anti-helmintic, anti convulsant, anti-inflammamatory, anti-bacterial, anti fungal, anti mutagenicity, anti filarial activity etc. [28,29]</td>
</tr>
<tr>
<td>16</td>
<td><em>Caesalpinia bonducells</em></td>
<td>Fabaceae</td>
<td>Leaves and seeds anti-bacterial, anti pyretic, antiviral, antidiuretic, anti-estrogenic, microfilaricidal, macrofilaricidol activity. [30,31]</td>
</tr>
<tr>
<td>17</td>
<td><em>Trachyspermum ammi</em></td>
<td>Apiaceae</td>
<td>fruits Anti-inflammatory, anti fungal, antiviral, molluscicidol, antipyretic, anti microbial, anti filarial activity. [32]</td>
</tr>
</tbody>
</table>

**DISCUSSION AND CONCLUSION**

The selected medicinal plants and marine sources in this review (table1 and table2) have several pharmacological activities like anti cancer activity, anti oxidant activity, anti filariasis activity, anti inflammatory activity, anti diabetic activity and many more. Several medicinal herbs and their derived substance have been a prime source for the treatment of many diseases, many of which are consumed daily with the diet. Some medicinal plants and their derived compounds are used in treatment of filariasis. Marine organisms also play a role in the prevention and treatment of filariasis. The observation of the tabular form shows that there are several families in the plant kingdom and almost all families have one or more pharmacological activities.
ACKNOWLEDGEMENT

I greatly acknowledge one of author S. Jithender Kumar Naik, Toxicology lab, Department of Zoology, Osmania University, Telangana, India, for the support and encouragement throughout the study.

REFERENCES


