



POLYHERBAL FORMULATION FOR THE TREATMENT AND MANAGEMENT OF LYMPHATIC FILARIASIS

Patent Number- 202331061973



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Background

- **Human Lymphatic Filariasis (LF)**, caused by nematode parasites, *Brugia malayi*, *Brugia timori* and *Wuchereria bancrofti*, has affected over 1300 million people in 83 tropical and sub-tropical country of Asia, in India alone, accounting for 46% of the global filariasis burden.
- **World Health Organization (WHO)** in 2017, implemented a new triple drug regimen of Ivermectin Diethylcarbamazine (DEC), and Albendazole, which is also not sufficient to eradicate the Lymphatic filariasis it is mainly because all the three drugs are microfilaricidal with poor or no activity on adult parasite. Hence, elimination of LF by targeting only microfilaria does not seem practically useful.

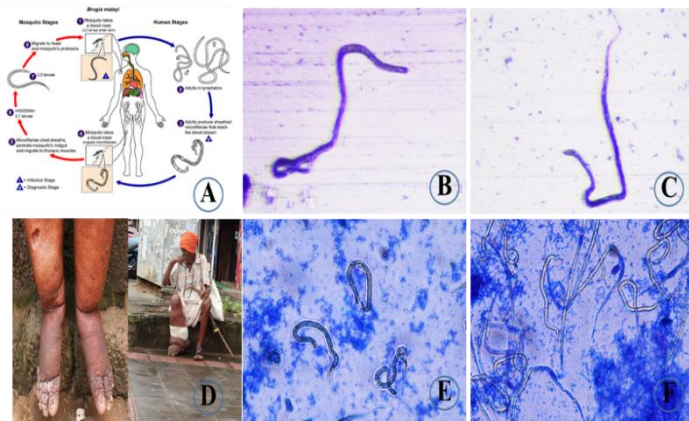
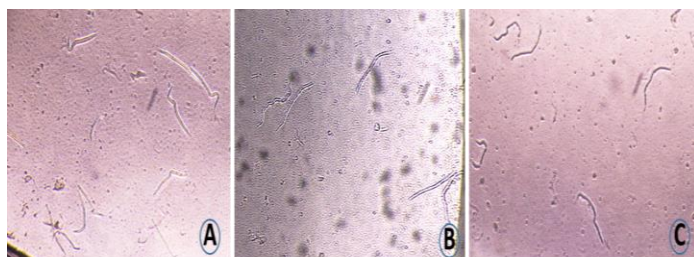


Figure 1: (A) Life cycle of *Brugia malayi* parasite, (B&C) Giemsa staining of *Brugia malayi* microfilaria, (D) Damaged caused due to lymphatic filaria, (E&F) Trypan Blue staining for viability test of *B. malayi* microfilaria.



Figure 2: (A) Gandhamardhan Hill Forest; (B) *T. trilobatum* plant in the bottom of Gandhamardhan Hill; (C) *T. trilobatum* plant maintained in the net house.

Antifilarial activity of *T. trilobatum*



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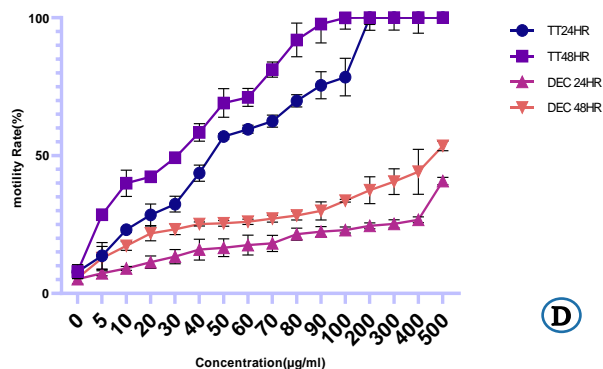


Figure 3: (A) Control live MF, (B) Normal dead MF, (C) Drug treated dead MF. (D) Graphical representation of Motility assay of *T. trilobatum* comparing with DEC

Compounds identification

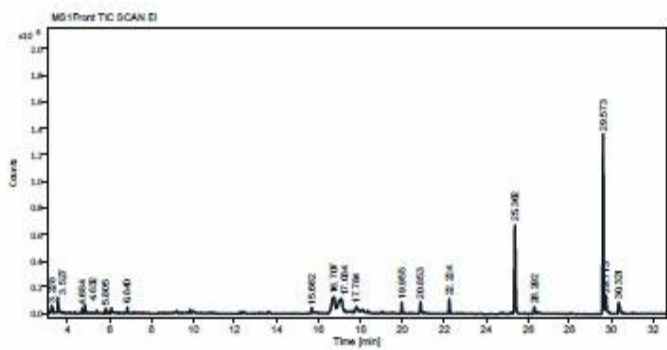


Figure 4: GC-MS analysis of *T. trilobatum* extract

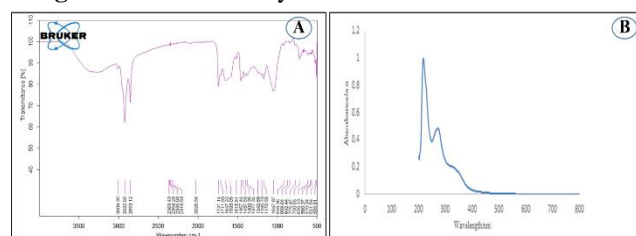


Figure 5: (A) FT-IR spectra (B) UV-VIS Spectra of crude extract of *T. trilobatum*

Evaluation of Antifilarial activity of Polyherbal formulation

The present invention is related to the fields of medicine and pharmaceuticals, and more specifically, it is concerned with the creation of a polyherbal formulation for the management and treatment of lymphatic filariasis. The invention encompasses an effective combination of meticulously chosen extracts from medicinal plants, which demonstrate robust antifilarial activity and possess the capacity to alleviate symptoms and impede the advancement of filarial worm-induced diseases.

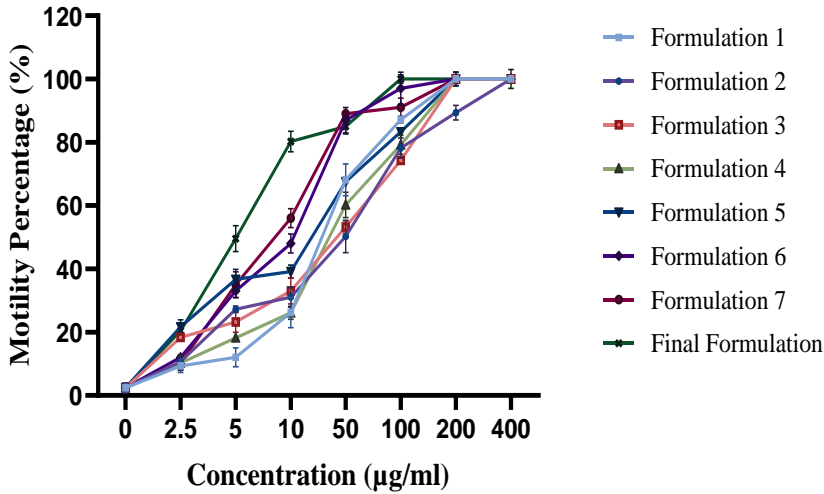


Figure 6: Antifilarial activity of formulation 1 to final formulation in microfilaria by motility assay.

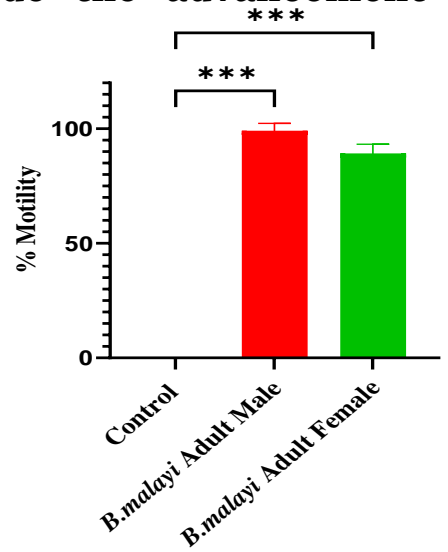


Figure 7: Antifilarial activity evaluated by Motility assay of final formulation in adult male and female worms

Toxicity evaluation of Polyherbal Formulation

Table.1 grouping of animal for sub chronic and acute toxicity test

Dose (mg/kg)	Numbers of rats		Mortality		Signs and Symptoms	LD ₅₀ (mg/kg)
	Male	Female	Male	Female		
500	3	3	0	0	No sign of toxicity at all doses	≥5000
2000	3	3	0	0		
5000	3	3	0	0		
Control	3	3	0	0		

Case Study

Table. 2 Decrease in Antigen Units (AU) due to the treatment with the polyherbal formulation as revealed from Serological Reports (Og4C3, Filaria)

Date of Test	Antigen Unit (A.U.)	Remarks
15.01.2022	512	+ve
25.04.2022	256	+ve
03.12.2022	128	-ve

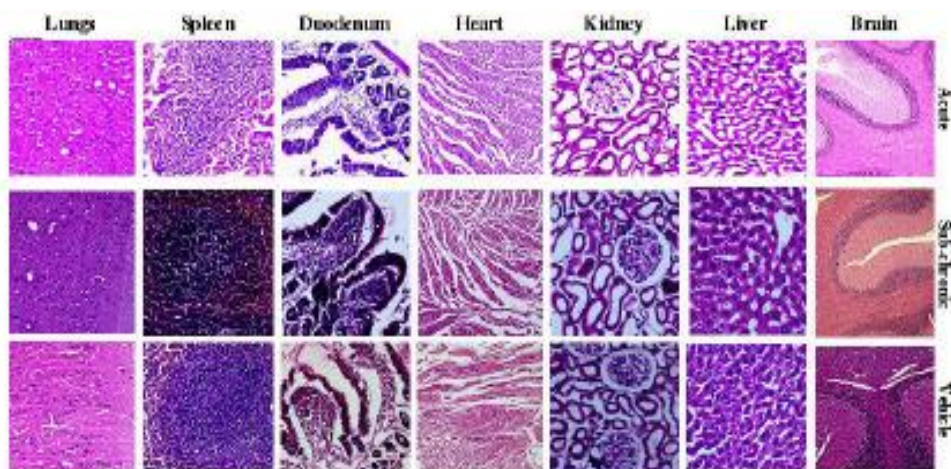


Figure 8: H&E staining of liver, kidney, spleen, lungs, heart, duodenum & brain

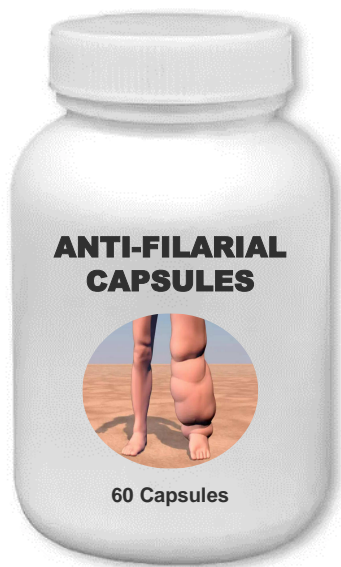


Figure 9: (A)&(B) Swelling, redness with skin infections in left leg, (C) 3 Weeks after Treatment (D) Six months after Treatment with the Herbal Drug; Complete cure.

Patent information of Polyherbal formulation

Patent Title- “A novel polyherbal for the treatment and management of lymphatic filariasis”.

Patent Number- 202331061973



Dose- 3 Capsules per day after Food

Abstract: The current study pertains to an innovative polyherbal formulation designed to effectively manage lymphatic filariasis. The formulation consists of a blend of particular medicinal plants (tubers of *Typhonium trilobatum*, the root of *Vitex nigundo*, the root of *Withania somnifera*, the seed of *Trachyspermum ammi*, the stem of *Tinospora cordifolia*, and the rhizome of *Curcuma longa*) recognized for their potential efficacy against filarial infections. The combined action of these herbal remedies offers a viable and secure therapeutic approach for the management of lymphatic filariasis. The invention additionally encompasses methodologies for the preparation and utilization of the polyherbal formulation in the context of managing lymphatic filariasis.

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