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Antifilarial effect of two homeopathic potencies against human filariasis

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ABSTRACT

Lymphatic filariasis (LF) is caused mostly by the nematode parasite *Wuchereria bancrofti* and transmitted by mosquitoes. Potencies of Cina proved effective against canine dirofilariasis. We have prepared one nosode from the larvae of the filarial parasite and designated it as Filarinum. The purpose of the present study is to see whether Cina 30, Cina 200 and Filarinum 200 are effective against bancroftian filariasis. Cina 30 and Cina 200 were prepared from the ethanolic extract of the flowering tops of *Artemisia nilagirica* by successive dilution 1: 100 with 90% ethanol followed by succussion in 30 and 200 steps, respectively. A sample of blood containing microfilariae (mf) was taken from an asymptomatic carrier, allowed to dry, scrapped, and triturated with lactose and then mixed with 90% ethanol 1:100 and succussed in 200 steps to prepare Filarinum 200. Microfilarial density in infected people was determined. Filarial lymphoedema and elephantiasis were recorded by taking 4 girth measurements in the ankle region. Consenting patients were asked to take one dose of a potency daily for a maximum period of 180 days. All the homeopathic potencies reduced microfilaraemia. Filarinum 200 also reduced lymphoedema. Cina 30, Cina 200 and Filarinum 200 reduced microfilaraemia. (2) Filarinum 200 is also effective in reducing lymphoedema. (3) The potencies are thought to produce their effect by removing parasite-induced immunosuppression and specific immune stimulation resulting in destruction of parasites.

INTRODUCTION

Lymphatic filariasis affects about 119 million people in the tropical and sub-tropical countries [1]. The nematode parasite, *Wuchereria bancrofti*, is responsible for a majority of cases. The mosquito *Culex quinquefasciatus* transmits the disease. Unlike malaria, the filarial parasite multiplies only in the definitive host, man. It is, therefore, economical to treat the filarial patients with suitable antifilarial drugs in order to control filariasis. The morbidity of the disease involves lymphangitis, lymphoedema,

and elephantiasis. The disease causes functional impairment of patients [2]. Many asymptomatic people living in the endemic zone have microfilariae in their blood, a condition known as microfilaraemia. The disease is diagnosed by the presence of microfilariae and filarial antigens in blood as well as by the morbidity.

The WHO [3] has laid emphasis on the eradication of filariasis from the world. The global strategy involves annual single dose mass chemotherapy with antifilarial drugs [4,5]. The drug regimen includes diethylcarbamazine citrate (DEC), albendazole and ivermectin (IVM) [4]. *Wolbachia*, a bacterial endosymbiont of filarial worms, is also targeted with an antibiotic doxycycline to reduce filarial infection [6,7]. However, results so far obtained with those drugs, are inconsistent and inconclusive [8,9]. There is no safe and effective drug available to combat the adult worms [10].

We have already observed antifilarial effect of a potentized homeopathic drug, Cina against canine dirofilariasis [11,12]. The purpose of the present study is to see whether Cina and another new drug, Filarinum are effective against bancroftian filariasis in the endemic zones of West Bengal.

MATERIALS AND METHODS

Drugs

Flowering tops of *Artemisia nilagirica*, collected from Shillong (India), was dried in the shade and extracted with 90% ethanol. The extract, called mother tincture or Cina was diluted with 90% ethanol and succussed 10 times to produce the first centesimal potency called Cina 1C from which subsequent potencies were prepared by successive dilutions and succussions following the Korsakovian single-vial method [13]. In this way Cina 30C and 200C were prepared.

Blood was sampled by finger prick from a microfilaraemic patient and a thick smear was prepared on a clear slide. The mf density was 1500/ml. The smear was allowed to dry at room temperature, scrapped, mixed with an equal amount of lactose powder and triturated in a mortar and pestle for 10 minutes. The mixture weighing 5 mg was taken in 5ml 90% ethanol. This is designated as Filarinum from which Filarinum 200C was prepared by successive dilutions and succussions [13]. Each potency was soaked in sucrose globules and kept in vials for treatment. Before treatment Filarinum 200 was administered orally one dose daily on a batch of 10 rats for one month. The authors themselves also took the drug, one dose daily, for 15 days.

Identification of microfilaraemic persons and treatment

Blood was collected by finger prick between 2000 and 2200 hours at random from the desiring population living in the wards 21, 22 and 23 of Kulti Municipality under the Asansol sub-division of Burdwan district, West Bengal. The study was conducted from 25th November 2006 to 13th January 2008. The socio-economic condition and habits of the people were recorded.

Indoor-resting mosquitoes were collected in morning hours fortnightly throughout the year from the study area and identified.

A sample of 100 l finger prick blood was taken from each person during the night survey and spread on the slides to make thick films. After a day of collection the dry smear was dehaemoglobinized in distilled water and stained with Giemsa and examined under the microscope. The mf density is expressed as the number of mf/ml of blood. In this way microfilaraemic persons in the population were identified. Consenting microfilaraemic patients were asked to take one dose (one globule no.40)

of a homeopathic potency daily in the morning on empty stomach. Mf densities of the treated people were monitored once in a month. Two samples of blood of each microfilaraemic patient were taken at an interval of 30 days before starting the treatment. Identification of microfilaraemic persons and their allocation to treatment are presented in a flow diagram (Fig.1) following consolidated standards of reporting trials (CONSORT).

Lymphoedema and treatment

For the treatment of filarial morbidity another endemic zone, Sonamukhi of Bankura district, West Bengal was selected. A survey on filarial epidemiology was conducted earlier there [14]. Here lymphoedema of legs was measured at a fixed time for each patient between 1700 and 1800 hours. A measuring tape was used to measure the circumference of both the normal and affected legs before and after treatment. Sequential measurements of the limbs at 4 points i.e. 100 mms from the great toe and 120 mms, 200 mms & 300 mms from the heel keeping the knee straight, were recorded following the manual for clinicians published from Vector Control Research Centre (Indian Council of Medical Research) of Pondicherry [15]. This measurement is described as the most reliable technique to document the changes in the volume of oedema [16]. These patients were asked to take Filarinum 200, one dose daily during the entire period of treatment. Survey of filarial patients and their allocation to treatment are given in a flow diagram (Fig.2). Guidelines for reporting data on homeopathic treatments (REDHOT) have been followed. All the patients under study did not take any other medicines during the period of observation. The results are presented in Fig 6. Homeopathic practitioners involved in this study are N.C.Sukul (M.Sc, Ph.D, D.I.Hom, London; cliniacal practice 12 hrs/week for 46 years) and A.Sukul (M.Sc, Ph.D, D.I.Hom, London, B.H.M.S; practice 35 hrs/week for 7 years). Both follow classical homeopathy.

RESULTS

Microfilaraemia

Mf densities of microfilaraemic patients were almost same before treatment varying only by an average of 5%. The densities were as low as 20 and as high as 2800/ml blood. The frequency distribution of different mf densities among the asymptomatic people before treatment is presented in Fig 3. After 30 days of treatment with Cina 30, mf reduction was 90-100% in the majority of patients. The drug also increased mf concentration in some patients, but their number was lower than those showing decrease in mf count (Fig.4). Cina 200 reduced mf count, but it also increased it among some patients (Fig.4). Filarinum 200 showed a maximum reduction in mf concentration on day 30 and day 60. This drug also provoked increase in mf count among some people (Fig.5). None of the treated patients showed any adverse reaction during the period of treatment. The rise in mf count did not manifest itself in any subjective symptoms. No adverse effects in the form of movement, food and water intake, fever and loss of weight were observed in rats and human volunteers.

Filarial morbidity

Filarinum 200 produced maximum reduction of lymphoedema within a period of 6 months (Fig.6). Measurements of limb circumference of filarial patients before and after treatment are shown in Fig 7.

Socio-economic status

Patients are small farmers and laborers in factories and households with a monthly income of Rs.1000 to 3000. About 30% patients do not use any mosquito curtain.
Mosquitoes collected from the study area mostly belong to *Culex quinquefasciatus, Cx. vishnui group*, *Anopheles culicifacies, An. vagus, An. subpictus, An. annulifera, Aedes aegypti, Ae albopictus and Armigeres subalbatus*.

DISCUSSION

The present study very clearly indicates that both Cina and Filarinum are effective against bancroftian filariasis. Since there was a total elimination of microfilarae in some treated patients, we can assume that adult worms might have been severely affected. Because of this adverse effect, adult females might have delivered a large number of microfilariae resulting in a temporary rise in mf density (Figs 3, 4, 5). This is more evident with Cina than with Filarinum. Longer period of treatment with Filarinum 200 eliminated this provocative rise in mf count (Fig.5). This kind of initial rise in mf density following treatment with antifilarial agents has been observed earlier [17,18,19]. The drugs might have induced some sort of physiological stress on gravid females.
Cina 30, 200 and Filarinum 200 do not contain any original drug molecules from which they have been prepared. For this, they are not expected to have any direct effect either on adults or on the larvae. The filarial worms are known to cause immunosuppression [20]. It is possible that Cina potencies and Filarinum 200 might have removed immunosuppression leading to vigorous immune reaction of the host to filarial antigens. This ultimately resulted in reduction of microfilariae in the blood [12]. Living microfilariae of *Dirofilariae immitis*, injected intravenously into dogs, which had received and cleared previous infection of microfilariae, disappeared from peripheral circulation. Antibodies to mf were demonstrable in the dogs [21].
Acute inflammatory episodes, known as dermatolymphangioadenitis (ADLA) are induced by bacteria. ADLA serves as a trigger for further clinical manifestation of filarial morbidity like lymphoedema and elephantiasis [9]. Filarinum 200 might have stimulated immune reaction against filarial and associated antigens thereby reducing lymphoedema and elephantiasis. Out of 120 million filarial infections worldwide, about 40 million people living in 80 countries have clinical disease [22]. Chronic cases of elephantiasis need surgery for improvement [23].
The nosode Filarinum 200 holds promise for its global use as a safe and effective antifilarial agent not only against microfilaraemia but also against clinical disease.

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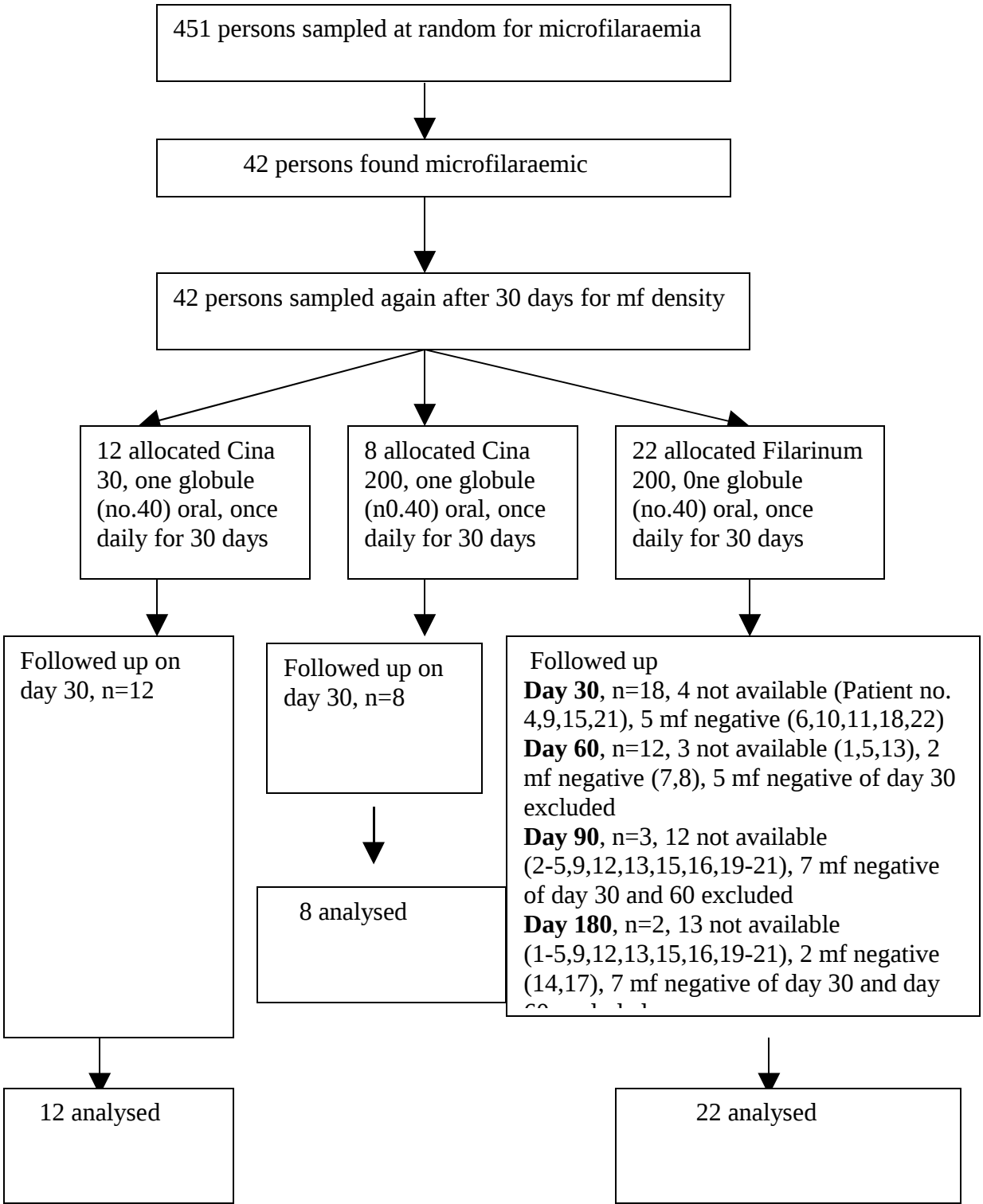
Fig.1. Flow diagram of a trial of Cina 30, Cina 200 and Filarinum 200 against microfilaraemic patients.



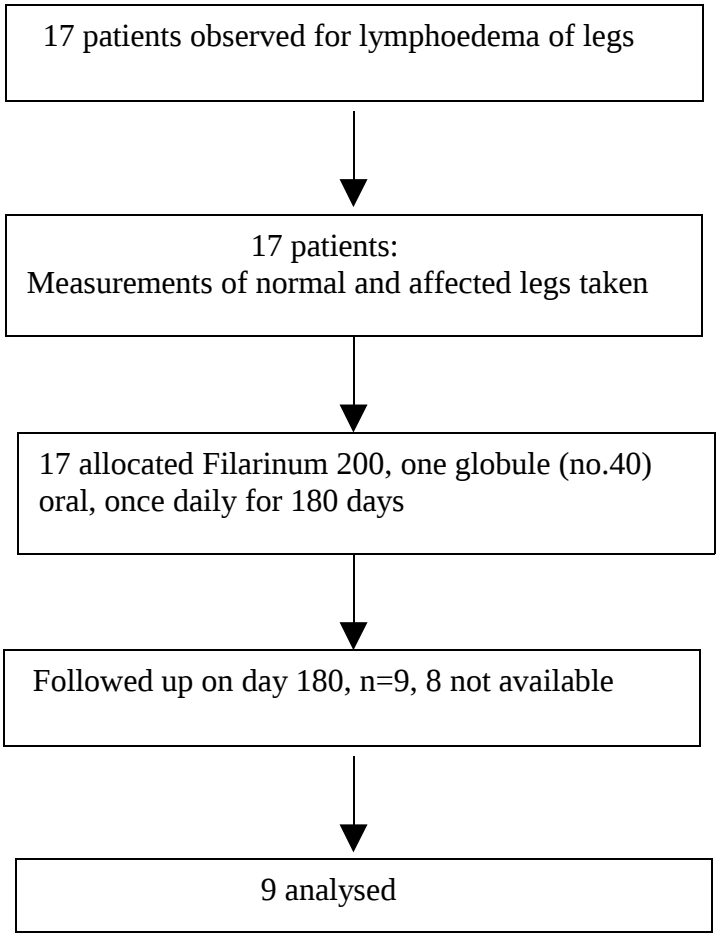


Fig.2. Flow diagram of a trial of Filarinum 200 against filariasis patients having lymphoedema of legs.

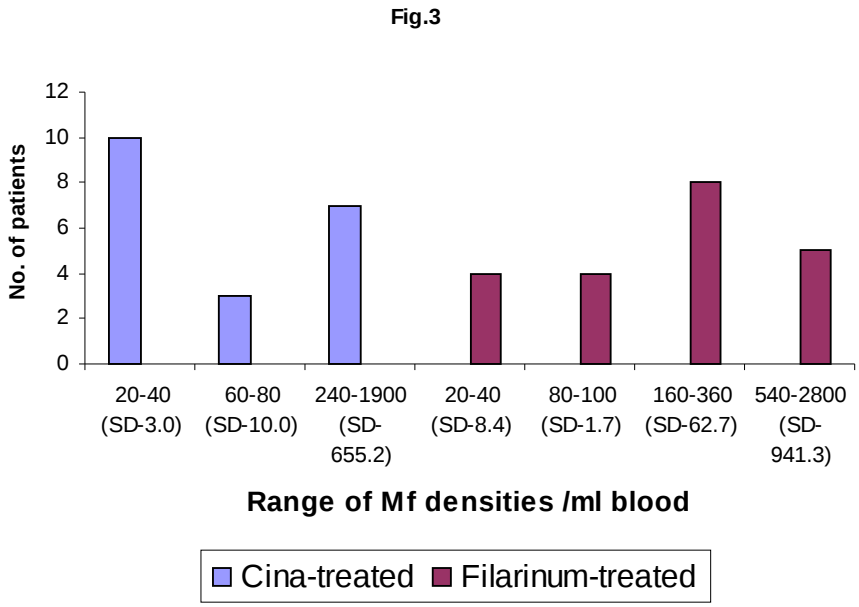


Fig.3. Mf density/ml blood with SD in Cina-treated and Filarinum-treated individuals before treatment.

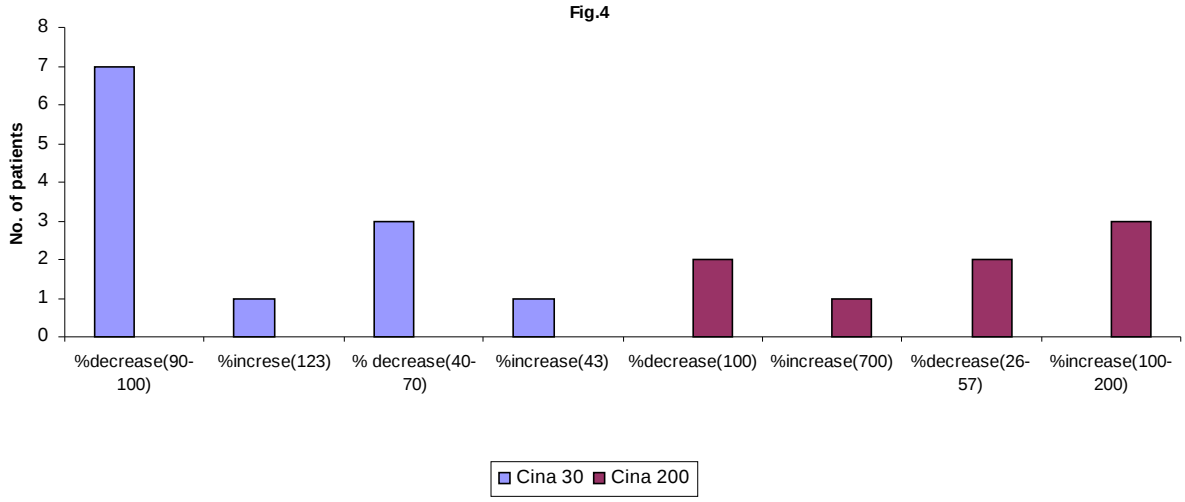


Fig.4. Percent decrease and percent increase in Mf density with SD on day 30 after treatment with Cina 30 and Cina 200.

Fig.5

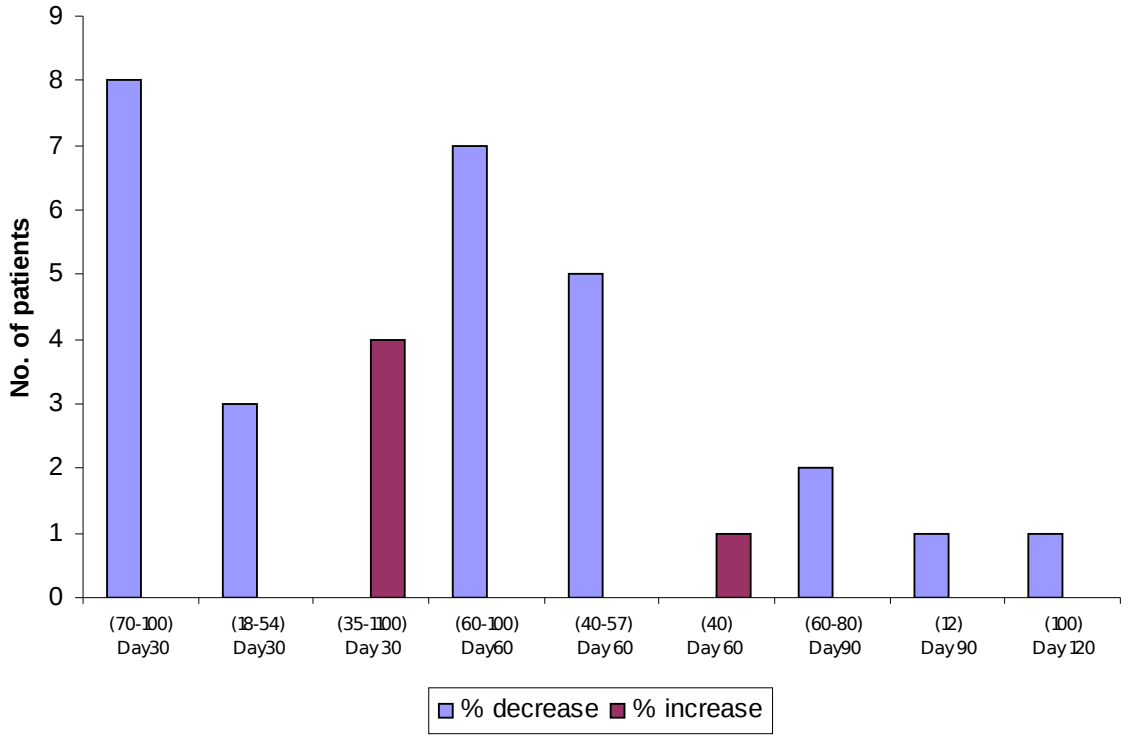


Fig.5. Percent decrease and percent increase in Mf density with SD on sampling days after treatment with Filarinum 200.

Fig.6

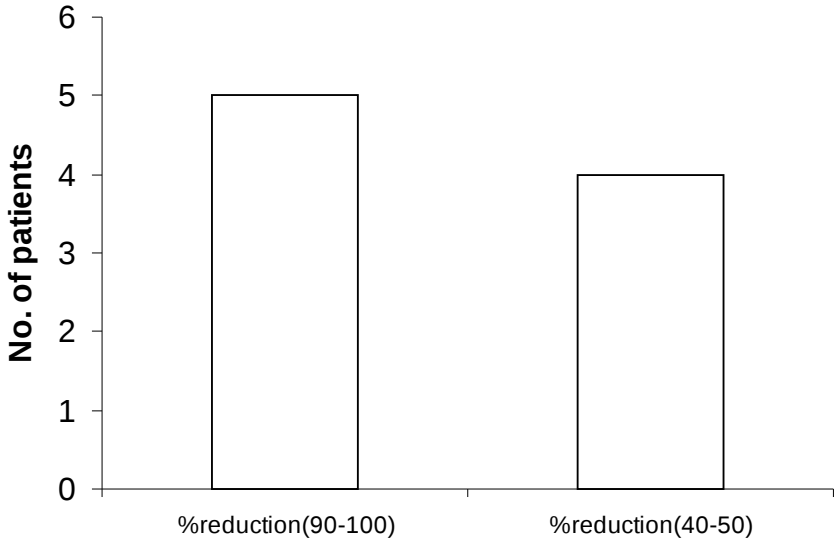
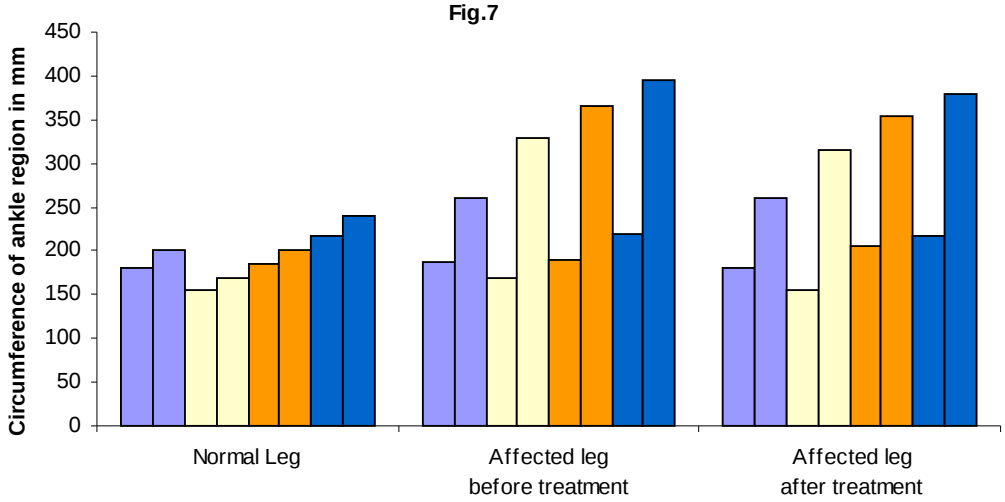


Fig 6. Percent reduction in lymphoedema of legs with SD on day 180 following treatments with Filarinum 200, one dose daily.

Fig.7



Girths of legs at different locations, 100 mm from great toe and 120mm, 200 mm and 300 mm from the heel (mean and SD)