Clinical Research

Effect of Kuberaksha Patra Churna, Vriddhadaru Mula Churna and Kandughna Taila in Shlipada (Manifested filariasis)

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Abstract

At present there are effective drugs in eradicating microfilariae but treatments to control the progression of manifested filariasis, periodic adenolymphangitis (ADL) and lymphedema are not available in conventional system of medicine. So far National Ayurveda Research Institute for Vector-borne diseases, Vijayawada, has conducted many clinical trails on manifested filariasis patients with the classical Ayurvedic herbal, herbo-mineral drugs and found significant results on ADL, lymphedema and other acute and chronic clinical manifestations. An effort has been made to find the effect of Kuberaksha Patra Churna [Caesalpinia bonduc (L.) Roxb.], Vriddhadaru Mula Churna [Argyreia nervosa (Burm.f.) Boj.] and Kandughna Taila (oil prepared from 10 Ayurvedic drugs) in manifested filarial patients. Based on inclusion criteria 133 patients were included in three groups (45 in Gr.I, 45 in Gr.II and 43 in Gr.III) and 120 patients completed the study (40 in each group). In Gr. I Argyreia nervosa (Burm.f.) Boj. root powder, Caesalpinia bonduc (L.) Roxb. leaf powder mixed equally was given in the dose of 5 g twice a day for 30 days. In Gr.II along with Gr. I internal drugs Kandughna Taila was applied externally in sufficient quantity once a day for 30 days. Gr. III is a control study with Ayurvedic established drug ‘Nityananda Rasa’ 1 tablet thrice daily for 30 days. Group I and II drugs showed highly significant effect on lymphedema, lymphadenitis, lymphangitis, pain, tenderness, heaviness, deformity, fever and rigors (P<0.0001). Group III drug showed highly significant (P<0.0001) effect on lymphedema, deformity and heaviness; statistically significant (P=0.0018) on pain and tenderness; Significant effect on fever (P=0.0290), rigor (P=0.0290) and in lymphangitis (P=0.0384) and non-significant effect on lymphadenitis (P=0.1033). On statistical analysis effect of treatment on Hb and eosinophil count was found non-significant in three groups. On ESR, effect of treatment was found significant in Gr. III and non-significant in Gr. I and Gr. II.

Key words: Argyreia nervosa, Caesalpinia bonduc, fever, filariasis, lymphadenitis, lymphangitis, lymphedema, Shlipada

Introduction

As per World Health Organization 120 million people living in 81 tropical and subtropical countries of the world are infected with lymphatic filariasis and an estimated 1.34 billion live in areas where filariasis is endemic.[1] In comparison to global population, India is the largest Filarisis endemic country, contributing about 40% of total global burden of Filarisa. In Ayurveda, Shlipada is correlated with Filariasis of contemporary science.

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In Ayurvedic texts of Bhaishajya Ratnnavali, Yogaratnakara and in Vrindamadhava leaf juice of Kuberaksha and root powder of Vridhadhara are indicated in Filariasis. As per Ayurveda bitter and astringent taste, light, dry properties, hot potency and pungent nature in post-digest effect, anti-edema, analgesic actions of Caesalpinia bonduc leaf powder and pungent, bitter and astringent taste, light, hot potency, Kapha (body humor) pacifying nature, wound healing, anti-edema actions of Argyreia nervosa supports the selection of these drugs in Shlipada. Pharmacologically anti-inflammatory, antimicrobial, effect of Caesalpinia bonduc, antimicrobial and antibacterial effect of Argyreia nervosa were proved. In earlier researches in acute cases of Filariasis and in Microfilaremia the effect of AYUSH 64 was proved. In AYUSH 64 among the four ingredients Caesalpinia bonduc seed is the important ingredient. Effect of the astringent and alcoholic extracts of the leaves of Argyreia nervosa on the spontaneous movements of both the adult worm and a nerve/muscle preparation of Setaria cervi, a filarial worm of cattle, and on the survival of microfilariae in vitro was studied. The aqueous extract in a dose of 150 μg/ml caused a decrease in tone and amplitude of spontaneous movements of the worm. A similar response was produced by the alcoholic extract but at a much lower concentration of 75 μg/ml. The aqueous extract produced complete paralysis of the nerve/muscle preparation in a dose 25 μg/ml whereas with alcoholic extract only 30 ng/ml was required. Although in both the above cases the useful parts are different, it can be presumed that the same active principles also present in leaves of Latakaranja (Caesalpinia bonduc) and root of Vridhadhara (Argyreia nervosa) and selected for Gr.I study.

In Gr-II along with Latakaranja and Vridhadhara, Kandughna Taila was used externally. Studies in chronic lymphedema patients proved that bacterial invasion in skin initially cause dermatitis and later leads to Adenolymphangitis (ADL) and progression of disease. To prevent the disease progression, in Gr. II externally medicated oil is also included. Among the 10 ingredients of Kandughna Taila (oil prepared from Charaka Kandughna Dashemani and sesame oil) on external use, all are having anti-itching and skin protecting property. Among them Chandana (Santalum album Linn.) and Nalada (Vetiveria zizanioides (Linn) Nash) pacifies burning sensation; Kritamala (Cassia fistula L.), Madhuka (Glycyrrhiza glabra L.), Musta (Cyperus rotundus L.), Durarhadra (Berberis aristata DC.) have anti-edema property; Cassia fistula, Vetiveria zizanioides, sesame oil, have analgesic action. Sesame oil and Berberis aristata possess wound cleaning property. Sesame oil and Nakamala (Pongamia pinnata Pierre.) have wound healing property, Santalum album and Vetiveria zizanioides possess complexion promoting property and Pongamia pinnata has wormicidal properties. Antibacterial, antiviral, antiprotozoal, antimicrobial, antifungal, anti-inflammatory, analgesic, antitumor, antiinflammatory, wound healing and smooth muscle relaxant properties of the ingredients also supports the selection of this oil in the treatment of Filariasis.

With this background an attempt was made to establish the effect of Caesalpinia bonduc leaf powder, Argyreia nervosa root powder and Kandughna Taila in Filariasis.

### Materials and Methods

#### Aims and objective

1. To assess the effect of Kuberaksha Patra Churna and Vridhadhara Mula Churna in various clinical and laboratory findings of Shlipada.
2. To assess the synergistic effect of Kuberaksha Patra Churna and Vridhadhara Mula Churna along with external application of Kandughna Taila.
3. To compare the effects Kuberaksha Patra Churna, Vridhadhara Mula Churna and Kandughna Taila with established Ayurvedic drug Nityananda Rasa.

#### Criteria for inclusion

1. Patients with visible lymphedema, who were already diagnosed and established as Manifested Filarial patients by the chronicity, clinical manifestations, periodic episodes having cardinal signs and symptoms like lymphadenitis, lymphangitis, deformity, pain, tenderness, fever, rigors, etc. were selected for present study.
2. Patients should be with in the age limit of 5-70 years and chronicity of the disease should be more than 1 year.

#### Criteria for exclusion

Patients having nodular deformity, thorny deformity, anhill like deformity, nutritional edema, edema due to liver and cardiac disorder, arthritic disorder are excluded from the study.

#### Place of study

Present study was conducted at National Ayurveda Research Institute for Vector-borne diseases (formerly Regional Research Institute), Vijayawada (Institute under Central Council For Research in Ayurvedic sciences, Department of AYUSH, M/o Health and Family Welfare, Govt. of India) during 2009-2011. This study was approved by Institutional Ethics Committee of National Ayurveda Research Institute for Vector-borne diseases, Vijayawada.

#### Drugs and dose

Drug collection, identification and standardization and estimation of heavy metals of Caesalpinia bonduc (L.) Roxb leaf powder, Argyreia nervosa (Burm.f.) Boj. root powder was done at Plant Taxonomy Division, Laila Impex R & D Centre, Vijayawada. Standardization of Kandughna Taila was also conducted at Plant Taxonomy Division, Laila Impex R and D Centre, Vijayawada [Figures 1-3].

In Group - I Argyreia nervosa (Burm.f.) Boj. root powder, Caesalpinia bonduc (L.) Roxb. leaf powder mixed equally was given to 45 patients in the dose of 5 g twice a day with water before food for 30 days. In Group-II, 45 patients were given Gr.I internal drugs along with external application of Kandughna Taila once day for 30 days. In Gr. III, 43 patients were given control drug (Ayurvedic established drug) Nityananda Rasa 1 tablet (125 mg) thrice a day after food for 30 days. Nityananda Rasa of Baidyanath Ayurveda Pharmacy was purchased from the market at a time with same batch number and date (080160/October 2011).
Safety profile

*Argyria nervosa* (Burm.f.) Boj, LD 50 of seed extract is 500 mg/kg body weight. Methanol, benzene, chloroform, petroleum ether extracts of the plant were found non-toxic in dose range of 100-750 mg/kg i.p. as observed during 72 hours after administration.[18]

In a subacute toxicity study in rat, ‘Ayush-64’ an Ayurvedic antimalarial drug (containing seeds of *C. bonducella* as one of the constituents) when administered orally at the dose of 500 mg/kg for 30 days it did not show any toxic effects hematologically, biochemically and histologically at the cellular level.[23] While standardizing these collected drugs safety profile including heavy metal toxicity was done and found in normal levels.

*Kandughna Taila* is used externally and due its soothing effect in this study it was proved safe. No patient had complained adversely against its external use.

Assessment of result

Detailed history of the patient covering both demographic and other Ayurvedic parameters were noted in separate Proforma. Routine Laboratory investigations covering TC, DC, ESR, Hb, Urine Routine and Microscopic, stool ova/cyst along with DECPT (Diethylcarbamazine citrate provocation test), urine for chyle were investigated at 1st, 8th, 15th, 23rd and 30th days of treatment.

Based on Ayurvedic and Modern disease reviews and research, Central Council for Research in Ayurvedic Sciences, Department of AYUSH, Govt. of India, had prepared a standard protocol and proforma for *Shlipada* (filariasis). To assess the effect of treatment gradation of parameters with specific scores were denoted in this proforma. In the present study as per the proforma each patient clinical finding were noted in terms of score before the treatment (on date of enrolment) on 8th, 15th, 23rd and 30th days.

Gradation of parameters with specific scores for the assessments of results

| I. Lymphadenitis          |                       |
|--------------------------|-----------------------|
| a). When one or more lymph gland(s) are enlarged | 10 |
| b). Glands partially reduced in size | 5 |
| c). Completely reduced to normal size | 0 |

| II. Lymphangitis          |                       |
|--------------------------|-----------------------|
| a). Swelling of any lymphatic channel visible/palpable | 10 |
| b). Partially reduced | 5 |
| c). Completely reduced | 0 |

| III. Swelling (lymphoedema): |                       |
|-------------------------------|-----------------------|
| Much elevated that the part seems grossly deformed | 30 |
| Covers well the bony prominences/upper surface of the affected part | 20 |
| Slightly obvious or reveals more in comparison with normal side | 10 |
| No swelling | 0 |

| IV. Pain                    |                       |
|-----------------------------|-----------------------|
| Moderate: Patient frequently complain of pain | 8 |
| Mild: Patient tells of pain after asking | 4 |
| Nil: No pain at all | 0 |

V. Tenderness

2008). If the age of the registered patients is found to be less than 12 years, the dose was reduced by 50%.
Grade-I: The patient winches and withdraws the affected part
Grade-II: The patient winches
Grade-III: The patient says that the part is tender
Grade-IV: No tenderness at all
VI. Fever
Present
Absent
VII. Rigor
Present
Absent
VIII. Heaviness
Present
Reduced
Absent

Basing on the individual score of each finding before and after treatments, the response of the treatment can be assessed. Over all effect of the treatment in each individual patient can be assessed by the below formula, i.e., over all percentage of relief = (Total score of all findings before treatment –Total score of all findings after the treatment) × 100/Total score of all findings before treatment. Patients with 75% or more relief in clinical symptomatology are considered as Good response, 50 to <75% relief is considered as Fair response, 25 to <50% as Poor response and less than 25% as No response. Based on Individual score before and after treatments statistical analysis was also done using Graphpad free software paired ‘t’ test method.

Results and Discussion

In three groups female patients are more in comparison with males. Mean age in three groups is around 45 years. Mean disease duration (chronicity) is around 10 years. Mean score difference of before and after treatments is more in Gr. II and less in Gr. I [Table 1].

In Gr. I and Gr. III only patients suffering from Filarial legs were included and in Gr. II along with patients with Filarial legs, two filarial hand patients were also included [Table 2].

In results Good and fair responses are more in Gr. II followed by Gr. I and Gr. III. No responses are more in Gr. III [Table 3].

In percentage of relief of lymphadenitis, lymphangitis, lymphoedema, pain, tenderness, heaviness, fever and rigor more relief was observed in Gr. II followed by Gr. I and least relief were observed in Gr. III [Table 4].

Table 1: Demographic pattern

| Patients particulars       | Gr.I       | Gr.II      | Gr.III      |
|---------------------------|------------|------------|------------|
| Male: Female              | 11:34      | 13:32      | 17:26      |
| Mean age in years         | 48.47      | 46.22      | 49.37      |
| Mean disease duration in years | 11.19      | 9.47       | 9.97       |
| Mean score on overall parameters before and after treatments (for completed patients i.e., 40 in each group) | 53.75: 24.1 | 49.675: 19.775 | 51.375: 36.95 |

On statistical analysis of results, In Gr.II the effect of treatment on acute symptoms like lymphadenitis, lymphangitis, pain, tenderness, fever, rigors and chronic symptoms like lymphedema, swelling (measured at four points of affected leg or hand), heaviness, deformity, etc., were found extremely significant [Table 5]. Although Gr-I, had also shown extremely significant results on all clinical parameters, the percentage of improvement is more in Gr. II. This can be assessed by comparing the percentage of relief, mean and SD values of both groups. In comparison with Group II and Group I, Group III had shown less improvement. Being the control group and used as drug of choice in Ayurvedic fraternity this Nityanandarasa (Gr. III) had also shown highly significant (P<0.0001) effect on chronic symptoms like lymphedema and heaviness. Effect of treatment on pain and tenderness is considered to be very statistically significant (P=0.0018). In fever (P=0.0290), rigor (P=0.0290) and in lymphangitis (P=0.0384) the effect is considered to be statistically significant. In lymphadenitis (P=0.1053) the effect is considered to be not statistically significant [Table 5].

After completion of the study follow-up studies were also carried out and less periodic attacks were observed in Gr. II patients, followed by Gr. I and Gr. III. No patient had developed severe side effects/adverse reactions. Two patients in Gr. I and one patient in Gr. II had diarrhea for 2 days which was relieved by the intake of buttermilk. Five patients in group I and 6 in Gr. II had the feeling of nausea due to the bitter taste of Caesalpinia bonduc (L.) Roxb. leaf powder. Among those 133 enrolled one patient in Group I was hospitalized due to unknown diseases along with acute periodic attack. He discontinued the treatment before completion of the first week of treatment and excluded from the study (drop out). Along with 120 completed cases (40 in each group) of present study four patients in Gr.I, five patients in Gr.II and three patients in Gr.III left the study with out any medical advice (LAMA). As these patients left the study at various intervals, in the present study completed cases (40 in each group) only were considered for the assessment of result.

Before, during and after treatments in lab investigations all the patients were found free from DECPT and chyle in urine. On statistical analysis effect of treatment on Hb and eosinophil count was found non significant. On ESR effect of treatment was found significant in Gr. III and non-significant in Gr. I and Gr. II [Table 6].

On overall assessment the present study accentuates the positive effect of three group’s drugs on Manifested filarial patients’ clinical findings [Figures 4-9].
On comparison Group II drugs which includes both Gr. I internal drugs and Kandughna Taila external application had shown better results in comparison with Gr. I and control drug.

Table 2: The parts affected

| Affected part | No. of patients in Gr. I | No. of patients in Gr. II | No. of patients in Gr. III |
|---------------|--------------------------|---------------------------|---------------------------|
| Right leg     | 21                       | 24                        | 19                        |
| Left leg      | 22                       | 15                        | 18                        |
| Both legs     | 2                        | 4                         | 6                         |
| Right hand    | 0                        | 2                         | 0                         |
| Left hand     | 0                        | 0                         | 0                         |
| Both hands    | 0                        | 0                         | 0                         |
| Total         | 45                       | 45                        | 43                        |

Table 3: The results of the treatment

| Group     | Good Resp. | Fair Resp. | Poor Resp. | No Resp. | Drop out | LAMA | Total |
|-----------|------------|------------|------------|----------|----------|------|-------|
| Gr. I     | 10 (22.22) | 15 (33.33) | 12 (26.67) | 3 (6.67) | 1 (2.22) | 4 (8.89)| 45 (100) |
| GR. II    | 10 (22.22) | 21 (46.67) | 8 (17.78)  | 1 (2.22) | 0        | 5 (11.11)| 45 (100) |
| Gr. III   | 7 (16.28%) | 6 (13.95)  | 10 (23.26%)| 17 (39.53%)| 0       | 3 (6.98%)| 43 (100%)|
Table 5: The relief on all clinical parameters

| Symptom                  | Group | N   | Mean and SD | S.E (Diff) | t    | P     |
|--------------------------|-------|-----|-------------|------------|------|-------|
| Lymph-edenitis           | Gr.I  | 19  | 8.42 ±2.39  | 2.37±3.06  | 6.05±3.15 | 0.723 | 8.367 | <0.0001 |
|                          | Gr.II | 15  | 8.00±2.54   | 0.67±1.76  | 7.33±2.58 | 0.667 | 11.000 | <0.0001 |
|                          | Gr.III| 28  | 5.36±3.02   | 3.93±3.43  | 1.43±4.48 | 0.847 | 1.6859 | = 0.1033 |
| Lymph-angitis            | Gr.I  | 18  | 8.61±2.30   | 2.22±3.52  | 6.39±4.47 | 1.055 | 6.059 | <0.0001 |
|                          | Gr.II | 18  | 7.22±2.56   | 0.56±1.62  | 6.67±2.97 | 0.700 | 9.522 | <0.0001 |
|                          | Gr.III| 25  | 6.40±3.07   | 4.40±3.63  | 2.00±4.56 | 0.913 | 2.1909 | = 0.0384 |
| Lymphedema               | Gr.I  | 40  | 24.00±7.09  | 16.25±11.02| 7.75±6.98 | 1.103 | 7.027 | <0.0001 |
|                          | Gr.II | 40  | 22.75±7.16  | 15.00±10.62| 7.75±5.77 | 0.912 | 8.498 | <0.0001 |
|                          | Gr.III| 40  | 25.00±6.41  | 18.50±10.75| 6.50±8.34 | 1.318 | 4.9316 | <0.0001 |
| Pain                     | Gr.I  | 40  | 7.40±1.45   | 1.60±2.18  | 5.80±2.71 | 0.428 | 13.536 | <0.0001 |
|                          | Gr.II | 40  | 7.10±1.69   | 1.00±1.75  | 6.10±2.39 | 0.379 | 16.112 | <0.0001 |
|                          | Gr.III| 38  | 5.26±1.88   | 3.79±2.45  | 1.47±2.70 | 0.438 | 3.3662 | = 0.0018 |
| Tender-ness              | Gr.I  | 36  | 7.50±2.54   | 1.25±2.50  | 6.25±3.02 | 0.503 | 12.426 | <0.0001 |
|                          | Gr.II | 40  | 7.38±2.77   | 1.00±2.03  | 6.38±2.77 | 0.438 | 14.552 | <0.0001 |
|                          | Gr.III| 37  | 6.22±2.17   | 4.32±3.37  | 1.89±3.41 | 0.560 | 3.3790 | = 0.0018 |
| Heavi-ness               | Gr.I  | 40  | 1.95±0.22   | 0.88±0.76  | 1.08±0.73 | 0.115 | 9.315  | <0.0001 |
|                          | Gr.II | 40  | 1.90±0.30   | 0.60±0.74  | 1.30±0.72 | 0.114 | 11.368 | <0.0001 |
|                          | Gr.III| 40  | 1.93±0.27   | 1.43±0.84  | 0.50±0.78 | 0.124 | 4.0311 | = 0.0002 |
| Fever                    | Gr.I  | 20  | 5.00±0.00   | 0.75±1.83  | 4.25±1.83 | 0.410 | 10.376 | <0.0001 |
|                          | Gr.II | 12  | 5.00±0.00   | 0.42±1.44  | 4.58±1.44 | 0.417 | 11.000 | <0.0001 |
|                          | Gr.III| 23  | 4.35±1.72   | 2.61±2.55  | 1.74±3.57 | 0.744 | 2.3361 | = 0.0294 |
| Rigor                    | Gr.I  | 18  | 2.00±0.00   | 0.33±0.77  | 1.67±0.77 | 0.181 | 9.22   | <0.0001 |
|                          | Gr.II | 11  | 2.00±0.00   | 0.18±0.60  | 1.82±0.60 | 0.182 | 10.000 | <0.0001 |
|                          | Gr.III| 23  | 1.65±0.78   | 0.96±1.02  | 0.70±1.43 | 0.298 | 2.3361 | = 0.0294 |
| Overall effect           | Gr.I  | 40  | 53.75±18.16 | 24.10±15.28| 29.65±13.46| 2.128 | 13.933 | <0.0001 |
|                          | Gr.II | 40  | 49.68±16.33 | 19.78±12.35| 29.90±13.39| 2.118 | 14.118 | <0.0001 |
|                          | Gr.III| 40  | 51.38±16.49 | 37.00±22.01| 14.38±20.64| 3.264 | 4.4039 | <0.0001 |

By conventional criteria, this difference is considered to be highly statistically significant. By conventional criteria, this difference is considered to be statistically significant.

Table 6: The changes in laboratory parameters

| Laboratory finding | Group | N    | Mean and SD | S.E Diff. | t    | P     |
|--------------------|-------|------|-------------|-----------|------|-------|
| Hemoglobin         | Gr.I  | 40   | 10.94±1.503 | -0.124 ±0.741| 0.117 | 1.0604 | =0.2955 |
|                    | Gr.II | 40   | 10.43±1.508 | -0.182 ±1.166| 0.184 | 0.9826 | =0.3319 |
|                    | Gr.III| 40   | 10.80±1.956 | -0.093 ±0.746| 0.118 | 0.7862 | =0.4365 |
| Eosinophil         | Gr.I  | 40   | 5.58±2.00   | 0.40±2.22  | 0.350 | 1.1414 | =0.2607 |
|                    | Gr.II | 40   | 5.93±2.43   | 0.58±2.99  | 0.474 | 1.2143 | =0.2319 |
|                    | Gr.III| 40   | 5.38±2.07   | 0.15±2.52  | 0.398 | 0.3769 | =0.7083 |
| ESR                | Gr.I  | 40   | 48.18±28.80 | 4.10±27.06 | 4.278 | 0.9584 | =0.3437 |
|                    | Gr.II | 40   | 58.28±32.04 | 7.90±37.68 | 5.957 | 1.3262 | =0.1925 |
|                    | Gr.III| 40   | 59.33±43.30 | 8.58±26.05 | 4.119 | 2.0818 | =0.0440 |

By conventional criteria, this difference is considered to be statistically significant and remaining all considered to be not statistically significant.

i.e., Gr. III. External application of Kandhughna Taila probably takes care of skin to restrict the periodic episodes, secondary bacterial infections and restriction of adenolymphangitis (ADL). This may be the main reason in minimizing periodic episodes in Gr. II in follow-up studies. The significant effect on ESR of Group III, Nityanandaras indicates its role in reducing internal infection more potently than Gr. I and Gr. II. Further studies with Argyreia nervosa (Burm.f.) Boj. root powder, Caesalpinia bondu (L.) Roxb. leaf powder can confirm the positive effect of these two drugs including macrofilaricidal activity.

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Figure 5: Group I after treatment

Figure 6: Group II before treatment

Figure 7: Group II after treatment

Figure 8: Group III before treatment

Figure 9: Group III after treatment

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हिंदी सारांश

श्लीपद में कुबेराक्ष पत्र चूर्ण, बुड़दारू मूल चूर्ण और कण्डुधन तेल का प्रभाव

गोली पंचात्र प्रसाद, एम. एल. नायक

माइक्रोफाइलरिया प्रभाव के उपर्युक्त हेतु औषध उपलब्ध है। परंतु इस रोग के फैलने के नियंत्रण हेतु एवं आयुर्विज्ञान में कार्य करने के लिए आयुर्विज्ञानिक चिकित्सा की तुलना में आयुर्विज्ञानिक चिकित्सा में सही होंगे उपलब्ध उपचार नहीं हैं। क्योंकि केवल एक नेशनल आयुर्वेद रीसर्च इंस्टिट्यूट (बेकर बार्न डिडीजर्स), विज्ञान भवन में विशेषज्ञता के अनुसार में प्रकृति फाइलरियासिस का आयुर्विज्ञानिक वरन्तत्वीय दृष्टि के आयुर्विज्ञान और सामीय योग्यता का प्रयोग करते हैं। उन्हीं ने इस वेबसाइट के लिए प्रकृति फाइलरियासिस का प्रयोग किया है। इस अध्ययन के लिए प्रकृति फाइलरियासिस का प्रयोग किया गया। क्योंकि यह रोग का लक्षण है। इस प्रकार लेख का लाभ में मिला कर 5 ग्राम दिन में दो बार 30 दिन दिया गया। तीसरे दिन में प्रथम आयुर्वेद चिकित्सा के दृष्टि के साथ, बांधक कण्डुधन तेल का लेन भी 30 दिन तक दिया गया।

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