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MEDICINAL PLANTS AND FILARIASIS (SLEEPADA): A REVIEW

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ABSTRACT

Sleepada is a major health problem in tropical and subtropical countries. "*silaa vata padam sleepadam*"is the definition of sleepada. Since it looks like sila(Stone) it is called Sleepada. In modern it is called as Lymphatic filariasis. Adult worms may live for several years in the infected individual, producing microfilariae and thereby facilitating transmission of the disease through the vector mosquitoes. Lymphatic filariasis, onchocerciasis, loaisis and other helminth infections cause serious health problems especially in resource limited tropical and subtropical developing countries of the world . There are various types of treatment described in ayurveda such as daha karma, siravedha, paniya kshara and lots of potential drugs which play good role in the treatment of Sleepada. An effort is made here to collect the effect of several medicinal plants on filarial worm.

KEYWORDS: *silaa vata padam sleepadam*, Lymphatic filariasis, onchocerciasis, loaisis.

INTRODUCTION

In our classical text Lymphatic filariasis is described as *Sleepada*. *Sleepada* is very beautifully described in Ayurvedic texts. According to Astanga sangraha.

"Silaa vat padam Sleepadam".

Because of mithyaahara vihara, vata gets aggravated and spreads to pelvic region and latter to lower limbs and slowly cause inflamation.

Sleepada is of three types.[1]

1. Vaataja Sleepada
2. Pittaja Sleepada
3. Kaphaja Sleepada

Lymphatic filariasis (LF) is a vector–borne, long–standing chronic disease which is prevalent in many parts of the tropics and sub– tropics of the world affecting millions of people and is the second leading cause of long–term and permanent disability in the world.[2] LF is caused by the lymph–dwelling nematode parasites Wuchereria bancrofti, Brugia malayi and Brugia timori. The filarial nematode W. bancrofti, accounts for 91% of LF infections while B. malayi and B. timori are responsible for the remaining 9% in South and South East Asia.[3] Quite often, poor people are infected from disease and suffer from physical, mental and socioeconomic hardships.[4] 1.4 billion people are at risk of infection in 72 countries where filaria is endemic.[5] Currently over 120 million people are affected by the infection with 40 million people showing chronic disease symptoms.[2,6] WHO has recognized this major health problem as one of the six important tropical diseases.[7,8] Majority of the infections are asymptomatic and about 40 million peoples have clinically evident symptoms (mostly hydroceles and lymphedema), making LF a leading cause of long–term disability.[9,10]

Infection with filarial worm Wuchereria bancrofti and Brugia malayi is associated with a range of clinical outcomes ranging from subclinical infection to hydrocele and elephantiasis. W. Bancrofti is transmitted by night biting of *Culex quinquefasciatus* mosquitoes. The adult worm, 4-10 cm in length, live in lymphatics, and the females produce microfilariae which at night circulate in large numbers in the peripheral blood. In the mosquito, ingested microfilariae develop into infective larvae. B. Malayi is similar to W. Bancrofti.[11]

Due to its significant medical, social and economic impact, in 1997, the 50th World Health Assembly passed a resolution for the elimination of filariasis by 2020.[7, 12] Now, under the leadership of WHO, the Global Programme to Eliminate Lymphatic Filariasis (GPELF) is being implemented in 1999 by means of mass drug administration (MDA) to disrupt parasite transmission.[7,13] The treatment policy includes a single–dose of MDA yearly for 4 to 6 years for all people in the endemic region except pregnant women and children upto 2 years of age. A combination of diethylcarbamazine (DEC) and albendazole (ALB) is given in most endemic areas, except in some areas of Africa where bancroftian filariasis is also present with onchocerciasis, therefore a combination of ivermectin and ALB is scheduled.[6,14] However,

unfortunately this disorder is continuing due to the technological limitations of MDA strategy.[15] In 8 years (2000–2007), 570 million individuals were treated in 48 of the 83 endemic countries.[16] China in 2007 and Korea in 2008 declared the elimination of filariasis, and additional 5 countries were reported to no longer have any active transmission foci.[17] By halftime in 2010, MDA had successfully reduced disease rates in many areas[2,13]; however, confounding factors impede the fight for global elimination. Filariasis research has not adequately explored variability among the lymphatic dwelling parasite species.

Treatment strategy

In classical texts various types of treatments are described like daha karma, paniya kshara, lepam of mustared seed kalka, mustared oil taken orally etc but Acharya Sushruta give a very special treatment for sleepadam i.e. Siravedhana chikitsa.[18] It is very much effective now a days.

Current drugs used for MDA implementation by national programmes such as ivermectin, ALB and DEC, which have been the drugs of choice for filariasis control.[19] These drugs are effective in reducing microfilariae counts but not effective in killing adult worms.[20–22] Hence, these drugs provide only partial benefit to infected patients, and very often are associated with adverse reactions. DEC has been reported to cause side effects such as fever, gastrointestinal disturbance, headache, malaise and a skin rash that reduce patient compliance.[23, 24] Unavailability of vaccines as well as the pressure of increased risk of development of drug resistant worms urge for an urgent need of a cheap, non–toxic and novel antifilarial drug with long term antimicrofilarial or macrofilaricidal activity.[25, 26] Several medicinal agents have been derived and based on plants and utilized in traditional therapeutics. India has a rich tradition of using medicinal plants or their products in treating different disease conditions through Ayurveda, Unani and Siddha systems of medicine. Natural products of plant origin with insecticidal properties have been tried in the recent past for control of a variety of insect pests and vectors[27] Many medicinal plants containing pentacyclic triterpene and oleanolic acid have antifilarial activity[28] Several anti–filarial agents have been also discovered through research on medicinal plants used by local healers. This review focuses on medicinal plants and folklore plants having antifilarial activity.

Plants effective against filarial parasite

Botanical name	Family	Part used	References
Acacia auriculiformis A. Cunn. ex Benth.	Fabaceae	funicle	29
Aegle marmelos Corr.	Rutaceae	Leaves	30
Alnus nepalensis D. Don	Betulaceae	Leaves	31
Andrographis paniculata Burm. f	Acanthaceae	Leaves	32
Asparagus adscendens Roxb.	Liliaceae	Root	33
Azadirachta indica A. Juss	Meliaceae	Flower	34
Bauhinia racemosa Lam.	Caesalpinaeceae	Leaves	35
Butea monosperma L	Fabaceae	Leaves	36
Caesalpinia bonducella L.	Caesalpiniaceae	Leaves	37
Cardiospermum halicacabum Linn.	Sapindaceae	Plant extracts	38
Cassia alata Linn	Caesalpiniaceae	Plant extracts	39
Cedrus deodara Roxb.	Pinaceae	Wood	40
Excoecaria agallocha L.	Euphorbiaceae	Leaves	41
Ficus racemosa Linn.	Moraceae	Fruiet	42
Glycyrrhiza glabra Linn.	Fabaceae	Root	43
Hibiscus mutabilis Linn.	Malvaceae	Leaves	44
Lantana camara Linn.	Verbenaceae	Stem	45
Leucas aspera (Willd.) Linn.	Lamiaceae	Plant extracts	46
Leucas cephalotes Spreng.	Lamiaceae	Flower Stem	47
Mallotus philippensis (Lam.) Muell. Arg	Euphorbiaceae	Leaves	48
Moringa oleifera Lam.	Moringaceae	Gum	49
Neurolaena lobata Linn.	Asteraceae	Plant extracts	50
Piper betle Linn.	Piperaceae	Crude extract	51
Plumbago indica Linn.	Plumbaginaceae	Root	52
Pongamia pinnata Linn.	Fabaceae	Leaves Fruiet	53
Psoralea corylifolia Linn.	Fabaceae	Leaves Seed	54
Ricinus communis Linn.	Euphorbiaceae	Seed	55
Saxifraga stracheyion Hook. f. & Thorns.	Saxifragaceae	Root	56
Sphaeranthus indicus Linn.	Asteraceae	Panchanga	57
Streblus asper Lour.	Moraceae	Stem bark	58
Tinospora crispa (L.)	Menispermiaceae	Stem	59
Trachyspermum ammi Linn.	Apiaceae	Fruiet	60
Vitex negundo Linn.	Verbenaceae	Leaves	61
Withania somnifera Dunal.	Solanaceae	Root	62
Zingiber officinale Rosc.	Zingeberaceae	Rhizome	63

CONCLUSION

The above review of literature demonstrates the important medicinal plants which are experimentally proved for their antifilariatic action. Now a days everyone is moving towards the Ayurveda due to its great advantage and minimal or negligible side effects. Medicinal plants are the need of a day world wise, not only in diseased conditions but also for maintaining good health. This compilation is a very small effort to fulfil this demand.

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