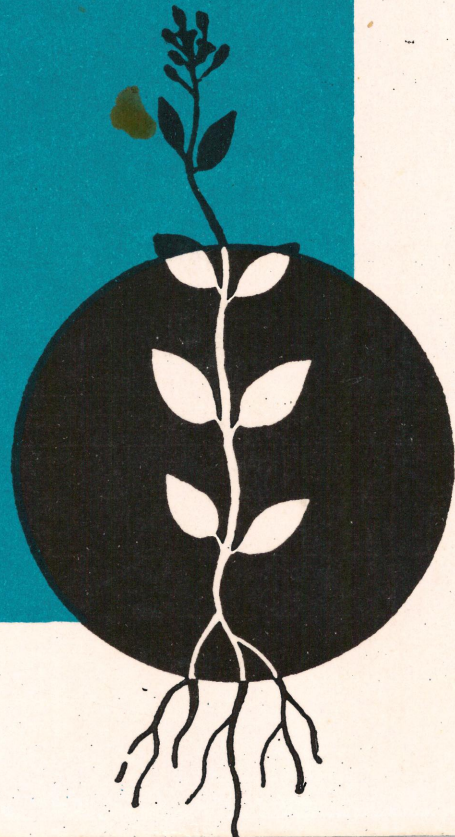


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# āryavaidyaṅ





# āryavaidyan

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# āryavaidyan

Aryavaidyan is an international Journal for the encouragement and elucidation of the most ancient system of medicine, Ayurveda and its contemporary practice. This quarterly of the Arya Vaidya Sala, Kottakkal, is a publication entirely devoted to the cause of Ayurveda and allied subjects such as ethnomedicine, naturopathy, siddha, unani and modern medicines. This is the one and only periodical for scholars, practising physicians, students and lovers of the subject.

Vol. XI. No. 1	Regn. No. 55127 / 87	Aug. - Oct., 1997
<b>Editorial</b>		
From the Pages of Vagbhata - XXXX	Varier, N. V. K.	5
Evaluation of the Effect of Indigenous Herbal Drug Lasunadigugglu in the Management of Chronic Statble Angina	Awasthi, A. K., Kunal Kothari & Sharma, R. K.	8
Rasavaiseshika - XIII	Raghavan Thirumulpad, K.	21
Botanical Identificaiton of Some Ayurvedic Herbal Medicines	Tiwari, K. C., Uniyal M.R., Pandey, V. N. & Pandey, C.	25
Effect of Vijayasara Compound - I in Allozan Induced Diabetes - An Experimental study	Nageswara Rao V., Suresh, P., Dixit, S. & Gode, K. D.	33
Pharmacognostical studies on Jivanti - (Holostemma ada-kodien Schult)	Krishnan Nambiar, Sabu, T.K, Jayanti, A. & Rajendrakumar, K.	37
Detection of Ginger in Ayurvedic Preparations	Thankamma, A & Radhika, L. G.	52
Ayurvedic Management of Ischaemic Heart Diseases	Dharmapalan, P. K.	57
Excerpts from Chikitsamanjari - XXII	Unnikrishnan, P.	63
Clinical Observation	Muralidharan, K. & Warriar, P. K.	67
<b>HINDI</b>		
आयुर्वेद का महत्व	कुञ्जिकुट्टन तम्पुरान	70
स्वास्थ्य कुछ विधि - निषेध	वैद्यरत्नं पि एस वारियर	73

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# Editorial.....

With the present issue, the August-October copy of Aryavaidyan, a decade has been completed in the publication of the journal . So we feel it as our duty to thank ail of you, who have encouraged us, by your active co-operation, help and timely advice, the readers and contributors of studious and research oriented articles, persons and establishments that helped to make the issues popular but not at the cost of losing our identity and the intended specific purposes of our journal. We take this opportunity also to declare our conviction in the genuineness of our aims and the charted way we have followed tracing the blazed footsteps of our founder.

We remind ourselves that the publication of this quarterly "Aryavaidyan" was taken up a decade ago with the specific purpose of propagating the vision and ideas of our founder, Vaidyaratnam P.S.Varier, the great pioneer, who dedicated his life for the resuscitation of Ayurveda successfully heading the movement here with flying banners. And the secret of his success lies in his vision, with full faith in the recorded experiences of our tradition sanctioned by the broad and scientific darsanas of the great seers and realising the timely necessity of refinement to be true to the tenets, but absorbing also the essence of the new developments in the field of knowledge, science and techniques. It was to carry out this mission, he himself wrote new works, edited and published the Malayalam Monthly "Dhanvantary" which came out with no interruption for twenty three years. It is prompted with this legacy, the humble effort to publish "Aryavaidyan" had to be planned to continue the work of this Master in the present conditions also, taking it as a duty essential.

The perspective of "Aryavaidyan" fully accords with the spirit of the call of the Alma Ata Declaration of W.H.O. To realise and assert the role of Ayurveda in the international co-operative movement of "health for all citizens of the world".

But we realise that to promote and propagate our system and to draw the attention and spirit of the elite, the people and the authorities to this national task, we need increased activity - we see how the people around the world are now more and more attracted to Ayurveda and other traditional medical systems. So spreading of the true scientific ideas of our system has now come up as a challenging duty. But assessing the present trends, it is clear, that the task can be performed, only if we are more serious and ready to work pains-takingly to improve our conditions here itself. This calls for planning to improve our research work here. The stagnation in this field, sitting complacently satisfied with what we have owned by inheritance, is still the curse on our movement. For instance, if we compare the works going on in our neighbouring oriental countries, we can realise how far behind we are in the works of exploring our past. Again, we have to go a long way

still in improving our inter-communication in India itself to bring our regional systems, well researched and communicated to others working in other regions. These are some of the areas we have to concentrate for the improvement and propagation under present conditions.

The aim of "Aryavaidyan" has been to remind our duty towards realizing the above purposes. We have taken special interest to imbibe and absorb holistic visions and ideas and advancing on all parts of the world and promote holistic conferences and workshops. And after a decade, we are now endowed with more confidence and satisfaction, although with some shortcomings in our performances.

We also want to announce with the above purposes, that we are looking for and trying to introduce some modifications. The present journal is only a bilingual quarterly with English and Malayalam, our regional language. But suggestions have been continuously presented to us by many that since the Hindi zone is our real concern, articles in Hindi also should be included. So we have approached the authorities to allow us to publish articles in Hindi in place of Malayalam, thus maintaining the bilingual nature of the journal and here we are presenting the present issue with Hindi articles included. We hope this alteration will be provide a welcome change.

We are sure that our readers will fully recognise our sincere efforts enriched with no profit motive at all in propagating the spirit of our great science. Of late we have been experiencing that even the cost of production is not met by the subscription income. To maintain the status-quo at the least in this regard, we are constrained to increase the rate of subscription slightly, which, we are confident, our readers will be ready to bear with us.

After protracted correspondence, we could get the official clearance for the title 'Aryavaidyan' with English and Hindi only now and hence we could bring out this issue only now. We assure our esteemed readers that this kind of delay will not be allowed to recur.

Thanking you once more.

सहवीर्यं करवावहे



March '98

Chief Editor {Publication}

## FROM THE PAGES OF VAGBHATA - XXXX

Varier, N. V. K.

### Abstract

On commenting *Ashtangahridayam*, *sodhanadiganasangrabhaniyam*, the 15th chapter of *Sutrasthana* is dealt here. *Patoladi* and *Guducyadi*, two drug-groups are explained in this issue.

#### XIV Gana - Patoladi

पटोलकटुरोहिणीचन्दनं  
मधुस्रवगुडूचिपाठान्वितम्।  
निहन्ति कफपित्तकुष्ठज्वरान्  
विषं वमिमरोचकं कामलाम्॥ १५॥

(Patolakaturohinicandanam  
madhusravaguducipathanvitam  
Nihanti kaphapittakushthajvaran  
visham vamimarocakam kamalam.)-15

This *gana* is a famous anti-toxic recipe and a common medicine used to relieve from various dermatoses. It is also practised as a wide - ranged medicine as it checks most of the ailments due to *pitta-kapha samsarga*.

ARYAVAIIDYAN

#### Patolam

There are two kinds of *patola* i.e. *svadupatola* and *tiktapatola*. *Tiktapatola* is the medicine which is considered as the best drug among *tiktavarga*. Supporting this fact Bopadeva called it *tiktottama*. This is identified as *Trichosanthes lobata* which is the source plant used by Kerala physicians. Instead of it *T. dioica* is commonly used in North India.

*Svadupatolam* is the species used as vegetable as the fruits of which are sweetish, edible and large in size. *T. cucumerina* is the identified species as *svadupatola*.

#### Madhusrava

This has been commented as



*murangi* by Arunadatta considering this word as masculine in gender i.e. "madhusravah". *Murangi* seems to denote *Moringa oleifera* i.e. *sigru*. N.S. Mooss considers *madhusrava* here as *sigru*. However he quotes two keralite commentators, Pathyakara and Parameswara who comment it as *Punarmuringa* which may be *M. concanensis*. Hemadri's commentary considers the word in feminine gender i.e. *madhusravaa* which is a synonym to *murva* (see *madanadigana* in Aryavaidyan Vol. IX No. 1).

The statement of Hemadri seems to be acceptable as Susruta included *murva* in his *patoladigana*.

### Patha

Most of the lexicographers and Caraka mention two varieties of *patha*. Some of them termed these varieties as *laghupatha* and *rajapatha*. The former is the proper *patha*. *Rajapatha* is the bigger variety and the identification of it is not yet

standardised. Many of the works equate it to *Cyclea peltata*. The other species which are considered as the source plant of *rajapatha* are *C. arnotii*, *C. burmani*, *Stephania japonica*, *S. hernandifolia* etc.

Susruta in his *Patoladigana* includes one more drug than these six drugs mentioned by Vagbhata, i.e. *kucandana*.

### Patoladi - uses.

This *gana* ameliorates the diseases caused by *kapha* and *pitta*. It does cure the diseases *kushtha*, *jvara*, *chardi*, *arocaka* and *kamala*. This is also very effective towards *visha* ailments.

In Kerala *patoladi* is a common recipe used by *vishavaidyas* and general practitioners. General practitioners use it to eliminate *kapha* and *pitta dosha* in the first stage of treatment. In the form of *kvatha* it is mainly used.

**Table I Patoladigana**

Sl. No.the Drug	Scientific name	Malayalam name	Official part.
1. Patolam	Trichosanthes lobata Linn.	Kaippanpatavalam	Whole plant
2. Katurohini	Picrorhiza kurroa auct.non Royle	Katukarohini	Root
3. Candanam	Santalum album Linn.	Candanam	Heart-wood
4. Madhusrava	Chonemorpha fragrans (Moon) Alston	Perumkurumba	Root
5. Guduci	Tinospora cordifolia (Willd.) Miers ex Hook f. Thoms	Cittamrtu	Stem
6. Patha	Cyclea peltata (Lam.) Hook f. & Thoms	Patakkizhangu	Root

## XV Gana - Guducyadi

गुडुचीपद्मकारिष्ठधानकारक्तचन्दनम् ।

पित्तश्लेष्मज्वरछर्दिदाहतृष्णाघ्नमग्निक्वृत् ॥ १६ ॥

(Guducipadmakarishtha -  
dhanakaraktacandanam  
Pittasleshmajvaracchardi-  
dahatrshnagnamagnikrt.) - 16

This is the smallest recipe out of the 33 *ganas* described in this chapter. Only five drugs are in it and none of these are controversial also (see Table II).

### Guduci

Some lexicographers suggest that *guduci* is of two varieties; one is

the proper *guduci* and the other is *kandaguduci* or *padmaguduci*. The latter is equated with *Tinospora sinensis* which is a larger species of *Tinospora*, with thicker stem and densely pubescent leaves.

### Guducyadi - uses

This is also used as a *pittakaphahara* medicine. It cures *jvara*, *chardi*, burning sensation and *trshnaroga*. The most particular aspect of this *gana* is though it is *pittasamana* it augments the *agni*. Here *agni* does mean *kayagni* or *dhatvagni* variants. Due to this peculiar character it can be used in several conditions especially in *pittakapha* diseases even in *ama* stage.

Table II Guducyadigana

Sl. No.	Name of the Drug	Scientific Name	Malayalam name	Officinal part
1.	Guduci	<i>Tinospora cordifolia</i> (Willd.) Hook f. & Thoms	Cittamrtu	Stem
2.	Padmakam	<i>Prunus cerasoides</i> D. Don	Patimukam	Heart-wood
3.	Arishta	<i>Azadirachta indica</i> A. Juss.	Veppu	Bark
4.	Dhanaka	<i>Coriandrum sativum</i> Linn.	Kottampala	Fruit
5.	Raktacandanam	<i>Pterocarpus santalinus</i> Linn.	Raktacandanam	Heart-wood.

## EVALUATION OF THE EFFECT OF THE INDIGENOUS HERBAL DRUG "LASHUNADI- GUGGULU" IN MANAGEMENT OF CHRONIC STABLE ANGINA.

Awasthi, A. K.\*, Kunal Kothari\*\* and Sharma, R. K.\*\*\*

### Abstract

Lashunadi guggulu, a combination of 3 medicinal plants, *Allium sativum* (*lashuna*), *Inula racemosa* (*pushkarmoola*) and oleoresin of *Commiphora mukul* (*guggulu*) in ratio of 1:1:1 is evaluated clinically for its efficacy in patients of chronic stable angina. The drug is chosen for the study on the basis of textual references in *ayurveda* and previous research work carried out during last 5 decades. 20 patients of chronic stable angina entered the randomized single blind type of trial. Efficacy was assessed using objective end points. Ten patients completed all phases of study. After 2 months treatment with drug, there was marked improvement in precordial pain, dyspnoea and fatigue in all patients. Under Computerised Tread Mill Test (C.T.M.T.) there is statistically significant increase ( $P < 0.01$ ) in mean exercise time. S.cholesterol and S. triglyceride levels got reduced upto high and moderate significance level.

### Introduction

Ischaemic heart disease (IHD) is seen throughout the world causing great mortality. IHD is multifactorial in its aetiopathogenesis. Hypercholesterolemia; higher concentrations of V.L.D.L., L.D.L., triglyceride levels; atherosclerosis, thrombosis and spasm in coronary arteries are important land-

marks. Considerable amount of work has been done in this field in modern medicine but so far available measures are unsatisfactory in lowering morbidity or mortality. It warrants search for new remedies. There is a definite scope in ayurveda in the modification of risk factors and prevention and treatment of IHD. During the last 50 years notable attempts

\* Demonstrator, Deptt. of Kayachikitsa, Rishikul State Ayurvedic College, Haridwar.

\*\* Professor, Deptt. of Medicine, S. M. S. Medical College, Jaipur.

\*\*\* Ex. Associate Professor & Head, Deptt. of Roga and Vikriti Vigyan, National Institute of Ayurveda, Jaipur, India



have been made in ayurveda to study the effects of several indigenous medicinal plants in the prevention and treatment of IHD. In this context; hypolipidemic and cardiac ischaemia relieving effect of *Terminalia arjuna* (G. N. Chaturvedi, K. N. Udupa et al 1973)<sup>6</sup> hypolipidemic, hypocholesterolemic effect of *Allium sativum* (K. N. Udupa, G. N. Chadurvedi et al 1973)<sup>b</sup>, hypocholesterolemic effect and antianginal efficacy of oleo-resin of *Commiphora mukul* (Tripathi, Shastri & Satyavati et al 1968, S.N. Tripathi et al (1973)<sup>14, 15, 16, 17</sup>, hypocholesterolemic effect of *Acorus calamus* (Ran Singha et al, Tripathi et al 1991)<sup>12, 20</sup>, hypocholesterolemic and antianginal efficacy of *Inula racemosa* (Tripathi & Ojha)<sup>10</sup>, hypocholesterolemic and atherosclerosis regressive effect of *Myristica fragrans* and *Semecarpus anacardium* (R.P. Shastri, V. P. Dixit, 1991)<sup>13</sup> are very significant. There is need for more studies on these and other drugs, so that their role may be defined more precisely. In our study, the efficacy of a drug prepared from 3 medicinal plants which have definite role on IHD individually is evaluated. Oleoresin of *Commiphora mukul*, powder of roots of *Inula racemosa* and bulbs of *Allium sativum* in ratio of 1:1:1 (by weight) have been tried clinically on the patients of chronic stable angina.

Oleoresin of *Commiphora mukul* (*guggulu*), a well known anti-inflammatory and analgesic is now a well-established hypocholesterolemic agent probably acting by the physiological stimulation of the thyroid gland as evidenced by the thyroid function studies in human beings (Tripathi 1974, and 1978)<sup>16, 17</sup>. Several clinical

trials have also been done to establish the hypocholesterolemic effect of drug (Tripathi 1968, 1973)<sup>14, 15</sup>. Experimental studies on chicks have proved it to retard process of atherogenesis to a great extent (S. N. Tripathi 1978)<sup>17</sup>. *Allium sativum* possesses significant hypolipidemic, hypocholesterolemic, anticoagulant and fibrinolytic actions, which are well proved in experimental as well as in clinical trials (G. N. Chaturvedi, K. N. Udupa, 1973)<sup>6</sup>. It has been described in ayurvedic literature as carminative, analgesic, *amapacaka* (capable to digest the *ama*) and *srotovisodhakara* (to clear up lumen of different body channels). In ayurveda, *ama* is defined as a product obtained as a result of insufficient enzymatic action on any substance including food within body. *Ama* is said to be heavy in weight, sticky in nature, foul in smell and possesses property of blocking lumens of different body channels. *Inula racemosa* has been described by Caraka to be the best drug for relieving precordial pain (Ca. *Sutra*. 25/40)<sup>1</sup>. In addition, this drug has been prescribed in the treatment of heart diseases in more than a dozen formulae by him. It is considered to be a coronary dilator. In clinical trials this drug alone and in combination with oleoresin of *Commiphora mukul* has minimised or prevented exercise - induced - S-T segment changes by the prior administration of drug. (Tripathi 1984)<sup>18</sup>.

#### Materials and method

**Preparation of drug:** Tablets of Lashunadi guggulu, each weighing 1 gm were prepared from its ingredients. i.e. bulbs of *Allium sativum* +

powder of roots of *Inula racemosa* + oleoresin of *Commiphora mukul* (purified by *triphala* decoction) in equal proportion by weight.

**Selection of patients:** Patients of chronic stable angina were selected from the hospital of National Institute of Ayurveda, Jaipur and from the cardiology Deptt. of S.M.S. Medical College, Jaipur. Age of all the patients were between 32 - 60 yrs, body weight between 42 - 78 kg. and the male female ratio was 3:2.

**Inclusion criteria of patients:**

(a) With classic signs of angina on exertion and relieved by rest or sublingual administration of nitroglycerine or isosorbide nitrate.

(b) In C.T.M.T. - Bruce protocol, S-T segment depression  $\geq 1$ mm at 60 m. sec. from J point, if S-T segment slope is flat or downsloping and S-T segment depression  $\geq 1.5$ mm. at 80 m.sec. from J point, if S-T segment slope is upsloping.

**Exclusion criteria of patients:** Patients of Age > 75 yrs., myocardial infarction in the preceeding 3 months, unstable angina, overt cardiac failure, resting blood pressure > 180 / 100 mm Hg. or diabetes mellitus were excluded from the trial.

**Trial design:** Trial is of a single blind randomized type. For the trial purpose patients were divided into two groups:

(1) Control group: group treated with placebo.

(2) L.G.group: group treated with Lashunadi guggulu. Five patients in each group completed all phases of the trial. In L.G. group 2 tabs. of Lashunadi guggulu were administered orally 3 times a day for 2 months whereas in control group 2 tabs. of placebo were given 3 times a day for 2 months.

**Diet:** Patients were advised to take their normal diet limiting only fried eatables. They were permitted to use their usual fats and oils as cooking media and there was calory restriction.

**Rest:** Patients were advised to avoid strenuous exercise. They were allowed to attend their normal work, as long as there was no chest pain or dyspnoea. They were advised to rest after meals.

**Parameters of study**

a) **Clinical assessment:** In clinical assessment the main stress was on precordial pain on effort and anginal frequency/day. For precordial pain on effort patients were classified into grades before treatment, during treatment and after treatment and improvement in grades was recorded. The grading is as follows:

Grade III: Pain occurs even when walking slowly.

Grade - I: Pain is only provoked by hurrying or walking uphill or several flights of stairs.

Grade - II: Walking on the level at an average speed causes pain,

usually within the first 300 yards.

Grade - IV: Pain at rest and total incapacity.

b) **Computerised Tread Mill Testing (C.T.M.T.):**<sup>2, 3</sup>

All tests were performed using a motor driven treadmill, the speed and gradient of which were regularly calibrated as per programme and was governed by a computer (Marquette Computer Assisted System for Exercise, case II) Bruce protocol was adopted for C.T.M.T. of patients (Table - 1). 12 lead E.C.G. is continuously recorded and printed in final paper print at pre, during & post exercise time. Three leads II or aVF,  $V_1$  &  $V_5$  are continuously recorded before, during and after exercise in a compressed format. Digital printouts of S-T depression at the J-point, S-T slope, heart rate and ectopic counts are generated for every minute of the test and for a final analogue trend plot of each complete test. Systolic and diastolic blood pressure were measured every 3 minutes and at termination of exercise with a mercury-in-glass sphygmomanometer. The following variables are calculated from the computer printouts.

**Time-variables:**

- 1) Exercise time required in seconds for production of angina or termination of exercise.
- 2) Work load = distance walked in kms. multiplied by the sine of the angle of the treadmill in degrees.

- 3) 1mm. time = time required to produce 1 mm. S-T segment displacement for leads  $V_5$  and II.

**S-T Segment variables:**  
(for leads  $V_5$  & II)

- 1) S-T segment depression at peak exercise (Max. S-T)
- 2) S-T segment depression at the same exercise time on drug therapy as during pretherapy period. M.S-T (same exer.)
- 3) S-T segment depression at the same heart rate on drug therapy as during pretherapy period. M.S-T (same HR)
- 4) Concurrent slope of maximum S-T segment depression

**Heart rate variables:**

- 1) Resting heart rate. (beats per minute)
- 2) Maximal heart rate. (beats per minute)
- 3) Percentage heart rate achieved.
- 4) Heart rate unit gain = Maximal heart rate minus resting heart rate, divided by exercise time in minutes.
- 5) Double product = the product of systolic blood pressure and heart rate divided by hundred.

**Oxygen consumption variable:** Functional aerobic impairment (F.A.I) in percentage as laid by Bruce et al according to sex and activity of the



person.<sup>4</sup>

C.T.M.T. of all patients were performed at pre and post therapy period during first half of the day after providing them minimum period of rest of 30 minutes. Tests were performed in the air-conditioned laboratory associated to the S.M.S. Medical College, Jaipur. Exercise was stopped when there was chest pain, dyspnoea, fatigue, pain in legs, giddiness, S-T segment depression  $\geq$  3mm. or on achievement of target heart rate (target HR-220-age in years).

**c) Assessment of reduction in lipid variables:**

1) Serum cholesterol. 2) Serum triglyceride. These two variables were estimated at the visit just before treatment and just after completion of trial, by collecting venous blood after fasting patients for 14 hours. Biochemical analysis was performed by calorimetric method by kits supplied by 'Span' Laboratories for Cholesterol - Code No. 25924, one step method of wybenga and pileggi; for triglyceride - code No. 25941 Enzymatic method. Change in lipid variables from the pretherapy to the posttherapy value is analysed statistically.

Mean values of differences of variables of pre and posttherapy periods in patients of L.G.Group have been compared with those of control group. The significance of differences is evaluated according to student's 't' test. (control Vs treated group).

20 patients entered the study. Only 10 patients completed all phases of the study due to certain unavoidable circumstances and all data concern them.

**1. Clinical - Assessment:** All patients of L.G. group presented marked improvement in precordial pain, fatigue and dyspnoea. Anginal frequency / day was reduced to marked level (62%) and severity of angina shifted towards less severe side in terms of gradation laid by American Heart Association. One patient of grade III changed to grade II and 2 of grade II changed to grade I. Two patients of grade I became free of precordial pain on effort after 2 months of treatment.

**2. Assessment in terms of change in C.T.M.T. variables:**

Values of variables and changes in them are presented in form of Table - 2 and Fig. 1 - 3.

**3. Assessment of results in terms of lipid variables:** Values of lipid variables and changes in them are presented in form of Table - 3 & Fig.4

**Morbidity & mortality:** No any major coronary event (Acute M.I.) taken place during trial and no any mortality happened within the short period of trial.

**Adverse effects:** No any significant adverse effects are observed clinically. Similarly no significant difference is observed in levels of haemoglobin, urinary protein, urinary sugar or blood urea in patients of

**Table - 1: C. T. M. T. Protocol - Bruce Protocol**

Stage	Speed m.p.h. (Km.p.h.)	% Gradient	Time (Minutes)	Cumulative Time (minutes)
1.	1.7 mph (2.74 Km.ph)	10%	3	3
2.	2.5 mph (4.02 Km.ph)	12%	3	6
3.	3.4 mph (5.47 Km.ph)	14%	3	9
4.	4.2 mph (6.76 Km.ph)	16%	3	12
5.	5.0 mph (8.04 Km.ph)	18%	3	15
6.	5.5 mph (8.84 Km.ph)	20%	3	18
7.	6.0 mph (9.48 Km.ph)	22%	3	21

any group.

### Discussion

According to ayurveda only such form of treatment of any disease is accurate and appropriate which is capable of breaking the circle of aetiopathogenesis and is free of all side-effects. Several epidemiological studies e.g. Framingham study<sup>5</sup>, Carlson & Bottiger study, support that hypercholesterolemia and hypertriglyceridemia have a definite role in aetiopathogenesis of atherosclerosis as well as I.H.D. Outcome of the previous studies on *Allium sativum*<sup>6</sup>, *Inula racemosa*<sup>10</sup> & *Commiphora mukul*<sup>4,19</sup> alongwith their ayurvedic textual references gave the idea that "if a drug prepared by combination of all these 3 medicinal plants is tried in patients of chronic stable angina there may be marked effect of relief alongwith reduction of hypercholesterolemia".

The trial was planned with care to yield as many objectives as possible. Efficacy of drug is assessed in terms of clinical evaluation (specially severity and frequency of anginal attacks) and different variables under C.T.M.T., such as max. exercise time, work load, max. % H.R., H.R. gain, H.R. achieved, 1mm time V5 & II, conc. and slope of max. S-T segment depression. Evaluation of the effects on S. cholesterol & S.triglyceride were additional objectives.

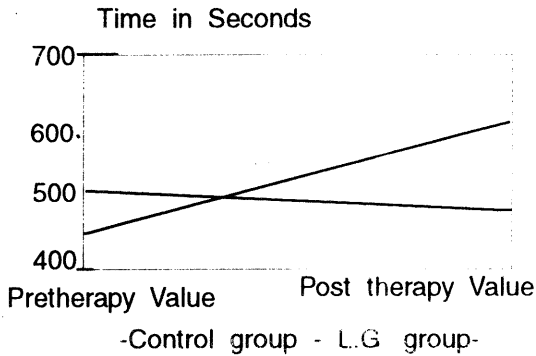
Although the number of patients who could complete the trial were small and the duration of trial is also short, the results obtained prove the antianginal efficacy of the drug. Clinically all patients presented marked improvement and precordial pain, fatigue and dyspnoea and anginal frequency / day were reduced to marked level (62%) and the severity of angina got shifted towards less severe grades. Two patients became

**Table - 2: Data of C.T.M.T. Variables & Significance of Changes in C.T.M.T. Variables (Control Vs L.G. Group)**

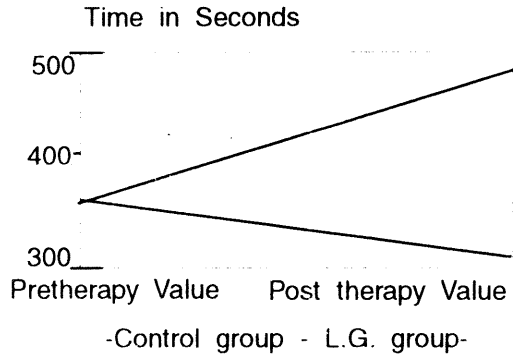
C.T.M.T. Variables	Control group		L.G. group		Significance of changes in C.T.M.T. Variables control Vs L.G. group
	Pretherapy Value	Post therapy Value	Pretherapy Value	Post therapy Value	
Exercise Time (in sec.)	496.40±48.60	477.60±42.90	438.00±99.49	603.80±77.14	P<0.01
Work Load (in units)	0.0690±0.010	0.0630±0.010	0.0650±0.020	0.1010±0.020	P<0.001
Resting Heart Rate (beats / m)	77.40±5.26	84.60±8.69	74.00±5.64	76.80±3.36	NS
Max. Heart Rate (beats/m)	170.80±8.56	167.40±9.12	153.20±9.10	160.00±10.48	NS
H.R.Unit Gain (beats / m)	12.24±1.86	11.52±2.26	13.50±2.72	8.82±1.25	P<0.10
Percentage HR achieved	97.60±4.62	95.80±4.93	86.00±7.95	89.20±5.30	NS
Double Product	320.16±23.67	302.88±27.15	244.89±29.72	241.14±31.93	NS
1 mm. time V5 (in sec.)	348.20±68.00	307.40±42.88	347.00±103.14	494.60±05.52	P<0.05
1 mm. time II (in sec)	398.00±63.14	380.80±50.73	316.80±63.01	478.60±90.50	NS
Max. S-T depression V5 (mm)	1.72±0.27	1.92±0.49	2.06±0.49	1.52±0.38	P<0.05
M.S-T depress. (same exer)V5	1.40±0.28	1.78±0.48	1.78±0.45	0.82±0.33	P<0.05
M.S-T depress. (same HR) V5	1.16±0.25	1.78±0.48	1.90±0.51	0.96±0.37	P<0.01
Max. S-T depression II (mm)	1.24±0.31	1.72±0.42	2.22±0.31	1.54±0.33	P<0.05
M.S-T depress. (same exer) II	0.90±0.25	1.50±0.45	2.00±0.22	0.72±0.27	P<0.01
M.S-T depress (same HR) II	0.82±0.30	1.50±0.45	2.06±0.25	0.88±0.33	P<0.01
Conc. slope of M.S-T (mV/s)	0.04±0.89	-1.00±1.08	-2.12±0.96	-0.16±0.67	P<0.05
F.A.I. (percent)	42.20±4.43	44.40±4.82	50.50±10.76	42.00±4.66	NS

**Fig 1: Change in Time Variables in C.T.M.T.**

1(a) Mean Exercise Time

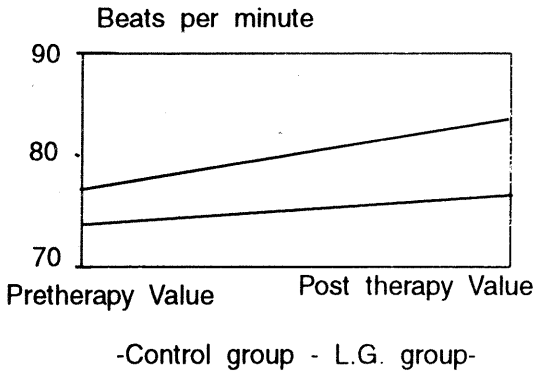


1 (b) Time taken to 1 mm S-T segment depression in Lead V5

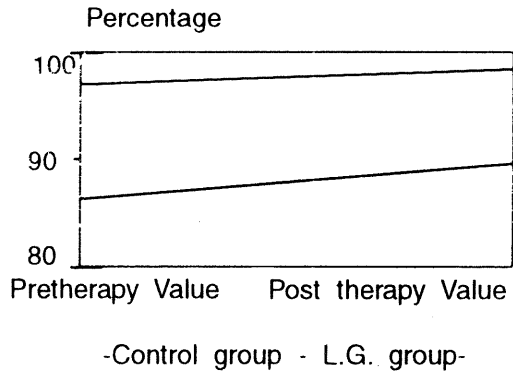


**Fig 2: Change in Heart Rate Variables in C.T.M.T.**

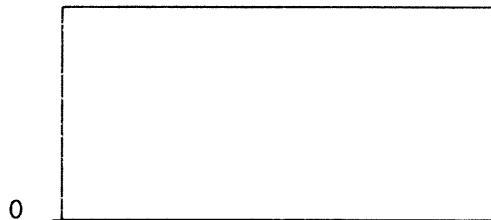
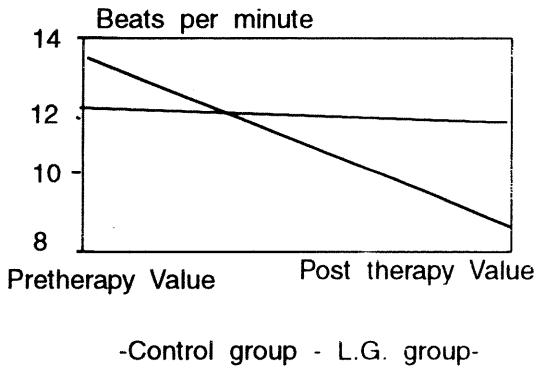
2 (a) Resting Heart Rate



2(b) Percentage Heart Rate Achieved

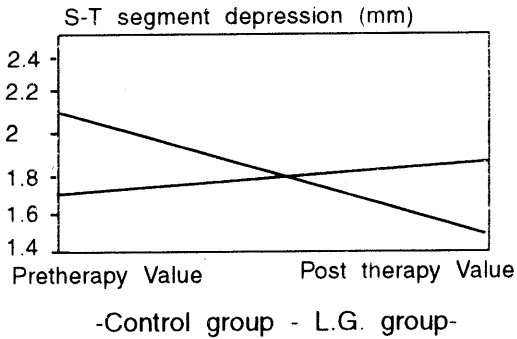


2 (c) Heart Rate Unit Gain

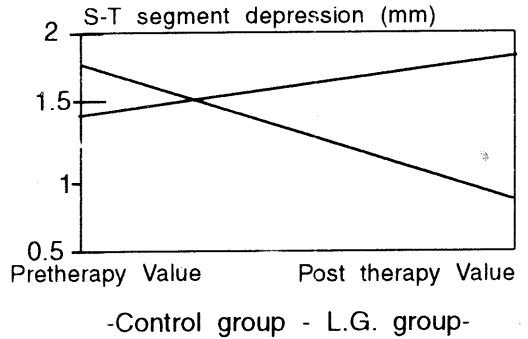


**Fig 3: Changes in S-T Segment Variables in C.T.M.T.**

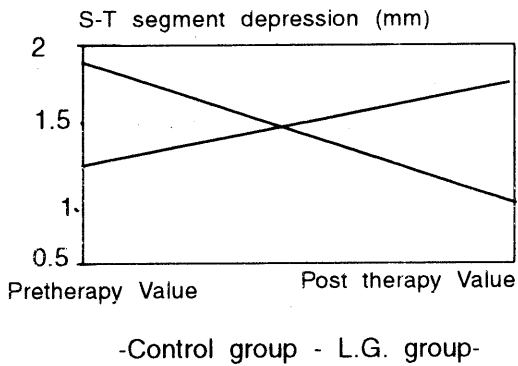
3(a) Maximum S-T Segment Depression in Lead V5



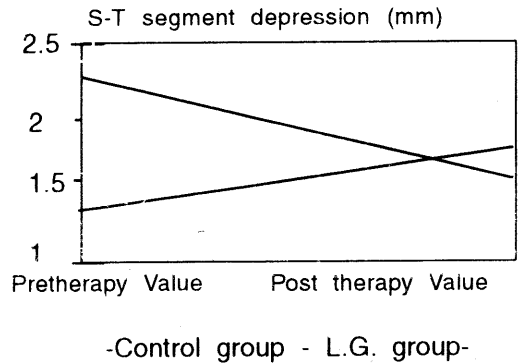
3(b) Max. S-T Segment Depression (same exercise) in Lead V5



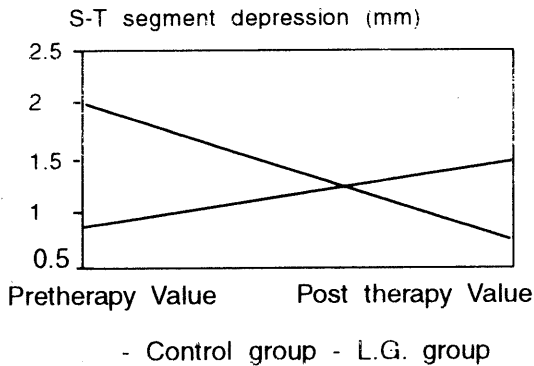
3(c) Maximum S-T Segment Depression (same H.R.) in Lead V5



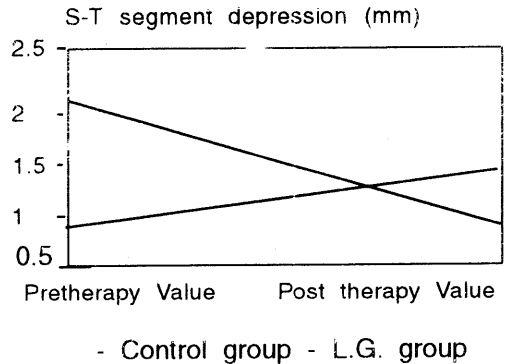
3(b) Max. S-T Segment Depression in Lead II



3(e) Max. S-T Segment Depression (same exercise) in Lead II



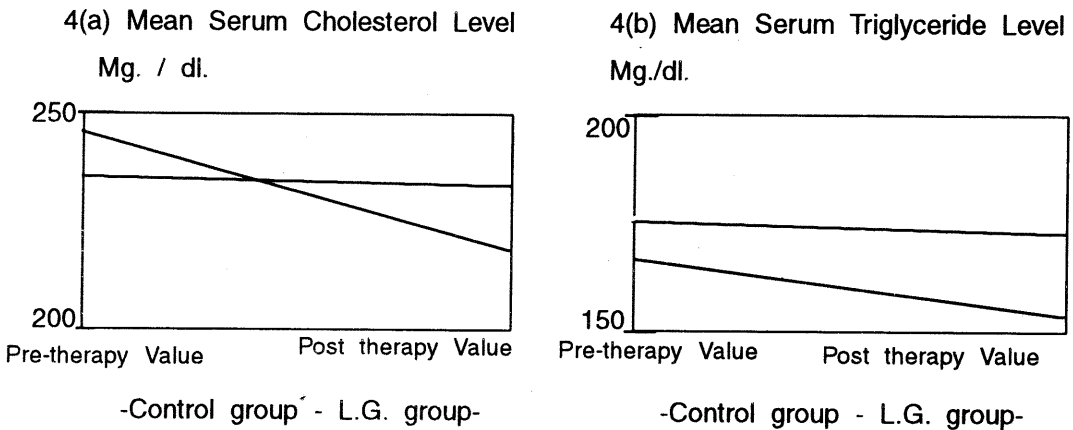
3(f) Max. S-T Segment Depression (same H.R.) in Lead II



**Table - 3: Data of lipid variables & significance of changes in variables**

	Serum Cholesterol (mg / dl.) Mean $\pm$ SE	Serum Triglyceride (mg / dl.) Mean $\pm$ SE
Control Group - Pre-therapy Value	237.00 $\pm$ 9.12	174.80 $\pm$ 4.98
Control Group - Post-therapy Value	234.80 $\pm$ 9.73	173.80 $\pm$ 6.16
L.G.Group - Pre-therapy Value	246.80 $\pm$ 19.30	166.60 $\pm$ 9.23
L.G. Group - Post-therapy Value	200.40 $\pm$ 16.98	152.40 $\pm$ 9.23
Significance of reduction in lipid variables, control Vs. L.G. Group	P<0.001	P<0.01

**Fig 4: Changes in Lipid Variables**



free of angina on effort, after 2 months treatment with drug. There is marked reduction in S.cholesterol and S.triglyceride levels after treatment with drug and on Lashunadi guggulu Vs control group comparison, this reduction is statistically significant (P<0.001 & P<0.01 respectively). In C.T.M.T. variables mean exercise time increased from 438 $\pm$ 99 seconds (mean  $\pm$  SE of the mean).

to 603.8 $\pm$  77.0 seconds and mean work load increased from 0.065 $\pm$  0.020 units to 0.101 $\pm$ 0.020 units. These are statistically significant on pretherapy Vs posttherapy comparison (p<0.05) or control group Vs L. G. group comparison (P<0.01). In Lashunadi guggulu treated group Vs control group comparison, almost all S-T segment variables eg. time taken for 1mm S-T segment depression in

lead V5, maximum S-T segment depression V5 & II, max. S-T segment depression (at same exercise), max. S-T segment depression (at same HR) gave statistically significant results, changes in improvement direction ( $P < 0.05$  to  $P < 0.01$ ). Max. heart rate achieved did not increase (difference NS) inspite of significant increase in work load and exercise time. Exercise induced tachycardia (H.R. Unit gain) reduced to 8.82 beats/minute from its pretherapy value of 13.50 beats / minute.

### Conclusion

The trial clearly demonstrated that herbal drug - Lashunadi guggulu, given in patients of chronic stable angina in dose of 2 tabs (weighing 2 gms.) 3 times a day for 2 months, not only improves the severity and frequency of angina (precordial pain), but also delays treadmill exercise induced S-T segment changes (i.e. depression) and reduces amount of S-T segment depression upto statistically significant levels in both bipolar and precordial leads (II & V5) under C.T.M.T. Significant increase in exercise tolerance ( $P < 0.01$ ) and work load ( $P < 0.001$ ) without significant increase of maximal heart rate and reduction in exercise induced tachycardia (H.R. Unit gain) are other fruitful results. Significant reduction in S.Cholesterol and S.Triglyceride levels ( $P < 0.001$  &  $P < 0.01$  respectively) helps in the prevention of I.H.D.

Although the number of patients who could complete the trial were small and the duration of trial was also short, the study is of conclusive to prove the antianginal

efficacy of drug. This is only a preliminary study and studies with a larger samples and for a long duration of time is warranted.

### Acknowledgement

Authors are very much grateful to patients, who participated in the trial. Authors are also thankful to Dr. Anoop Jain D.M. (Cardiology), Lecturer and Dr. Ajay Mathur, M.D. (Medicine), Lecturer, S.M.S. Medical College, Jaipur for providing their valuable suggestions and help. Thanks for assistance are due to technical staff of C.T.M.T., Laboratory. The authors acknowledge the authorities of N.I.A., Jaipur and S.M.S. Medical College, Jaipur for providing necessary facilities to conduct this work.

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A *vaidya* should not sleep in a patient's house. He should never take food from there. Nor should he go there without being called. He should not speak bluntly about a case of clear death also.

(Yogaratriakara)

## RASAVAISESHIKA - XIII

Raghavan Thirumulpad, K.

### Abstract

Being established the separate entity of *dravya*, now the independency of *dravya* is stated. Then the substantiation of the ascription of properties to the six tastes is also given.

Then an objection is raised:

16. द्रव्यप्रतिज्ञस्य स्वतन्त्रं द्रव्यम् ॥

द्रव्यप्रतिज्ञस्य द्रव्यं स्वतन्त्रं भवति।

(*dravya* is independent for one who insists that *dravya* is something separate)

Number is ascertained by counting the substances. *Samanya* (the class) is ascertained by understanding the individual or particular. Action is ascertained by watching that which acts. So number, class concept etc., do not have independent existence. If the *dravya* also is ascertained in the

same way, it has to be deduced that the *dravya* also does not have independent existence.

The objection is pacified thus.

17. गुणप्रतिज्ञस्यापि स्वतन्त्रा गुणाः ॥

गुणप्रतिज्ञस्यापि गुणाः स्वतन्त्राः भवन्ति।

(the qualities are of independent existence for one who insists that the *dravya* is just a combination of the qualities)

The *guna* such as sound should have independent existence if the *dravya* is just the association of the five qualities. Actually in the

Raghava Ayurvedics, Chalakudy.

universe all things mutually associate to exist. So independent of the *guna* there is no *dravya* and independent of *dravya*, there are no qualities (*guna*).

Hence, arguments to establish that there is something separate from the *guna*, namely the *dravya*, are put forth.

18. अन्यदेव व्यपदेशात् ॥

व्यपदेशात् द्रव्यं अन्यत् एव

(as it is pronounced in words the *dravya* is something separate from the *guna*)

It is said in the scriptures that the *guna* belongs to the *dravya*, there has to be *dravya* in addition to qualities. If we say about the sweetness of sugar, there has to be sugar separate from the sweetness.

19. सामान्यभेदात् ॥

सामान्यभेदात् द्रव्यं अन्यत् एव ।

(*dravya* is separate as there is difference in classification)

In all *dravya* there is something common and in all the *guna* also, there is something common. That which is common in the *dravya* is different from that which is common in the *guna*. So *dravya* is something different from the *guna*. *Dravyatva* (the virtue of *dravya*) is common in all *dravya* and *gunatva* is common in all *guna*.

20. बुद्धिभेदात् ॥

बुद्धिभेदात् द्रव्यं अन्यत् एव ।

(*dravya* is separate because of particular significance)

22

When we say *dravya*, we understand a particular meaning. When we say *guna* we understand some other meaning. One is not mistaken for the other. So there has to be some separate object which is understood by the term.

21. अन्यत्वेऽभिज्ञानात् गुणानाम् ॥

गुणानां अन्यत्वे अभिज्ञानात् ।

(even when the qualities are changed the *dravya* is recognised as the same)

When the green mango ripens, the colour, taste, touch, smell and even the sound change. But we know that it is the very same mango. From this example, we can know that the *dravya* is not necessarily the communion of the qualities that it is something basically different from the *guna*.

22. शास्त्रसामर्थ्याच्च ॥

शास्त्रसामर्थ्यात् च ।

(and also, as it is specifically said so in the texts)

आयुष्याणि अनायुष्याणि च द्रव्यगुणकर्माणि  
वेदयतीत्यायुर्वेदः ।

It is said in the text (*Carakasamhita*) that ayurveda is the science which teaches *dravya*, *guna* and *karma* which are beneficial and inimical to life. Here *dravya*, *guna* and *karma* are specifically and separately mentioned. So *dravya* has to be something separate from *guna* and *karma*. Thus the separate existence of *dravya* is established.

23. गुणेभ्योऽन्ये रसाः, प्रयोजनार्थं तेषां

पृथगभिधानम् ॥

ARYAVAIDYAN

रसाः गुणोभ्यः अन्ये, तेषां पृथगभिधानं  
प्रयोजनार्थम्।

(in ayurveda tastes (*rasa*) are described different from *guna* and they are separately enumerated purposefully)

As taste is perceived by the sense of taste, it is a *guna* in the *dravya*. In ayurveda, even though the sense perceptions are given basic importance in developing the theory of the *pancabhoota*, different qualities are enumerated to distinguish and evaluate different *dravya*. Of the five sense - perceptions taste (*rasa*) is given importance as one of the properties; the other properties being *guna*, *veerya*, *vipaka* and *karma* (The subject matter of *Rasavaisesika* is the *dravya* with its five properties). *Sabda* (sound), *sparsa* (touch), *varna* (colour) and *gandha* (smell) are not given as much importance as *rasa* in identifying and assessing *dravya* to be used as food and medicine.

24. शीतादीनेके रसगुणानिति ब्रुवते।।

एके शीतादीन् रसगुणान् ब्रुवते।

(certain teachers say that *seeta* etc. are the qualities of tastes)

It is said in the texts that *madhura* (sweet) is *seeta*, *guru* and so on. *Amla* is *ushna*, *snigdha* and so on. Thus all six tastes are described yielding certain qualities.

25. न निर्गुणत्वात् गुणानाम्।

गुणानां निर्गुणत्वात् न।

(it is not so as *guna* is *nirguna* i.e. without any qualities).

Qualities are not independent. They depend on the *dravya* for existence. *Rasa* is a *guna* as is experienced by the sense of taste. Qualities like *guru*, *manda* etc. also are designated as *guna*. The relation between tastes and the qualities is *sahacarya* (co-existence) not *asrayaasrayee bhava* (depending existence). Both the *guna* and the *rasa* are of the *dravya* and co-exist in the *dravya*. So statement that the *guna* is of the *rasa* (taste) cannot be scientific, it can be a formal statement.

26. गुणानां गुणवत्त्वे ह्यनवस्थाप्रसङ्गो  
लक्षणवैषम्यं वा।।

गुणानां गुणवत्त्वे हि अनवस्थाप्रसङ्गो  
लक्षणवैषम्यं वा भवेत्।

(if the *guna* possesses *guna*, a condition of endlessness may occur and difficulty in distinguishing characteristic features may also occur)

If there can be qualities in the basic qualities, there can be further qualities for the former group. This can continue endlessly. Also difficulty in distinguishing symptoms may occur, as *guna* mentioned may be of the *dravya*, or of the *guna*-so whenever a *guna* is mentioned it has to be that of the *dravya*.

27 शास्त्रप्रामाण्याल्लोकोपचारात्  
तत्र चोपलब्धेर्द्रव्याणाम्।।

शास्त्रप्रामाण्यात् लोकोपचारात् तत्र उपलब्धेः च  
गुणाः द्रव्याणां भवन्ति।

(because of the authority of the texts, of the usage among the common people and as the qualities are obtained in the *dravya* the *guna*

are of the *dravya*)

In the texts, the substances (*dravya*) are explained as possessing the qualities. Even the ordinary people mention of *dravya* as having particular *guna* (the water is cold, the fire is hot etc.), In experience also, we find the substances possessing certain qualities. To utilise the quality (*guna*), we have to utilise the substance (*dravya*) having the *guna*. To utilise sweetness, we have to use something sweet like sugar as the *guna* (sweetness) cannot be separated from the *dravya*.

28. रसव्यतिरेकेण चोपलब्धेः ॥

रसव्यतिरेकेण उपलब्धेः गुणाः च रसस्य भवन्ति ।

(*guna* does not pertain to *rasa* as *guna* is experienced as a separate entity than *rasa*)

The air and fire do not pos-

sess taste, but they have touch and heat as their properties. Also the taste of a fruit and its *guna* (quality) are experienced separately.

29. रसेषु तूपचारोऽधिकृतत्वाद् भक्तितः च ॥

रसेषु गुणानां उपचारः तु अधिकृतत्वात्  
भक्तितः च ।

(because of particular context and association the properties (*guna*) are ascribed to the tastes (*rasa*).

In certain contexts there are statements such as "sweetness is a nourishing one". Here the meaning is secondary (*upacara*), as *madhura* means *madhuradravya*, the sweet material. Because of close association (*bhakti*), sometimes it is said *madhura* is *guru*. It only means that a *dravya* with *madhurarasa* is *guru* in effect. ●

Oh Bharata,  
those three who  
give food,  
water and who treat  
a patient will enter  
heaven even without  
*yagna*.

(Yogaratanakara)

## BOTANICAL IDENTIFICATION OF SOME AYURVEDIC HERBAL MEDICINES

Tiwari, K.C.\*, Uniyal, M.R.\*\*, Pandey, V. N.\*\*\* & Pandey, G\*\*\*\*

### Abstract

The identification methodology used in olden times took the clinical properties as the main aspect followed by external visible characters of the plants, while in the modern scientific system a plant is identified on the basis of its floral characters added by some of the marked vegetative ones. The difference between these two methods in the identification of plants described in the olden texts, creates problems and that needs careful solutions. Ayurvedic names are in Sanskrit, some of which gives a little indication on the characters, habitat and properties etc. Authors have tried to give a line to sort out the difficulties basing on the comparison of these two methods.

### Introduction:

During the period of evolution and development of indigenous systems of medicines, while clinical diagnosis, preparation, administration and action of medicines etc. were dealt most scientifically, selection of raw material from plant sources (which constitutes 90% of medicines) was done partially through gross identification of characters and detailed and pin point selection by using *smrti* of visual remembrance,

touch, smell and taste etc. (Uniyal et al: 1990). Because then these senses were considered powerful tools.

विद्या वितर्को विज्ञानं स्मृतिस्तत्परता क्रिया।  
यस्यैते षडगुणास्तस्य न साध्यमतिवर्तते॥

For last few decades attempts are being done to bring the indigenous system of medicine within the concepts of modern scientific systems and knowledge which is ultimately based on the speed of light

\* Survey Officer, \*\*\* Research Assistant (bot.) and

\*\*\*\* Research Officer Incharge, IIADR, Incharge, IIIADR, Tarikhet, U.P.

\*\* Assistant Director Incharge (now A.D. (Ayurveda) CCRAS, HQs, New Delhi



as its least count. Therefore we can bring some subjects within these concepts but not all because *avyakta*, *atma*, *ahankara*, *tridosha*, *guna*, *virya*, *vipaka* and *pancamahabhoota* etc. are subjects of metaphysical and spiritual spheres and these concepts are beyond the limits of modern science.

It may be mentioned that the problem of identifying drugs started after we shifted our method of determination through *smriti* to modern botanical identification. It has to be accepted that the ancient scientists were neither accustomed nor considered the identification of plants on present scientific lines. Many concepts like giving a single species (not groups of species) botanical equivalents may be only partially correct, unless it is supported by clinical experimentation. Though it is a time consuming process, it seems to be inevitable. Further it has also to be stated that certain methods and procedures which would help in deciding the identity of a plant is yet to be identified. This is mentioned in the later part of the paper.

Use of authentic which is properly identified raw drug is essential for getting the correct product. Even at present more than 50 herbal drugs used by the indigenous drug industry are in a controversial list. The identity of many important groups of medicines like 'ashtavarga' and 'dasamula' is yet to be decided (Tewari *et al* 1990 - Annexure - I, II).

Constant work based on different schools of thought have been going to identify the controversial drugs used in the indigenous system

of medicine. The only problem is that of being tackled as a whole, it is being dealt on partial knowledge as a botanist sees it only as a taxonomic problem, while a phytochemist, is interested in the active principles like alkaloids, glycosides, steroids and do not take the reaction of these drugs on human beings. Ayurvedic physicians and other clinical authorities consider the identification more as an art and that the capacity of human senses on the basis of *smriti* is a better way for identification.

Renowned Ethnobotanists like Dr. S. K. Jain have done considerable work with the ethnobotanical aspects of controversial drugs (Jain, 1987). In their work Tiwari *et al* have suggested that how the scientific findings coupled with comparison and interpretations of ancient and modern scientific information can be helpful in determining the identity of controversial drugs. (Tiwari *et al*, 1977; Tiwari *et al* 1976). Similar work was done by scientists like Uniyal etc. (Uniyal, 1966, 68, 69, 73, 82). *Sandigdha Vanaushadhi Darshika* published by Baidyanath Ayurveda Bhawan Private Ltd. Nagpur, 1985, is also an attempt to know the views of various authors on controversial medicinal plants though definite conclusions could not be arrived at.

Ayurvedic formulary part-I published by the Union Ministry of Health and Family Welfare gives the botanical equivalent of various medicinal herbs and their substitutes. Though it is a commendable pioneer work, it requires many modifications in view of the developing clarity of conception on the subject.

Taking into consideration these factors the authors suggest the following methods for the identification of controversial drugs.

- 1) Collection of the 'sloka' from recognised ayurvedic texts like *Carakasamhita*, *Susrutasamhita*, *nighantus*, *Bhavaprakasa* so on.
- 2) After due interpretation of collections gross identification in respect of botanical, chemical and clinical characteristics be made.
- 3) The area of occurrence, habitat, climate, local use and similar other factors are mentioned in detail in respect of many plants which can help significantly. Similarly, enough details can be collected on the methods of organoleptic identification which are given in the ancient literature about plants and their parts and this can give enough clues for identification. Example -in respect of point 1 to 3:-

(i) *Kaaravee / Karavee*:

कारवी करवी तद्वत् विज्ञेया सोपकुन्चिका।  
कारवी कृष्णजीरकः उत्तरापथे प्रसिद्धः,  
कारवी यवानीत्येके अजमोदेत्यपरे, अन्ये  
राजिकामाह।

“डल्हण”

कारवी कारवल्ली च कषायोष्णा कफापहा।  
कासश्वासहरा बल्या ज्ञेया रसनियामिका

आ उ 90।

Accordingly *kaaravee* is black cumin seeds called *Carum carvi* Linn. While *karavee* is meant for any sharp, hot, pungent tasting umbelliferous aromatic fruits and it may be ajowayan seeds or celery seeds or

*Brassica nigra* Linn. of Cruciferae family. *Anandakanda* finds *karavee* to be used for fixing mercury.

The difference is that the black cumin seeds are pungent and hot (*katooshnam*). The *karavee* of *Anandakanda* is astringent and hot (*kashayoshnam*). Bhavamishra calls *kaaravee* to be *upakunchika* or *Nigella sativa* Linn. of Ranunculaceae order. On the basis of *slokas* with gross identification of characters 3 plants i.e. *Carum carvi* Linn., *Brassica nigra* Linn. and *Nigella sativa* Linn. may be taken into account. In the 1st instance it can be considered as *kaaravee/karavee*. Final identity may be decided through further interpretation on the basis of the comparison of ancient and modern medical ethnobotanical literature.

(ii) *Sariva*:

सारिवा दाडिमोपमा श्वेतरेखांकितच्छदा।  
दुग्धगर्भा शिवफला नूलनी कृष्णवल्लरी॥

शिवदत्त

*Sariva* has leaves like pomegranate. Leaves have white streaks on them. Leaves when plucked give out latex profusely. Fruits are like beaks and they are full of cotton inside. Creeper is blackish.

This description clearly indicates that *Hemidesmus indica* is *sariva*.

(iii) *Varahi*:

ताम्बूलसदृशैः पत्रैः ग्रन्थिभिः समलंकृतम्।  
सर्जार्जुननिभैः पुष्पैः शोभते च सुगन्धिभिः॥  
वाराहच्छविवर्णन पिच्छलेन सुवर्चसा।  
कन्देन कटुतिक्तेन नोलोत्पलसुगन्धिना॥  
जायते सा गिरौ रम्ये विन्ध्ये श्रीपर्वते तथा।

वाराहमूर्धवत् कन्दो वाराहीकंदसजितः॥

Commentary on *Cakradatta*.

The creeper of *varahi* has leaves like betel-leaves. It has got stem with many bulbils. It has flowers like *sarja* and *arjuna* (*Terminalia arjuna*). Flowers of some species are scented. It has tubers like the head of *varaha* (pig) or the tubers covered with stout hairs just like *varaha*.

Tubers have pungent and bitter taste. Some are aromatic like lotus. These creepers are found in mountains and forests. The tuber is just like the head of a *varaha*. The creeper is known as *vaarahikanda*.

*Vaarahikanda* is the *Dioscorea*. Looking to the above description one has no hesitation in identifying these plants. They are still known as *vaarahikanda* amongst learned men of ayurveda.

On the basis of description of *slokas* it is clearly indicated that *vaarahi* belongs to the *Dioscorea* species or *Tacca aspera* Roxb.

4) Collection of taxonomic and ethno-medico botanical details about group of plants, which have been decided to be considered as representative plants on the basis of information from point 1-3: Dr. Jain's works on *brahmi*, *kikar*, *punarnava*, *rudanti*, *tamalkhana* etc. are of worth mention (Jain 1987) in this regard.

5) Collection of medicinal and clinical properties from modern global scientific information, from biological abstracts, chemical abstracts, relevant encyclopedia related books and papers must be done.

6) After compilation of the ancient and modern medicinal information it will have to be decided whether the plant marked to represent an ayurvedic or other indigenous medicinal plant contains these ancient descriptions and their modern equivalent in respect of clinical and medicinal properties should be nearly at par. This should be the final deciding point because we are concerned with plants as medicines not merely concerned with their taxonomic aspects.

In this respect the work of K.C. Tiwari *et al* on *Rosacaea procera*, *Valeriana wallichii* and *silajatu* can throw some light on how the modern and ancient findings can be compared, analysed and interpreted for coming to possible conclusions. (Tiwari *et al* - 1976; Tiwari *et al*, 1974; Tiwari *et al* 1973). This point has also been discussed by him in one of his articles on the problems faced in preparation of Unani and ayurvedic Pharmacopia (Tiwari, 1977).

In conclusion, it is suggested that to make clearcut methods for identification on taxonomic lines without giving due consideration to ethno-medico-botanical and clinical aspects may in many cases lead us to wrong conclusions.

#### Acknowledgement

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#### Annexure I

Controversial drugs used in indigenous drug industry:

1. Ajagandha

- |                 |                   |
|-----------------|-------------------|
| 2. Agnijihva    | 13. Lohita        |
| 3. Asmantaka    | 14. Murva         |
| 4. Ajaruha      | 15. Nagadanti     |
| 5. Ajasrangi    | 16. Nagabala      |
| 6. Adityavalli  | 17. Pashanabheda  |
| 7. Vanhisikha   | 18. Sankhapushpi  |
| 8. Bhutakeshi   | 19. Suvarnakshiri |
| 9. Cavya        | 20. Tagara        |
| 10. Dravanti    | 21. Talisa        |
| 11. Gajapippali | 22. Tilvaka       |
| 12. Hemavati    | 23. Uccata        |

24. Astavarga drugs

- |                    |                                       |
|--------------------|---------------------------------------|
| (a) (Jivaka)       | <i>Microstylis wallichii</i> Lindl.   |
| (b) (Rshabhaka)    | <i>M. muscifera</i> (Linaley) Ridley. |
| (c) (Kakoli)       | <i>Fritillaria royleii</i> Hook.      |
| (d) (Kshirakakoli) | <i>Lilium polyphyllum</i> Don.        |
| (e) (Mahameda)     | <i>Polygonatum verticillatum</i> All. |
| (f) (Meda)         | <i>P. cirrhifolium</i> Royle          |
| (g) (Rddhi)        | <i>Habenaria edgeworthii</i> Hook f.  |
| (h) (Vrddhi)       | <i>H. latilebris</i> Hook f.          |

25. Dasamula drugs

- |                   |                                     |
|-------------------|-------------------------------------|
| (a) (Agnimantha)  | <i>Premna integrifolia</i> Linn.    |
| (b) (Bilva)       | <i>Aegle marmelos</i> Corr.         |
| (c) (Gambhari)    | <i>Gmelina arborea</i> Linn.        |
| (d) (Gokshura)    | <i>Tribulus terrestris</i> Linn.    |
| (e) (Kantakari)   | <i>Solanum surattense</i> Burm f.   |
| (f) (Brihati)     | <i>S. indicum</i> Linn.             |
| (g) (Patala)      | <i>Stereospermum suaveolens</i> DC. |
| (h) (Prisniparni) | <i>Uraria lagopoides</i> DC.        |
| (i) (Salaparni)   | <i>Desmodium gangeticum</i> DC.     |
| (j) (Syonaka)     | <i>Oroxylum indicum</i> Vent.       |

## Annexure - II

**Dasamula Group**

Sl. No.	Group as Ayurvedic text.	Authentic botanical identity	Substitute or adulterants	Remarks
1.	2.	3.	4.	5.
<b>(A) (Laghupancamoola)</b>				
1.	Salaparni	<i>Desmodium gangeticum</i> DC.	Other sp. of <i>Desmodium</i> sp. & <i>Flemingia</i> sp.	Though mentions use of root but some times all parts of plants are being used
2.	Prsniparni	<i>Uraria picta</i> Desv.	<i>Uraria lagopoides</i> <i>Desmodium pulachellum</i>	
3.	Brhati	<i>Solanum indicum</i> Linn.	<i>Solanum torvum</i> Sw. <i>S. verbascifolium</i> Linn.	
4.	Kantakari	<i>Solanum xanthocarpum</i>	<i>S. khasianum</i> & other sp.	
5.	Gokhsura	<i>Tribulus terrestris</i> L.	---	
<b>(B) (Brahat pancamoola)</b>				
1.	Bilvamool	<i>Aegle marmelos</i> Corr.	---	Normally in place of root bark is being used.  Use of dead epidermis:- <i>Dasamoola</i> group which has been exemplified here is among the most vital group of ayurvedic medicine like Dashamoolarish-ta, <i>Dasamoola taila</i> , <i>Dasamoola arka</i> and <i>Chyavanaprasa</i> . Due to shortage bark is being substituted for roots. The difficulty is that the bark being collected is dead epidermis without sufficient cell sap or living tissue. It can be easily understood that the dead epidermis or bark from a dead tree cannot provide active constituents responsible for medical purposes.
2.	Syonaka	<i>Oroxylum indicum</i> Vent.	<i>Salmalia malabaricum</i> Schoot & Endl. <i>Elaeodendron glaucum</i> Pers.	
3.	Gambhari	<i>Gmelina arborea</i> Linn.	<i>Trewia nudiflora</i> L.	
4.	Patala	<i>Stereospermum suaveolens</i> DC.	---	
5.	Laghu agnimantha	<i>Clerodendrum phlomides</i> L.	<i>C. siphonanthus</i> (R. Br.) C.B. Clarke. <i>C. infortunatum</i> L.	
6.	Brhat agnimanth	<i>Premna integrifolia</i> Roxb.	<i>Premna barbatta</i>	

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An intelligent man  
will not go and  
meet a *vaidya*  
at dusk or night  
or when the latter  
is taking food or  
bathing or at bad  
times also.

(Yogaratrikara)



## **EFFECT OF VIJAYASARA COMPOUND - 1 IN ALLOXAN INDUCED DIABETES - AN EXPERIMENTAL STUDY**

Nageswara Rao, V., Suresh, P., Dixit, S. K. and Gode, K. D.

### **Abstract**

*Vijayasara*, the heart - wood of *Pterocarpus marsupium* is a known drug in ayurveda to manage the cases of diabetes. In the present study a compound containing *vijayasara* in major proportion, was given for a month to a restricted number of albino rats, which were made diabetic using alloxan. The efficacy of the drug is evaluated by analysing the values of blood sugar, recorded every week, of drug treated group with control and the tolbutamide treated group.

### **Introduction:**

Diabetes is a metabolic disorder characterised by hyperglycaemia, associated with alterations in lipid and protein metabolism. Several scientists from all over the world are continuing their efforts to evolve a suitable management for diabetes. But an effective curable therapy is yet to be discovered. In ayurveda, a large number of herbal and mineral drugs are mentioned, which are claimed to be effective in the treatment of diabetes. Ayurveda has potential

to offer hypoglycaemic agents without toxic effects. In our department we have conducted an experiment to see the antidiabetic effect of *Vijayasara Compound-1* in alloxan induced diabetic albino rats. This herbo-mineral compound was formulated based on literary survey.

### **Materials and methods**

Preparation of *Vijayasara Compound-1*

*Vijayasara Compound-1* was prepared in the department of Rasa

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Department of Rasa Shastra and Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi - 221 005.

Shastra, IMS, BHU. The following ingredients were used.

1. *Vijayasara*  
(*Pterocarpus marsupium*) 16 parts
2. *Trivangabhasma* 4 parts
3. *Rasasindura* 1 part

All the above ingredients were made into fine powder form and mixed well. Later the whole mixed portion was triturated in a mortar and pestle with the juice of *karela* (*Momordica charantia*). The trituration process was repeated three times.

For the present study we have taken twenty albino rats (both sexes) weighing 100-200 gm. They were kept in our departmental animal house for proper acclimatisation for 10 days and the blood sugar levels were estimated by *folin* and *Wu* method, the blood being collected from the external orbital venous plexus. The estimation of blood sugar was taken as a parameter to assess the effect of *Vijayasara* Compound-1. Later all the animals were kept overnight without food and diabetes was induced with alloxan by the standard method. For the induction of diabetes, insulin (PZI) 1U/kg body weight was injected subcutaneously. One hour after the insulin, alloxan 150 mg/kg body was given intraperitoneally. After another hour glucose (oneg/kg body weight) was given intra peritoneally. Later standard diet was given to all rats. After stabilising the blood sugar levels. i.e. after forty-eight hours, blood was drawn and estimated for blood sugar content (Table 1). The animals having more than 250 mg% were taken and the rest of the animals were discarded. The animals

that become diabetic were divided into three groups viz. control, drug (*Vijayasara* Compound-1) treated and tolbutamide treated. The effect of *Vijayasara* Compound-1 was evaluated with that of the known short acting first generic drug tolbutamide in this experiment. Control group was given distilled water. The *Vijayasara* Compound-1 was given for one month in the dose of 0.5 gm/kg body weight through oral route and the blood sugar levels were estimated at weekly intervals. All the results are shown in Table 1.

### Observations.

Out of 20 animals, one female animal died after 24 hours of induction of diabetes (mortality rate 5%). Four animals did not become diabetic (20%), three of them were male. Rest of the animals became diabetic (75%).

From the Table 1, it is clear that in the control group the fall in blood sugar levels was observed only at the end of treatment, while in drug (*Vijayasara* Compound-1) treated group the fall in blood sugar levels was observed from the second week of treatment onwards and a significant fall was observed at the end of treatment. In tolbutamide treated group the blood sugar levels declined from second week onwards.

In control group two male animals died in the last week of treatment (mortality rate 40%). In the treated group one male died in third week (14.28% mortality rate) and two animals died (42.9%) in the last week, one male and one female. In the tolbutamide treated group no

Table - 1: Showing the effect of *Vijayasara Compound - 1 (0.5g/kg oral)* on the blood sugar levels in alloxan induced diabetic albino rats. Data presented blood sugar Mean  $\pm$  S.E. (Mg%) values. Number in parenthesis indicates number of observations.

Groups	Normal	After 48 hours of Induction	Mean $\pm$ S.E. (Mg%) Blood Sugar Levels After			
			1st week	2nd week	3rd week	4th week
Control	126.4 $\pm$ 3.50 (20)	354.4 $\pm$ 21.12 (5)	433.2 $\pm$ 29.73 (5)	433.6 $\pm$ 22.25 (5)	411.6 $\pm$ 34.71 (5)	346.0 $\pm$ 10.58 (3)
Drug treated		317.7 $\pm$ 24.11 (7)	357.3 $\pm$ 18.56 (7)	302.6 $\pm$ 18.01 (7)	333.3 $\pm$ 22.67 (6)	269.5 $\pm$ 15.65 (4)
Tolbutamide treated		348.67 $\pm$ 36.45 (3)	390.67 $\pm$ 32.34 (3)	316.67 $\pm$ 33.33 (3)	299.3 $\pm$ 12.13 (3)	248.0 $\pm$ 9.87 (3)

mortality was observed.

### Discussion and conclusion

According to result (Table 1), *Vijayasara Compound -1* showed significant fall in blood sugar levels in comparison to control group in second week onwards. Though the fall was not significant in drug (*Vijayasara Compound-1*) treated group in comparison to tolbutamide, still the values of drug (*Vijayasara Compound-1*) treated were similar to tolbutamide values.

Ojha et al studied the hypoglycaemic effect of the aqueous extract of the heart-wood of *vijaya* and observed that the blood sugar level of normal rabbits falls considerably after the administration of the drug with a prolonged effect. Aimman (1978) has established that *vijayasara* is effective in diabetes by releasing insulin. Chakravarthy, B.K. et al (1978) have reported that *vijayasara* will regenerate the B-cells of islets of Langerhans of pancreas.

Suresh P. et al (1984) established the hypoglycaemic effect of *Trivangabhasma* with 0.5 and 1.0g/kg body weight doses in normal albino rats. The antidiabetic property of *Rasasindura* has been reported by many ancient physicians. Sharma et al., Cotilkar and Krishna Murthy investigated the antidiabetic property of *karela* and found marked action in animals with good result in clinical cases. Kulkarni et al. have established the *karela* potentiates the hypoglycaemic action of *Yashadabhasma*. From this study it is seen that *Vijayasara Compound-1* has been causing significant fall in blood sugar levels

and this compound may be used for a prolonged period to get relief from diabetes and its complications.

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One who is desirous  
of increased prosperity  
should meet *vaidya*,  
priest, minister and  
astrologer everyday  
morning.

(Yogaratnakara)

## PHARMACOGNOSTICAL STUDIES ON JIVANTI (HOLOSTEMMA ADA-KODIEN SCHULT.)

Krishnan Nambiar, V. P., Jayanthi, A.,  
Sabu, T. K. & Rajendrakumar, K.

### Abstract

*Holostemma ada-kodien* Schult. is a well known medicinal plant which is an important constituent in more than 34 ayurvedic preparations. In *Nighantusamgraham* six kinds of *jivanti* are mentioned, in Kerala *Holostemma ada-kodien* is in use as *jivanti*, which is the fifth type mentioned in this book (Warrier et al, 1995). This paper deals with the pharmacognostical studies especially on the microscopic and macroscopic characters of the plant which serve to detect the correct raw drug. The propagation technology through roots and seeds has also been worked out.

### Introduction:

*Holostemma ada-kodien* belonging to the family Asclepiadaceae known as *atapatiyan*, *atapotiyan* in Malayalam, *cirvel* in Hindi, *jivanti* in Sanskrit and *palaikkirai* in Tamil, is an indispensable raw drug used in various ayurvedic preparations like *jeevanthyadikashayam*, *jeevanthyadi ghritham*, *aswagandhadi ghritham*, *jeevanthyadiyamakam*, *balarishtam*, *anuthailam*, *punarnavabaladi kashayam*, *candanadi thailam* etc. (Iyer. S. R, 1983). The plant is distributed throughout

India in hedges and open forests.

The officinal part is tuberous root. The roots are sweet, refrigerant, ophthalmic, emollient, alterant, tonic, stimulant, aphrodisiac, expectorant and galactagogue. They are useful in ophthalmopathy, orchitis, cough, burning sensation, stomachalgia, constipation, fevers and *tridosha*. The leaves, flowers and fruits are eaten as a vegetable (Warrier et al, 1995). Systematic investigation of root revealed the presence of 3 principles. Alpha-amyrin, lupeol and beta sitosterol and 6 amino acids viz. alanine, aspa-

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rtic acid, glycine, serine, threonin and valine which are identified chromatographically (Ramiah et al, 1981).

### Morphological description

A glabrous twining shrub, leaves simple, opposite, petiolate, ovate, entire, acuminate, base deeply cordate, basal lobes rounded, glabrous above and puberulus beneath especially on the nerves, 7.5 - 15 cm long and 4.5 to 8 cm broad. Midrib prominent with a few small glands at its base above. Petiole 4.5 to 6.5 cm long, stout, glabrous, glandular at the base of the midrib above. Flowers large, regular, bisexual, subrotate, subglobose in bud, creamy white to pale pink outside, reddish purple inside and fragrant. Calyx five lobed, eglandular, broadly ovate, obtuse and veined, about 0.4cm long and 0.3cm wide. Corolla gamopetalous, deeply five lobed subrotate 2.5 - 3.8 cm in diameter. Pinkish outside and purplish within, tube short, lobes thick, about 1.2cm long and 0.9 to 1cm wide, lobes overlapping to the right, corona fixed to the base of the staminal column, annular, fleshy, truncate. Stamens five, adnate to the base of the corolla tube. The filaments connate in a ten winged column; anthers large, horny, shining with membranous inflexed tips; pollen masses, pendulous, clavate, elongate, compressed, attached by long caudicles to the hard brown linear pollen carriers. Ovary bicarpellary apocarpous but with a common slender style ending in an oblong five winged included stigma. Each ovary containing numerous ovules on thick swollen placenta. Fruit consists of two thick lanceolate broad follicular mericarps.

Seeds ovoid, flattened, winged ending in a white silky coma. The fruit exudes milky white latex on puncturing.

Roots are very long, attain a length of one meter or more, irregularly bent, somewhat cylindrical and gradually tapering towards the tip, yellowish brown in colour. Thickness of the root varies according to age and amount of starch present. The surface is nearly smooth in texture, except for the presence of a few scars of root lets (Gamble, 1967, Kolammal.M, 1979.), Fig. I, a-f, Fig. II a-g.

### Materials & methods

Plant materials for macro and microscopic observations were collected from different parts of Kerala and fixed in F.A.A. Seeds and roots were collected for propagation studies. For anatomical works stained hand sections and macerated materials were examined under compound microscope. Vein-islet number, stomatal index and palisade ratio were found out using leaf samples treated in 5% KOH solution. For determining stomatal index, ten epidermal peelings of a fresh leaf were taken from lower surface and ten countings were recorded from ten different areas of each piece (ie., number of stomata as well as epidermal cells per 1 sq.mm area). Stomatal index value is then calculated by using the formula,  $\frac{E}{E+S} \times 100$  where E and S stand for the number of epidermal cells per unit area and the number of stomata respectively (Salisbury, 1928). The values are represented graphically (Fig. VI). Palisade ratio was determined by using 5 fresh leaves. From each of these, four pieces (ie. one from base, one from apex, one from

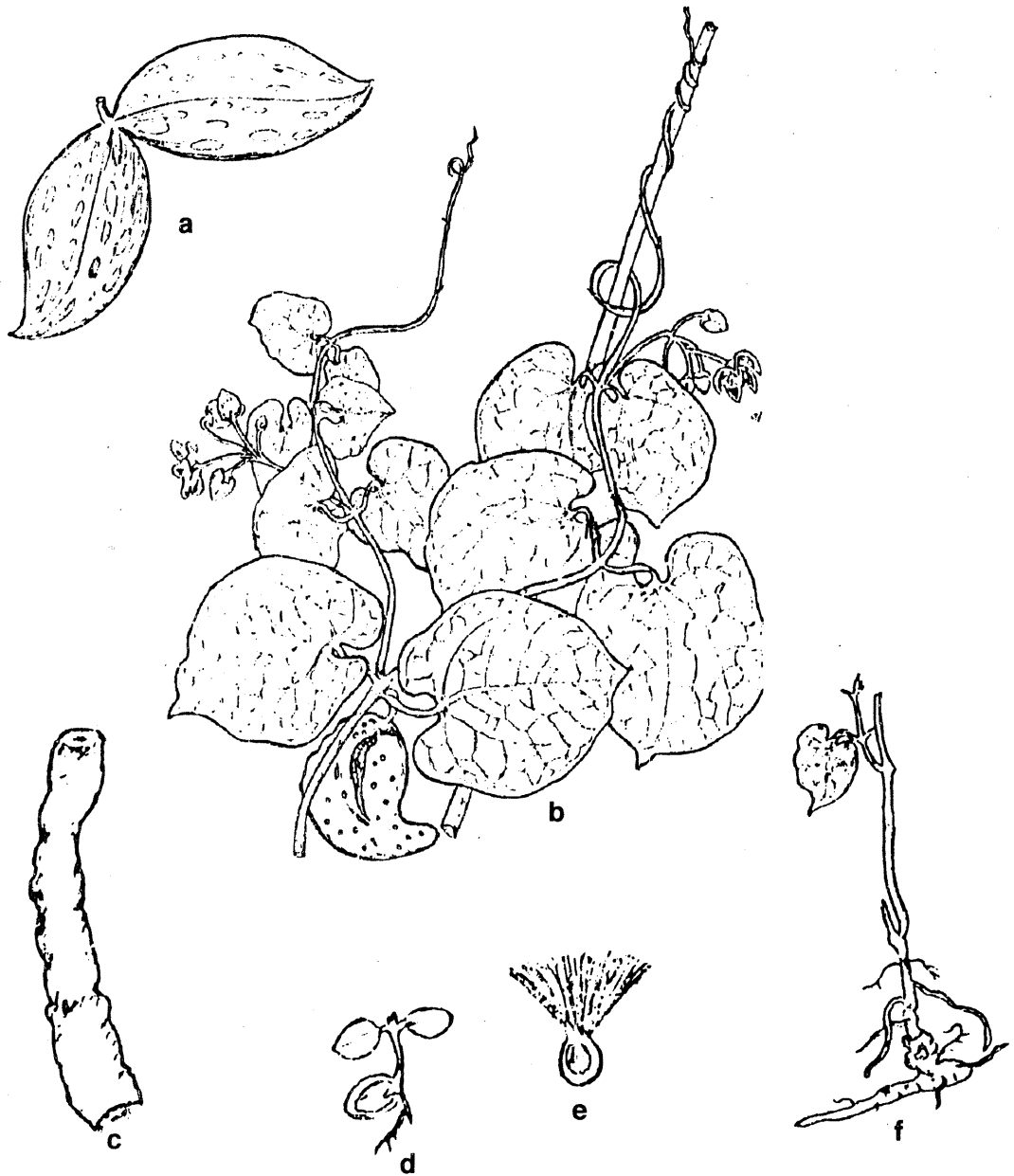


Fig. 1 a-f *Holostemma ada-kodien* Schult.

- a) Fruit                      b) Habit                      c) A piece of mature root  
 d) Germinating seed    e) Seed                      f) Seedling



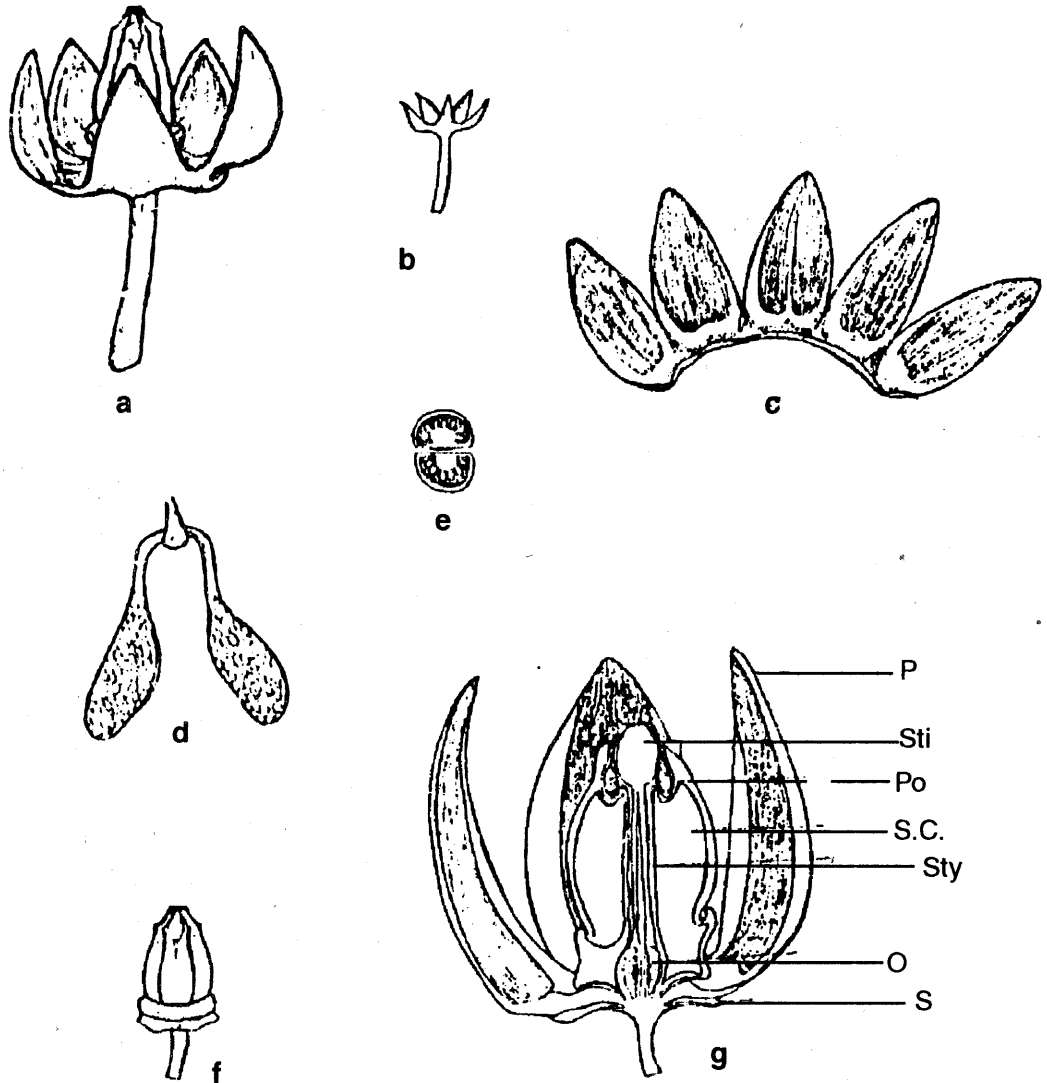
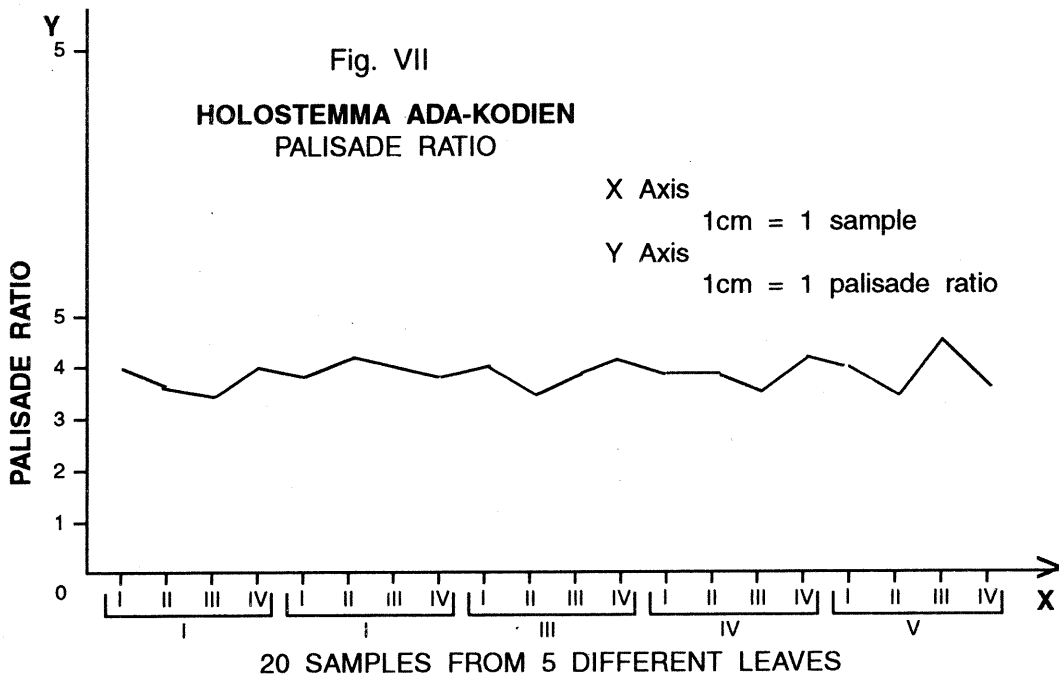
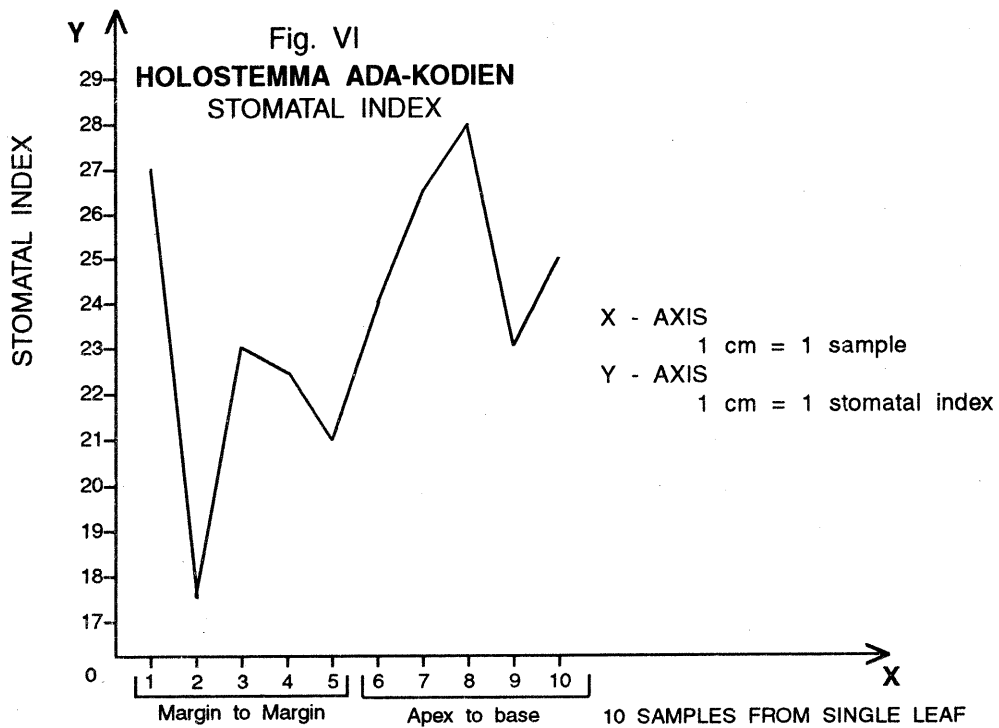
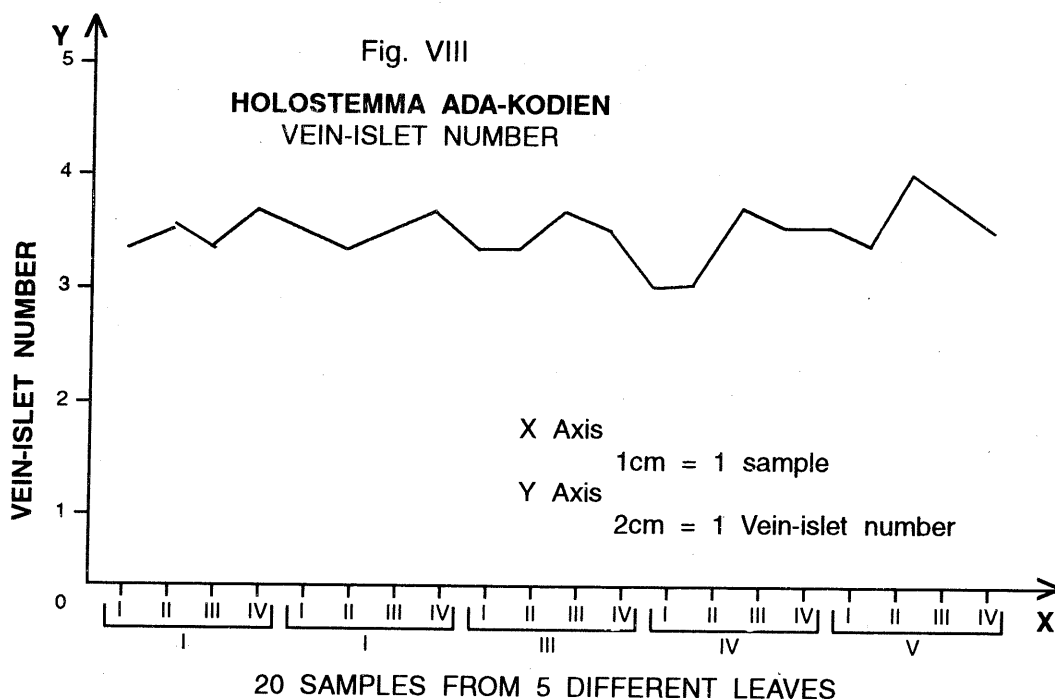


Fig. II a-g *Holostemma ada-kodien* Schult.      a) Single flower  
 b) Calyx      c) Corolla split opened      d) Translator  
 e) Ovary C. S.      f) Gynostegium with corona      g) Flower L.S.

O. Ovary      P. Petal      Po. Pollinium      S.C. Staminal corona  
 S. Sepal      Sti. Stigma      Sty. Style





margin and one from centre were selected). After clearing, washing and staining they were mounted in glycerine. From these 100 readings were recorded, taking 5 counts from each piece. Average of these values is the palisade ratio. The values are represented graphically (Fig. VII). The report that "number of palisade cells per unit area increases successively from base to apex, with the ratio always remaining constant" (Zornig & Weiss, 1925) holds true in this species also. The vein-islet number is calculated by counting the minute areas of photosynthetic tissue encircled by the ultimate division of the conducting strands per 1sq mm of cleared leaf samples taken from 5 different leaves. The values are represented graphically (Fig. VIII). All these numerical values may be considered as a diagnostic constant and will help for identifying

the plant species.

#### **Floral vasculature**

##### **Calyx**

Each calyx lobe is supplied with three vascular strands which are repeatedly branched (Fig. III a).

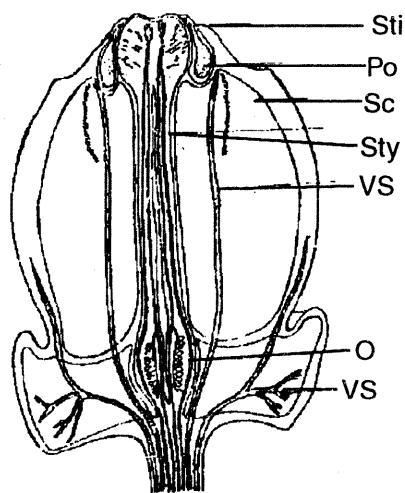
##### **Corolla**

5 vascular strands enter into each corolla lobe. Each one of these is highly branched forming a network. The median strand branches only near its extremity. The four branches produced (two on either sides) repeatedly rebranch and ultimately unite with the branches of the neighbouring strands on both sides (Fig. III c).

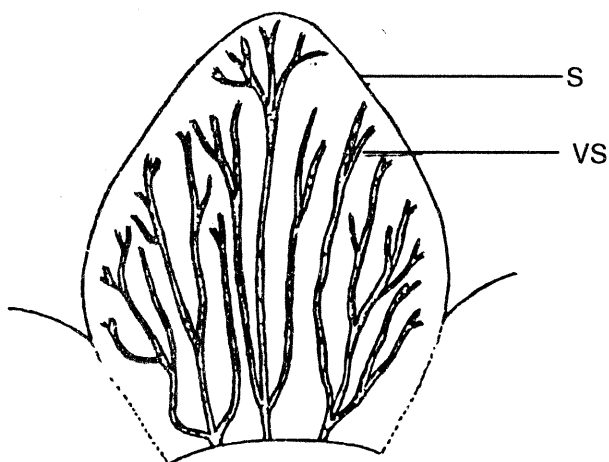
##### **Staminal corona**

There are five fleshy staminal

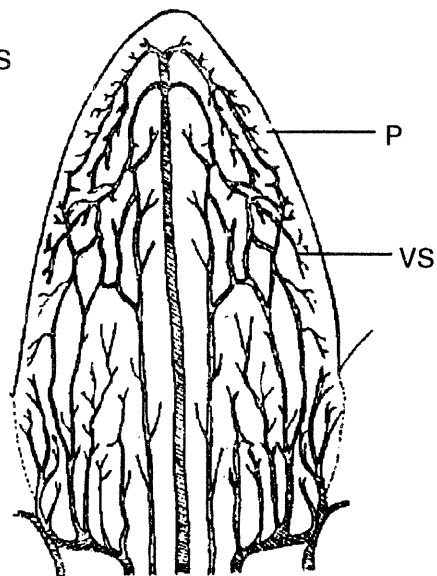
corona which are united to form a central column. Each corona is supplied with 2 vascular strands. Of these one towards the periphery is short, branched and they supply the basal and middle portions of the corona. The inner coronary strand remains unbranched and traverses the entire length of the staminal corona, taking a very sharp 180° bend turns back towards inside (Fig. III b).



b



a



c

Fig. III a-c *Holostemma ada-kodien* Schult. Floral Vascular Supply

a) Sepal (x115)

b) Gynostegium with staminal corona (x50)

c) Petal (x115)

O. Ovary

P. Petal

Po. Pollinia

S. Sepal

Sc Staminal corona

Sti. Stigma

Sty. Style

V.S. Vascular supply

## **Gynostegium**

Ovary is 2 celled, apocarpous and many ovuled. The ovaries and their styles are free but the stigmas are united to form a pentagonal structure, the corners of which carry the pollinia. Each carpel is supplied with a dorsal and a ventral vascular strand. From the ventral strand a branch enters into the ovarian chamber and supplies the ovules. In the stigmatic region dorsal and ventral strands of each carpel get united to form a single strand which gets abruptly branched in the stigma. At the stigmatic region several isolated obliquely oriented vascular traces are seen which probably supply the pollen chambers (Fig. III b).

## **Anatomy**

### **Stem**

In T.S., mature stem is oval in outline, due to the anomalous secondary thickening, i.e. secondary vascular development is mostly concentrated on the two opposite sides only. The epidermis is single layered with thin cuticle. Cork is composed of 5 to 7 layers of tangentially elongated suberised cells. Primary cortical region is composed of 15 -17 layers of thin walled polygonal cells. The upper 2-4 layers are chlorenchymatous. Below this chlorenchymatous region, patches of stone cells are seen in a ring. Primary and secondary phloem are distinct. Beneath the phloem region many layered, distinct, wavy, cambial ring is seen. In this species cambial activity is abnormal i.e., secondary xylem vessels are produced abundantly only on two opposite

sides and on other sides only tracheids are produced. Xylem vessels are of large lumen. Uniseriate medullary rays are distinct in the secondary vascular region. Primary xylem is very prominent. Pith is very large and consists of thin walled parenchymatous cells. In the pith region some of the parenchymatous cells undergo disintegration leaving cavities of varying shapes (Fig. IV a & b).

### **Root**

In T. S., mature root is circular in outline and 1-2cm in diameter. Cork is composed of 4-5 layers of thin walled tangentially elongated cells and having no contents. Wall of the outermost row of cells are light brown in colour. A distinct cork cambium is not observed. Phelloderm is composed of 3-5 layers of thin walled tangentially elongated cells. Most of the cells contain starch grain. Calcium oxalate crystals are very prominent in some outermost cells of the phelloderm. 2 or 3 celled schlereids group are seen in the innermost layers of phelloderm. The schlereid cells are much large, thick walled and show several pits or pit cavities. Inner to the periderm five to seven layers of cortical cells are observed. Most of these cells are rich in starch grain. Following the cortex a narrow zone of phloem is present, in phloem radially extended uniseriate phloem rays are very prominent, the ray cells of phloem are longer than the neighbouring cells of phloem and are filled with starch grains. Inner to the phloem 2 or 3 layers of cambium are present In cross sectional view major portion

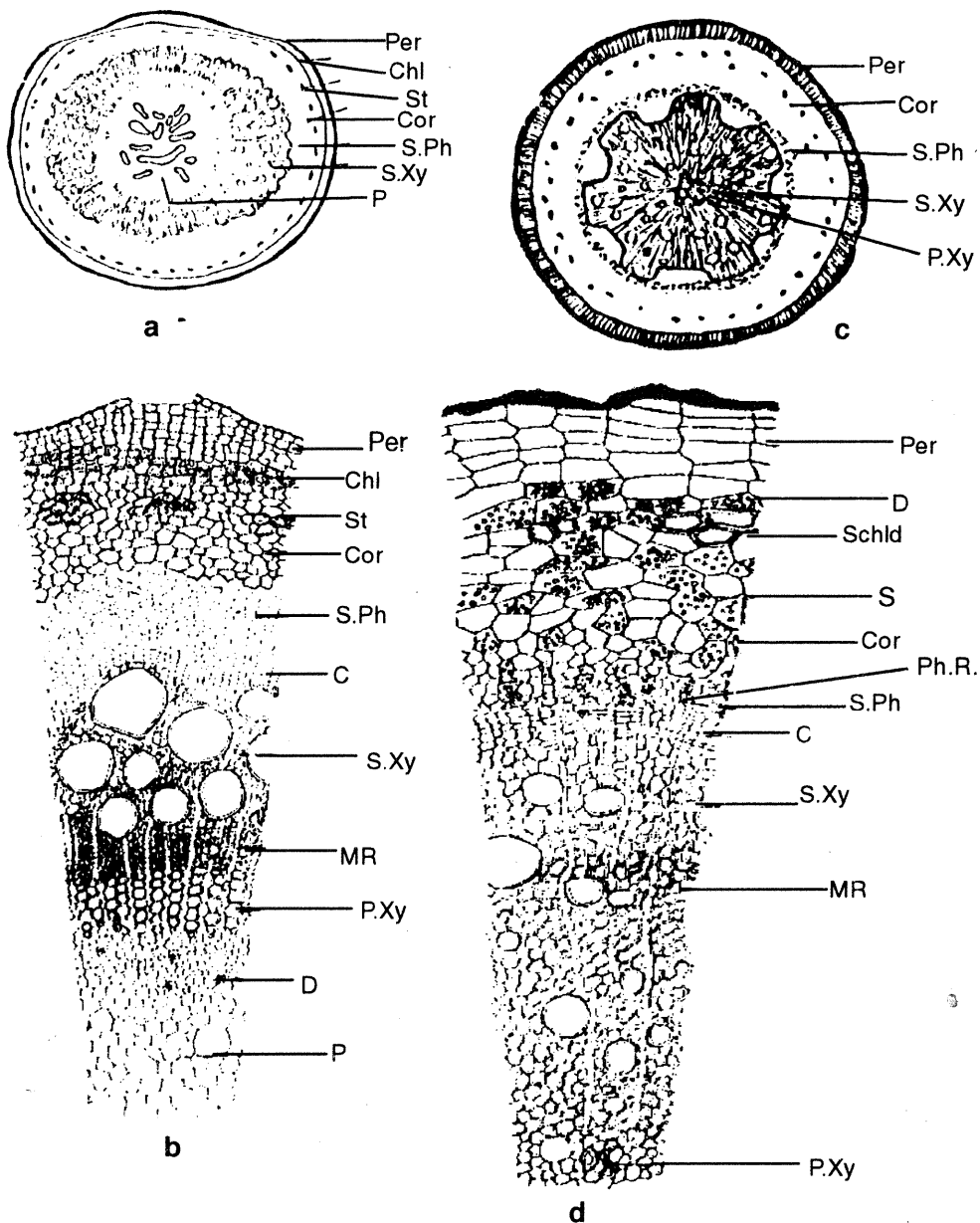


Fig. IV a-d *Holostemma ada-kodien* Schult.

a) T.S. of mature stem - Diagrammatic (x50) b) A portion enlarged (x115)

c) T.S. of mature root - Diagrammatic (x50) d) A portion enlarged (x115).

C. Cambium Chl. Chlorenchyma Cor. Cortex D. Druses MR. Medullary ray  
 P. Pith Per. Periderm Ph.R. Phloem ray P.Xy. Primary xylem S. Starch grains  
 Schld. Schlerieds S.Ph. Secondary phloem St. Stone cells S.Xy. Secondary xylem

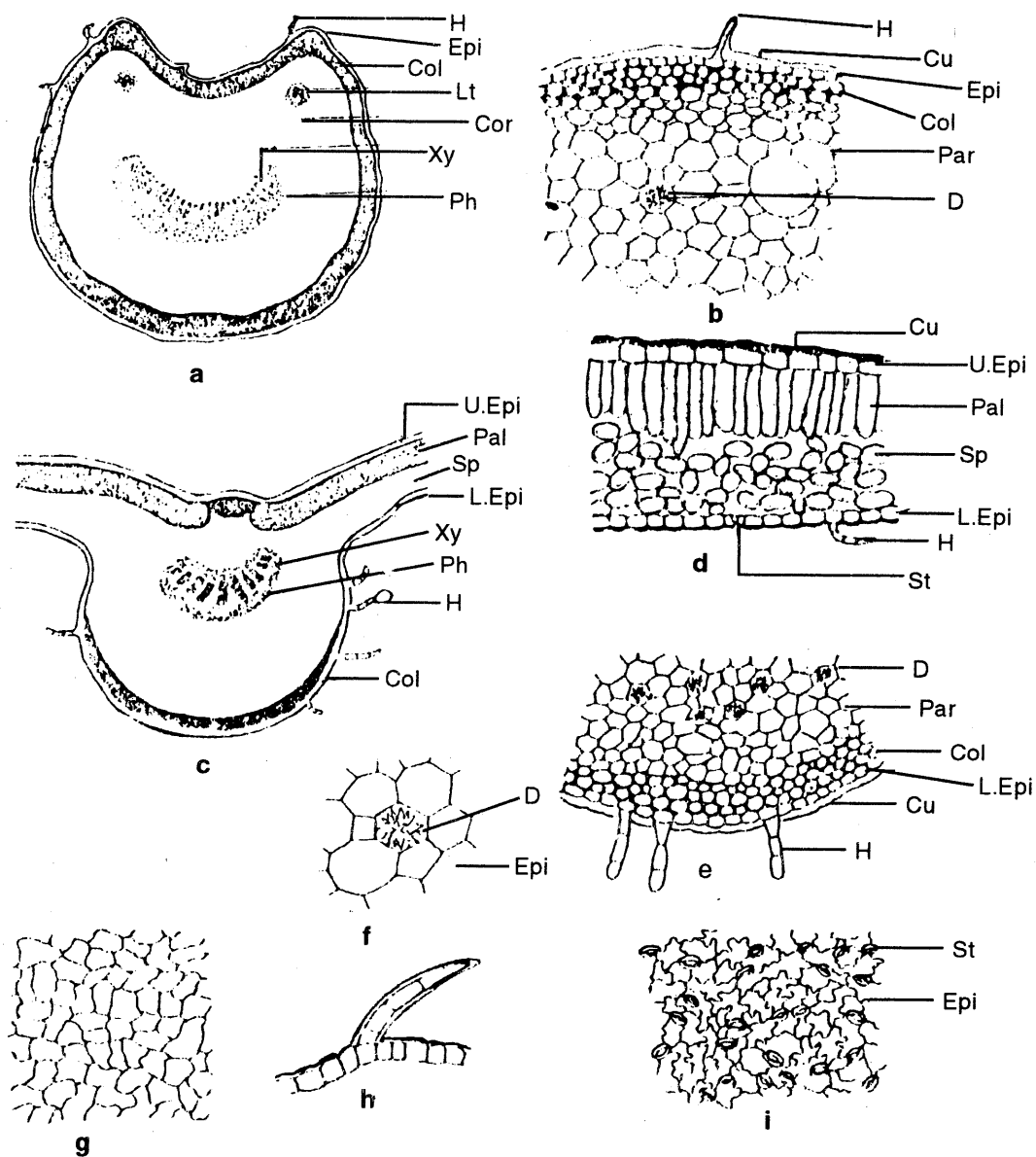


Fig. V a-i *Holostemma ada-kodien* Schult.

**a)** T.S. of petiole - Diagrammatic (x115) **b)** A portion of petiole showing epidermis and cortex (x210) **c)** T.S. of lamina through midrib - Diagrammatic (x115) **d)** Detailed T.S. of lamina (x210) **e)** Lower portion of midrib (x210) **f)** Druses **g)** Upper epidermis (x210) **h)** Single multicellular hair (x450) **i)** Lower epidermis (x210)

**Col** Collenchyma **Cor.** Cortex **Cu.** Cuticle **D.** Druses **Epi.** Epidermis **H.** Hair **L.Epi.** Lower epidermis **Lt.** Leaf trace bundle **Pal.** Palisade **Par.** Parenchyma **Ph.** Phloem **Sp.** Spongy parenchyma **St.** Stomata **U.Epi.** Upper epidermis **Xy.** Xylem

of the root is composed of central core of xylem, which extends to the 2 / 3 of the radius. The wood is not very hard due to the poor development of thick walled lignified elements, major portions of the xylem are composed of thin walled parenchyma that extends as broad radial strand, so the xylem region appears as ridges and furrows. The primary xylem is diarch with surrounded by secondary xylem. Uniseriate medullary rays are very prominent (Fig. IV c & d).

### **Petiole**

T. S. of petiole is shallow 'C' shaped in outline. The outermost layer is a single layered epidermis with multicellular trichomes. The outer cortex is composed of 2 or more layers of collenchymatous cells. The inner cortex is parenchymatous and is characterised by the presence of the latex cell and cells containing druses. The vascular bundle is crescent shaped (Fig. V. a & b).

### **Leaf**

T.S. of the leaf shows the upper and lower epidermis with the mesophyll in between. Mesophyll consists of a single layered palisade tissue and many layered spongy tissue. Vascular bundle is crescent shaped. A thick deposit of cuticle is present on the outer epidermis and which is comparatively thin on the lower epidermis. The lower epidermis is provided with multicellular trichomes. The walls of the lower epidermis are seen in peeled-off tissue, appears more wavy than those of the upper. At the midrib region adjoining and inner to the upper and lower zone of

collenchyma and the vascular strand at the middle contains druses and latex. Stomata are of Rubiaceous type (Fig. c-i).

### **Propagation**

The seeds are flat more or less dark brown in colour, oval or obconical in shape, with a protruding centre, and membranous periphery. The average weight of water imbibed by one seed amounts to 0.0019gm. One seed weighs 0.005973 gm. About 1,67,420 seeds weigh 1 kg. On an average a healthy fruit will contain 370-390 seeds. 4020 seeds were sown on nursery beds of which 3015 seeds germinated within 10-20 days accounting for 75% germination. Germination is epigeal. Occasionally three cotyledonary leaves are also seen. 4 leaved seedlings are polythene bagged and 6-8 leaved seedlings are ready for transplanting in the field.

These seedlings can be grown on large scale in the field by two methods, one using large polythene bags used in rubber nursery and two, using split hollow bamboo stems.

I. The large polybags are filled with potting mixture (one part sand + one part dry cowdung powder + one part garden soil). The four leaved seedlings are carefully pricked from the bed and transplanted in the polybags. Regular watering is necessary in the initial stages and watering only thrice a week subsequently temporary open pantal has to be fabricated for aiding these plants in the process of climbing. After two years they can be extracted easily by tearing of the polybags.

II. This method involves two meter



long bamboo stem bits. The stem is split vertically into equal halves. Excepting the lowest node all other partitions at the nodes on the inside are mechanically removed. With a small nail small holes are made on the partition at the lowest node. The two halves are rejointed together perfectly well and tied up with plastic thread or iron wire, at the top, at the middle and bottom. Now the bamboo stem is filled with potting mixture upto near the top. The two *Holostemma* seedlings are now planted on the top portion and the bamboo stems are kept erect in the soil about 15cm. deep. For preventing attack of white ants, the bottom portion of the bamboo stem can be painted with engine oil or coal tar. The bamboo stems are kept erect in bright sunlight. Watering should be done regularly in the initial stages. A pandal has to be fabricated on the top with ropes to facilitate twining of the plant. After two years the roots can be extracted easily by untiding and separating the two halves of the bamboo. The entire root system can be extracted without even breaking the branches in this method.

The root buds are also capable of becoming active normally at the onset of the rains. Propagation can be done through root cuttings which are 4 cm long. When burried horizontally in the sandy beds quarter of a centimeter deep and on watering 2-3 buds become active and grow into new plantlings. When the plantlings are 4-leaved the mother root is cut in between and are subsequently polythene bagged. After 3 weeks they are ready for transplanting in the field.

## Adulteration

The tuberous roots of *Ipomoea batatas* of varying sizes are sliced into pieces, dried and used for adulterating. The adulterant can be easily detected by observing the pattern of vasculature under the microscope.

## Result & discussion

The roots of *Holostemma ada-kodien* is an important raw drug much used in ayurvedic industry. Market survey reveals that these roots are often adulterated with the pieces of root tubers of *Ipomoea batatas*. This is mainly due to the scarcity of the raw drug. This scarcity can be over come by large scale cultivation by the methods using large polythene bags as well as split hollow bamboo stems. These two methods are far superior to the existing mode of cultivation usually practised by the farmers, as there is considerable savings in the money spent for cultural operations. Stomatal index value of *H. ada-kodien* is 23.5 (Table I), palisade ratio is 3.79 (Table II), and vein- islet number is 3.63 (Table III). These numerical values can be considered as a diagnostic constant in the identification of correct raw drug.

## Acknowledgements

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Table I HOLOSTEMMA ADA-KODIEN Stomatal index

I		II		III		IV		V						
No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index					
1	8	3	27.27	5	1	8	20.00	10	2	6	16.60	2	2	25.00
2	6	2	25.00	6	3	7	30.00	9	3	8	25.00	3	2	20.00
3	5	1	16.67	7	1	5	12.50	4	4	7	44.44	4	1	12.50
4	6	2	25.00	6	1	7	14.29	3	3	6	16.64	3	3	33.33
5	6	2	25.00	6	1	9	37.50	3	3	7	22.22	2	2	20.00
6	5	3	37.50	5	3	9	25.00	4	4	6	30.76	3	2	25.00
7	5	2	28.57	6	2	7	36.36	2	2	8	22.22	1	2	25.00
8	5	1	16.67	7	4	6	30.00	6	1	9	14.29	3	2	22.22
9	7	1	12.50	7	3	6	14.29	3	3	8	33.33	2	3	27.27
10	7	2	22.22	5	4	5	44.44	2	2	9	28.57	1	2	25.00
Average Stomatal index		23.64		26.44		27.86		22.43		23.53				
VI		VII		VIII		IX		X						
No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index	No. of Epi. cells	No. of Stomatal index					
10	2	16.60	8	1	11.11	6	25.00	5	2	28.57	6	1	14.28	
7	5	41.66	10	2	16.60	9	10.00	6	2	25.00	7	2	22.22	
9	3	25.00	10	2	16.60	5	37.50	8	2	20.00	8	2	20.00	
6	4	40.00	7	1	12.50	5	37.50	7	1	12.50	5	3	37.50	
7	5	41.66	6	3	33.33	9	10.00	5	3	37.50	8	3	27.27	
9	2	28.28	7	1	12.50	6	25.00	7	2	22.22	7	2	22.27	
9	2	28.28	7	2	22.22	7	22.22	7	1	12.50	7	1	12.50	
8	3	27.27	7	1	12.50	6	25.00	6	3	33.33	9	1	10.00	
8	3	27.27	6	2	25.00	6	14.29	8	1	11.11	8	2	20.00	
11	2	15.38	7	1	12.50	6	25.00	7	2	22.22	7	2	22.22	
Average Stomatal index		27.12		17.49		23.15		22.50		20.92				

Range: 17.49 - 27.86 Mean: 23.50 Standard deviation: 8.77

Table II Palisade Ratio HOLOSTEMMA ADA-KODIEN

Leaf No.	I				II				III				IV				V			
	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv
No. of Pieces	4	4	3	5	4	4	4	5	3	3	3	4	5	4	3	4	4	3	5	4
Readings	3	3	3	4	4	3	3	4	4	3	4	4	3	4	4	4	4	3	4	3
	4	4	3	4	3	4	4	4	4	3	4	3	3	4	4	4	5	3	4	4
	4	4	4	4	4	5	4	4	5	4	5	5	4	4	3	4	3	4	5	3
	4	4	4	4	4	5	5	3	4	4	3	4	4	3	4	4	3	3	4	3
Average	4	3.6	3.4	4	3.8	4.2	4	3.8	4	3.4	3.8	4	3.8	3.8	3.4	4	3.8	3.2	4.4	3.4
Total Average	3.75				3.95				3.8				3.75				3.7			

Range: 3.7 - 3.95

Mean: 3.79

Standard deviation: 0.65

Table III HOLOSTEMMA ADA-KODIEN Vein-islet Number

Leaf No.	I				II				III				IV				V			
	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv
No. of Pieces	3	4	2	4	3	4	5	3	4	3	4	3	2	3	4	3	4	3	5	2
Readings	4	3	3	4	3	4	3	4	3	2	4	4	3	3	4	3	4	2	4	4
	3	4	5	3	4	3	3	3	3	4	2	3	4	3	4	4	3	4	4	4
	4	3	4	4	4	3	4	4	4	4	4	4	3	3	4	4	4	3	4	4
	3	4	3	4	4	3	3	5	3	4	5	4	3	3	3	4	3	5	4	4
Average	3.4	3.6	3.4	3.8	3.6	3.4	3.6	3.8	3.4	3.4	3.8	3.6	3.0	3.0	3.8	3.6	3.6	3.4	4.2	3.6
Total Average	3.55				4				3.55				3.35				3.7			

Range: 3.35 - 4

Mean: 3.55

Standard deviation: 0.70

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He who takes water in,  
through nose at dawn  
(the cleaning called 'neti'  
in which purification is  
done by taking water in,  
through nose) will be  
intelligent, sharp in eyes  
as an eagle, not attached  
by old age and  
free from all diseases.

(Yogaratanakara)

## **DETECTION OF GINGER IN AYURVEDIC PREPARATIONS**

**Thankamma, A. and Radhika, L. G.**

### **Abstract**

Detection of single drugs in ayurvedic medicines has become absolutely essential as new medicines are being manufactured and brought to market. This paper deals with the detection of ginger in ayurvedic preparations. Thin layer chromatographic technique was used for the detection. Two solvent systems were developed and spots were visualised in iodine vapours 1) pet. etheracetone 4:1 - one spot Rf: 0.420 and 2) cyclohexane-ethylacetate 7:3 Rf. 0.515. These spots were present in the finished products and absent in the samples prepared without ginger and hence these spots can be used for the detection of ginger in ayurvedic preparations. This was confirmed by Co. T.L.C.

Ayurveda, the art of living and science of life is serving mankind since antiquity. However, ayurveda extends itself to accommodate prevention and cure of diseases, which are impediments to health, well being and longevity. Though it is India's ancient system of plant-based medicine, it has a positive approach based on measurable and ascertainable psychophysical facts. A drug regardless of the system in which it is used is a chemical and in a herbal

preparation these chemicals are supplied by the herbs. This in turn necessitates the need for standardisation of the single drug used in preparations, as these chemicals can be supplied to a formulation in the appropriate quantity only if the drug used is genuine. The easy availability of the drug and the values of this traditional system of medicine in itself was sufficient to prevent adulteration. But as commercialisation gradually engulfed this field, the

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*Drug Standardisation Unit, Ayurveda College Unit, Poojappura,  
Thiruvananthapuram - 12.*

*Address: Dr. A. Thankamma, 'Swathy', Studio Road, Industrial Estate, P.O,  
Thiruvananthapuram - 19*

prestigious formulations of ayurveda started losing its pristine glory. This is another factor which necessitated the standardisation of the ayurvedic drugs. Drug standards would also serve as a tool in the hands of enforcement agency to check and ensure the quality of medicine.

Many plants are known by their common name based on some visible or proven character. The descriptions given for plants in ayurvedic literature cannot help one in correctly identifying the drugs collected by the professional collector (non-taxonomists). In this system drugs in their gross state have been used against specific diseases through knowledge passed down from one generation to another. It was only as the knowledge of chemistry advanced that plants were subjected to chemical analysis and their chemical constitution isolated and identified.

The inherent curiosity in man to acquire more knowledge and his reluctance to accept things blindly has posed new challenges for ayurveda. In the modern world man not only wishes, but also has a right to know the drugs administered to him and its method of collection, preparation, shelf life etc. Standardisation of ayurvedic drugs is the only means to quench this demand.

In this paper an attempt has been made to standardise ginger (*Zingiber officinale*). Its rhizome is used as a stimulant, carminative and flavouring agent, given in dyspepsia, and flatulent colic, prescribed as an adjunct to many tonic and stimulating remedies. Rhizomes yield about 1-3% of a volatile oil containing camphene,

phellandrenes, cineol, citral, borneol and zingiberenes. Gingerol and shagaol are the pungent constituents. Though detailed study of ginger had been carried out, no work has so far been reported to detect its presence in ayurvedic preparations.

#### **Materials and methods**

The officinale part of the plant (rhizome) was collected and pharmacognostically identified. Chemicals used were of A.R. grade. Detection was carried out using chromatographic technique. Thin layer chromatography was done using silica gel. G. plates activated at 110°C. Visualisation was done using iodine vapours. Ayurvedic medicines used for the study were prepared in the laboratory by an ayurveda doctor. The techniques developed was then tested on market samples containing ginger. Market samples used for the study were kindly supplied by the Ayurvedic Research and Consultancy Service, Thiruvananthapuram

#### **Results and discussion**

For the study samples were selected from various types of preparation such as *curnam*, *ghrtam*, *tailam*, *kashayam* etc. A representative sample was prepared from each category. These products were also then prepared omitting ginger and including all other ingredients for comparative studies. Separate method was followed for each case. *Tailam* and *ghrtam* were dissolved in pet. ether and spotted in T.L.C. plates. In the case of *curnam*, 5 gms. of *curnam* was refluxed with 25ml of ethanol for 3 hrs. The filtered extract was concentrated and used for T.L.C.

study. Alcohol extract, oil solubles and ghee solubles of ginger were also taken.

In the case of *kashayam*, the *kashayam* was first filtered and then shaken with ethyl acetate. The solvent was then distilled off from the ethyl acetate extract and solute was taken for T.L.C. studies. Several solvent systems were tried and two systems which gave best resolution were selected.

- (1) Pet ether-acetone 4:1 iodine vapours Rf:0.420 one spot.
- (2) Cyclohexane - ethylacetate 7:3 iodine vapours - one spot Rf: 0.515.

For *tailam* and *ghrtam*, samples were dissolved in pet. ether and spotted along with oil solubles and ghee solubles of ginger dissolved in pet-ether. The corresponding samples prepared omitting ginger were also dissolved in the pet. ether and spotted (Table - 1)

In the case of *curnam*, alcohol extract of the *curnam* was spotted along with alcohol extract of ginger and alcohol extract of the drug prepared omitting ginger.

For *kashayam*, the ethyl acetate extract of *kashayam* was dissolved in ethanol and spotted along with extract of *kashayam* prepared omitting ginger and alcohol extract of ginger.

In both solvent systems a single prominent spot was observed in iodine vapours for the extract of ginger. This single spot was present in the corresponding finished products spotted but missing in the product prepared omitting ginger. Rf.

0.42 in pet ether - acetone 4:1 and Rf 0.515 in cyclohexane - ethylacetate 7:3. The point to be noted here is that the spot present in alcohol extract of ginger was present in the ghee solubles and oil solubles of ginger. In other words this particular compound of ginger comes into the ghee and oil solubles of ginger and this compound again remain unchanged in the finished products taken for study. This also means that this compound does not undergo any decomposition, polymerisation or any change even in the presence of other single drugs. This was further confirmed by the fact that this compound was absent in the finished product prepared omitting ginger. These spots of same Rf obtained for different finished products were scraped and mixed together and extracted with alcohol (a). A portion of this extract (a) was mixed with alcohol extract of ginger (b). These two extracts a, and b and alcohol extract of ginger were spotted in the same plate and plate was developed in the two solvent systems. All the three gave the same spot with same Rf. This again confirms that these spots obtained are characteristic of ginger and the presence of this spot can be considered as a parameter for the detection of ginger in finished products.

The method developed was then tested on various market samples containing ginger. All these medicines gave positive results. This again confirmed the validity of method evolved.

#### **Conclusion:**

Detection of a single drug in a finished product has become a ne-

**Table - 1**

Sample	Solvent system	
	Petetheracetone	Cyclohexane-ethylacetate
	4:1 Rf.	7:3 Rf.
1. Kottamcukkadi tailam	0.415	0.515
2. Asaneladi tailam	0.421	0.517
3. Lasunadi gudika	0.416	0.521
4. Dhanvantaram gudika	0.419	0.522
5. Rasnadi curnam	0.42	0.515
6. Taleesapatradi curnam	0.415	0.516
7. Guggulutiktaka ghrtam	0.421	0.515
8. Indukantam ghrtam	0.418	0.517
9. Amrtadi kashayam	0.416	0.52
10. Punarnavadi kashayam	0.421	0.518
11. Ginger alcohol extract	0.419	0.518

**Table II**

Sample	Solvent system	
	I	II
	Pet ether- acetone 4:1 Rf	Cyclohexane- ethylacetate 7:3 Rf
1. Ginger	0.419	0.518
2. Amrtadi kashayam	0.417	0.516
Amrtadi kashayam (Omitting ginger)	Nil	Nil
3. Pathyaamalakadi kashayam	.419	.516
Pathyaamalakadi kashayam (Omitting ginger)	Nil	Nil
4. Kottamcukkadi tailam	0.415	0.515
Kottamcukkadi (omitting ginger)	Nil	Nil
5. Eladi curnam	0.416	0.518
Eladi curnam (omitting ginger)	Nil	Nil



cessity, as the omission or adulteration of a single drug not only reduces the efficacy of products, but also renders it harmful to health. Ginger, though not a costly drug could easily be omitted or misled by the rhizomes of other plants. In this context the parameter evolved for the detection of ginger in any preparation, would help to ensure the quality and efficacy of the medicines.

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Medicine, auspicious function,  
incantation and such other  
activities will be effective only  
in one who has life to live,  
not in one who has lived  
his life.

(Yogaratanakara)

## AYURVEDIC MANAGEMENT OF ISCHAEMIC HEART DISEASES

Dharmapalan, P. K.

### Abstract

Many signs and symptoms keeping similarity with those of ischaemic heart diseases are seen in ayurvedic treatises in various contents. The author enlists such signs and symptoms and indicates the line of treatment for ischaemic heart diseases basing on the consideration of the predominance of *tridoshas* and the vitiation of different body-channels being indicated the list of formulations effective against these diseases.

Different types of heart diseases have been described in ayurvedic classics. Descriptions regarding the signs and symptoms of heart diseases are mentioned in many chapters of these classics.

In *Susrutasamhita* the *angarekhanganam* (surface - marking), the *aakaram* (shape) and the relationship of heart with other viscera have been briefly described. The word '*Hridaya*' has two synonyms, i.e. a) *mahat* and 2) *artha*. So keeping in mind the famous motto mentioned by Susruta Acarya, the

father of surgery and Vagbhata Acarya the following are to be noted:

“तत्र शस्त्रसाध्येषु स्नेहक्रिया न प्रतिषिध्यते,  
स्नेहादिक्रियासाध्येषु शस्त्रकर्म न क्रियते।”

(सु सू २४)

“तत्र शस्त्रदिसाध्ये भेषजमनुक्रमते न तु  
भेषजासाध्ये शस्त्रादि।”

(अ सं सु १२)

These quotations emphasise one point: try medicine before surgery and

never try surgery in diseases which are amenable to medicine.

The disease *hrdroga* (ineffective pumping of heart - heart failure) is described as a separate entity with *tridosha* predominance. In *kasaroga*, *panduroga*, *vatavyadhi* and *vatarakta* different types of heart diseases have been described. The inappropriate habits of *caturdasavega* (14 natural urges) have been indicated as a causative factor for all types of cardiac ailments.

Ancient ayurveda *acaryas* described all diseases as syndromes. These scholars have included a group of cardiac diseases in the *vatasonita* chapter. Ischaemic Heart Diseases (I.H.D) are one of the main group among them. Caraka and Vagbhata described symptoms resembling those of I.H.D as follows:

“रक्तमार्गं निहन्त्याशु शाखासन्धिषु मारुतः।  
निविश्यान्योन्ममावार्यं वेदनाभिर्हरत्यसून्॥”

(*Vayu* obstructs the path of *rakta* in *sakha* and *sandhi* and after mutual permutation of *vayu* and *rakta*, it penetrates in the *sakhasandhi* to produce different types of intensive pain which leads to death). The word '*avrtya*' which has been mentioned in the *vatasonita* disease - pathogenesis. *Avrtya* means to obstruct. *Avarya* means forced to obstruct by means of other vitiated functional units. The usage of *avarya* indicates more complicated pathogenesis. The *sakha* includes tissue elements like *rakta*, *mamsa*, *meda*, *asthi*, *majja*, *sukra* and skin. This is the *bahyarogamarga* i.e. external path of the disease.

*Marmasthisandhi* includes the vital organs like *vasti* (urinary bladder) *hrdaya* (heart), *sirah* (head) and *asthisandhis*. This is the *madhyamarogamarga* i.e. middle path of the disease.

In the above mentioned disease condition the involvement of both *bahyarogamarga* and *madhyamarogamarga* takes place. If the manifestation is related to *hrdayamarma* (*madhyamarogamarga*) it will cause an adverse situation. Because *hrdaya* is the seat of *ojas* and *vyanavayu*. *Vyanavayu* has the property of *mahajavatvam* (quick in action). So any occlusion in the blood stream affecting the *hrdayamarma* will be fatal. The severity of this disease depends on the severity of the blockage of blood stream and the mutual *avarana* of *vayu* and *rakta* i.e. the *avrta* condition.

Inadequate supply of blood to a particular part is called ischaemia. Partial or complete occlusion of one or more coronary arteries produce ischaemic or coronary heart disease. This results from the impairment of blood supply to the heart. The clinical syndromes of I.H.D. are

1. Angina pectorisgg
2. Acute coronary insufficiency
3. Myocardial infarction
4. Chronic coronary disease

These conditions are similar to those mentioned in the *vatasonita* chapter.

In ayurveda the signs and symptoms of heart disease have been classified as follows:

1. Hrt soolam : Precordial pain
2. Hrt-ruk : Retrosternal pain
  - a) *Hrdaye teevra ruja* : Severe pain in the heart
  - b) *Hridayam sooceebhi tudyamanam rujam*
  - c) *Hridayam sastraih chidyamanam rujam* : Cutting type of pain
  - d) *Hridayam krakacena daryate eva* : Sawing type of pain
3. Hrt vedana : Precordial pin
  - a) *Hrdi atyartha vedana* : Acute chest pain
4. Hrt toda : Precordial pain
5. Hrt peeda : Retrosternal pain
  - a) *Hrdaya adhipeeda* : Severe retrosternal pain
6. Hrt vyatha : Retrosternal pain
  - a) *Hrdaye ghattanam vyatha* : Crushing type of pain
7. Hrt graham : Acute cardiac pain
8. *Hrllasa* : Irregular heart beat
9. Hrt dravata : *Tachycardia*
10. *Hrd moha* : Bradycardia
11. *Hrdaya spandanam* : Tapping / heaving / forcible apex beat
12. *Hrdaya utklesa* : Pericarditis
13. *Hrdaya gauravam* : Heaviness of chest
14. *Hridayam stabdham* : Low cardiac output
15. *Hridayam stimitam* : Pericardial effusion
16. *Hrdayopalepam* : Endocarditis
17. *Dhamanipraticayam* : Hardening of vessels
18. *Vakshastoda* : Stabbing pain in the chest
  - a) *Vakshasah prajanena eva toda* : Hammer hitting type of pain in the chest
19. *Vakshasah uddharsha* : Rubbing pain in the chest
20. *Vakshasah uparodha* : Impairment of thoracic movements
21. *Sarvanga pragraha* (ref: *Hrdaya vidradhi*) : Severe body ache
22. *Pramoha* (ref: *Hrdaya vidradhi*) : Unconsciousness
23. *Tama pravesam* (ref: *Hrdaya vidradhi*) : Fainting attack
24. *Kasa* (ref: *Hrdaya vidradhi*) : Cough
25. *Bhrama* (*Hrdroga upadrava*) : Giddiness
26. *Klama* (*Hrdroga upadrava*) : Languor
27. *Sada* (*Hrdroga upadrava*) : Fatigue
28. *Sosha* (*Hrdroga upadrava*) : Dryness
29. *Jihvaushtha dasanam* (ref: *Balamaya Pratishedham*) : Biting the tongue and lips

30. *Svasa*  
(ref: Balamaya Pratishedham) : *Dyspnea*
31. *Mushtinipeedamam*  
(ref: Balamaya pratishedham) : Firm gripping of the fist
32. *Hridayam Patateeva* : Feeling of falling of the heart
33. *Hridaya soonyata* : Feeling of emptiness of the heart
34. *Hridayam styanam mannyate* : Feeling of hardness in the heart

The above mentioned sings and symptoms reveal that in the ancient period itself ayurvedic scholars had a clear knowledge and vision about various cardiac disorders.

#### Management:

Ayurvedic drugs are holistic in nature. They have the various properties of the *pancabhuta*. Caraka, Susruta, Vagbhata, Kasyapa and the other ancient ayurveda *acaryas* have recommended a holistic approach not only for heat disease but for all types of diseases. The ancient *acaryas* have contributed the way of the

single drug therapies which is based on holistic way for the pacification of the diseases.

*Tridosha* concept is highly significant in the diagnosis and is also crucial for selecting the suitable drug. A number of single drugs and combinations of various drugs have been mentioned in the ayurvedic texts for cardiac problems.

There are about 41 different types of formulae mentioned in *Ashtangahridayam* for the management of cardiac ailments which are as follows:

Medicine	Chapter
1. <i>Vyoshadi choornam</i>	<i>Dvidividhopakramaneeyam, Sutrasthanam</i>
2. <i>Vidaryadi kashayam</i>	<i>Ashtangahridayam</i>
3. <i>Vyaghryadi leham</i>	<i>Sodhanadiganasangrahaneeyam, Sutrasthanam</i>
4. <i>Trijatakadi gudika</i>	
5. <i>Amrtaprasa ghrtam</i>	} <i>Kasa cikitsitam</i>
6. <i>Svadamshtadi ghrtam</i>	
7. <i>Kooshmandaka rasayanam</i>	
8. <i>Agastya rasayanam</i>	
9. <i>Tvagelavyoshadi leham</i>	
10. <i>Taleesadi choornam</i>	

**Medicine****Chapter**

11. Bala tailam	}	<i>Hrdroga cikitsitam</i>
12. Sukumara ghrtam		
13. Mahasneham		
14. Yastyahva satapakam		
15. Silahvaprayogam		
16. Brahma rasayanam		
17. Cyavanaprasam	}	<i>Madatyaya cikitsitam</i>
18. Dadimakrishnalavanadi coornam		
19. Gudoocibhadramustadi kvatham		
20. Patola rasam	}	<i>Arshas cikitsitam</i>
21. Abhayarishtam		
22. Kalyanaksharam	}	<i>Grahaneer cikitsitam</i>
23. Taleesapatradivatakam		
24. Sudhakandadigutika	}	<i>Gulma cikitsitam</i>
25. Hapushadi ghrtam		
26. Hinguvacadi gutika		
27. Lasuna ksheeram		
28. Danteehareetaki	}	<i>Udara cikitsitam</i>
29. Narayana coornam		
30. Hingvadi ksharam		
31. Kalyanaka ghrtam	}	<i>Panduroga cikitsitam</i>
32. Pancagavya ghrtam		
33. Mahatiktaka ghrtam		
34. Dadimadi ghrtam		
35. Navayasa coornam		
36. Ajajyadi peya	}	<i>Svayathu cikitsitam</i>
37. Tiktaka ghrtam		
38. Patolamooladi kashayam	}	<i>Kushtha cikitsitam</i>
39. Sthira siddha ksheeram		
40. Guggulutiktaka ghrtam	}	<i>Vatavyadhi cikitsitam</i>
41. Satavaree ghrtam		
		<i>Guhyaroga pratishedham, Uttarasthanam</i>

Cardiovascular diseases are one of the major killer diseases. This condition adversely affect the span of life. A rational use of the above mentioned compound drugs on the basis of the *tridosha* concept and *srotopareeksha* will yield positive results in all types of heart diseases.

The treatment approach on the basis of *tridosha* theory will correct the vitiated physiological functions. On the other hand the treatment approach on the basis of *srotopareeksha* will support to correct the structural deformity of the body.

The principles of treatments like *svasacikitsa*, *langhana* and *virecana* with *upavasa* mentioned in the treatment principles of *pranavaha srotodushti*, *rasavahasrotodushti* and *raktavaha srotodushti* respectively have to be applied rationally in suitable disease conditions of all types of heart diseases.

'प्राणवहानां स्रोतसां हृदयं मूलं महास्रोतश्च।'  
 'रसवहानां स्रोतसां हृदयं मूलं दश च धमन्यः।'  
 'रक्तवहानां स्रोतसां यकृन्मूलं प्लीह चा'  
 'प्राणोदकान्नवहानां दुष्टानां श्वासिकी क्रिया।'  
 'रसजानां विकाराणां सर्वं लङ्घनमौषधम्।'  
 'कुयोच्छेषितरोगेषु रक्तपित्तहरी क्रियाम्।'  
 'विरेकमुपवासं च स्रावणं शोणितस्य चरी'

In *Agnipuranam* the importance of '*virecanam*' has been indicated in the management of *hrdroga* patients.

"हृद्रोगिणो विरेच्यास्तु"

## Psychological aspect

Unhealthy mode of life-style, the stress and strains, the anxiety and tension of modern civilization are playing a part in the causation of cardiac diseases.

It is mentioned that,

"मनःशरीरयोस्तापः परस्परमभिव्रजेत्।  
 अधाराधेयभावेन तप्ताज्यघटयोरिव।।"

i.e. the '*tapa*' (heat) of body and mind are interchangeable. This is in analogy of a container with hot ghee. It is not the ghee which is responsible for the *tapa* state of the container. The heat of the ghee is transferred through conduction to the container and it becomes hot. Like this if a hot vessel receives ghee, then the ghee will melt. This happens when the vessel passes on heat to the ghee. Here *tapa* means disease. So the diseases of *manas* (mind) can manifest disorders in the body and the diseases of body have an adverse influence of the mind.

## Conclusion

Long term studies with more cases using both the system of medicine with proper assessment by requisite investigations and timely follow up actions are need of the hour.

Present data indicate that,

1. There is a place for ayurvedic regime in the management of I.H.D.
2. Further studies and long term follow up on the cases of I.H.D. are desired to substantiate the role of ayurvedic therapy in the patient of I.H.D.

## EXCERPTS FROM CHIKITSAMANJARI - XXII TREATMENT OF ARSAH

Unnikrishnan, P.

### Abstract

The chapter on *arsas* (haemorrhoids) is stated in this issue. After giving some details of the disease such as definition, varieties, prognosis etc., various medicaments to manage the haemorrhoids like internal drugs, *lepa*, *seka*, *upanaha*, *vartti* and some particular diet are prescribed.

1. The flesh body (*mamsankura*) situated at the anus, generated by the abnormal bodily humours (*dosha*) on vitiation over the skin, the flesh and the fat is termed '*arsah*'.

2. They are divided into *sahajanma* (congenital) and *uttarothana* (formed after wards). In another classification they are *sushka* (non-bleeding) and *sravee* (bleeding). Congenital piles are said to be caused as a result of *papa* (evil deeds) of earlier births.

3. *Uttarothana* are subclassified into six namely *vatika*, *paittika*, *slaishmika*, *samsargaja* (caused by two *dosha*), *sannipatika* and *raktaja*.

Vitiation of *vata* and *sleshma* cause *suskarsa* (non - bleeding) whereas that of *rakta* and *pitta* cause *ardra* (bleeding).

4. Piles which are congenital, caused by vitiation of all *dosha* (*sannipatika*) and situated at the inner layer of ano - rectal region cannot be cured, but can be managed by maintaining *agni* (digestion) and other factors.

5. Piles which are caused by the vitiation of two *dosha* (*samsargaja*) and placed on the second layer are *krachrasadhya* (difficult to cure) when the duration exceeds an year.

6. Those situated on the external layer caused by vitiation of single *dosha* can be cured if the duration from onset is short.

7. Visible pile masses (to outside) should be treated with *sastras* (surgical methods), *kshara* (alkaline material capable of burning the

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Professor, Vaidyaratnam P. S. Varier Ayurveda College,  
Kottakkal, P. O. Edarikode - 676 501



tissue), *agni* (cauterisation) *lepa* and *abhyanga* (external application of medicines, oil etc.). Non visible piles are to be treated by *antah - parimarjana* (internal medication and purificatory measures)

8-9 Intense vitiation of *vata* and *kapha* causes the *arsa* to come out of the anus. The *arsa* is hard and there will be itching pain and oedema. Application of *yamaka*, (a combination of any two of the *snehas*) is one treatment. The patient shall be subjected to *avagaha*, [*avagaha* or immersion is a treatment where the patient sits in a tub, filled with medicated liquids such as *kashaya* that is sufficiently warmed. Here, the body, upto the level of neck, or affected body part remains immersed in the fluid for a stipulated period. The temperature of the liquid is maintained by the addition of warm liquid] in *kashaya* prepared from the leaves of herbs that cure *vata*. Warm *dhanyamla* shall also be used. The above fluids, sufficiently warmed shall also be used for *seka* (irrigation). *Avagaha* and *seka* are indicated in constipation and retention of urine also.

10. Steam heated and crushed leaf of *snuhi* (*Euphorbia neriifolia*) is to be placed on the anus, which is capable of curing *arsa*, *krimi* (intestinal parasites), pruritus, swelling and pain.

11-12 Food which is laxative and oils capable of promoting digestion and relieving *vata* are to be used. The *pallava* (tender - shoots) of *karanja* (*Pongamia pinnata*) fried in *yamaka* (see sl. 8) to which powdered nocake is added should be

taken before food, for the easy passage of *vayu* and faeces. Visible piles should be fomented with *pinda* (bolus) prepared from *apamarga* (*Achyranthes aspera*) like drugs.

13. *Katuku* (*Brassica juncea*)  
*Unangal thavitu* (bran of rice)  
*Thumbakkudam* (*Leucas aspera*  
 inflorescence)  
*Muyal pizhukku* (*Emelia*  
*sonchifolia*)  
*Nisa* (*Curcuma longa*)  
*Cukku* (*Zingiber officinale*)

These should be ground to a paste using the latex of *snuhi* (*Euphorbia nerifolia*) and used for fomentation of *arsa*.

14. The *arsa* shall be irrigated by medicated oil prepared from the leaves of *kattappa* (*Ageratum conyzoides*). *Vaikunhattaila* or *Mayooraka-taila* shall also be used.

15. A *taila* should be prepared using the expressed juice from the leaves of the following drugs as *drava* and the same drugs as *kalka* can be used to irrigate pile masses.

- Kattappa* - *Ageratum conyzoides*  
*Kaunkila* - Tender spathe of  
*Areca catechu*.  
*Vayampila* - Leaves of  
*Acorus calamus*

16. *Tumpa* - *Leucas aspera*  
*Kattappa* - *Ageratum coyzoides*  
*Kuppamanjal* - *Bixa orellana*

The above drugs should be cooked in *kaati* (first washing of rice) and made to a paste which when used for *upanaha* relieves *arsa*.

17. A small bundle, made up of

the following medicines fried in *taila* is used for *svedana* (*upanaha*)

*Kimsukabeeja paraga* (*Erythrina variegata* fruits and pollen grains)  
*Lasuna* (*Allium sativum*)

*Punarbhoopravala* - *Boerhaavia diffusa* (tender leaves)

18. *Kaati* should be boiled with the following and used for local irrigation. The crushed leaves of *katalati* (*Achyranthes aspera*), *pulimpatram* (*Tamarindus indicus*) (leaves), *kattappa* (*Ageratum conyzoides*), *kattutrituva* (*Ocimum americanum*)

All the above are useful in visible *arsas*.

19. The crushed leaves of *tumpa* (*Leucas aspera*) made into a bolus, shall be applied inside the anus to get a sudden cure and the flowers of *tumpa* are also to be used in the same way. Then the disease will decrease and further treatment can be proceeded easily.

20. Fumigation with the following drugs finely powdered is beneficial

*Katuku* - *Brassica juncea*  
*Ellu* - *Sesamum indicum*  
*Vayampu* - *Acorus calamus*

The following medicines should be pounded with expressed juice from the leaves of *muringa* (*Moringa oleifera*) and are to be cooked either in *kaati* or in cow's urine and then that paste cures pile mass on application.

*Matalam* - *Punica granatum*  
*Ratri* - *Curcuma longa*  
*Konna* - *Cassia fistula*  
*Katukka* - *Terminalia chebula*  
*Mayoori* - *Achyranthes aspera*

*Punarnava* - *Boerhaavia diffusa*

21. The roots of *tavizhama* (*Boerhaavia diffusa*) should be made to a paste with rock salt and butter and should be consumed during dusk. The next day morning, tender shoots of *aval* (*Holoptelea integrifolia*) and *katuku* (*Brassica juncea*) should be taken for the cure of *arsa*.

22. An earthen vessel should be smeared with the paste of the roots of *citraka* (*Plumbago indica*) after drying. This pot should be used for the preparation of buttermilk or yoghurt, which on consumption relieves oedema of the anal region and cures *gulma*. It also improves digestion. *Hinguvacadi churna* (*Astangahridayam* - *Gulma cikitsitam*) shall be mixed with butter milk and consumed. Alternatively jaggery and fruits of *Terminalia chebula* may be chewed followed by buttermilk to cure piles. 23

Incase of the blockade of faeces, the preparation detailed in sloka 11 (*yamaka*) shall be consumed before supper with the first bolus of rice.

24. A wick shall be prepared from the following drugs and applied into the anus after smearing it with oil

*Nisa* - *Curcuma longa*  
*Pathya* - *Terminalia chebula*  
*Vanasoorana* - *Amorphophallus campanulatus*  
*Kooshmanda* - *Benincasa hispida*  
*Gunjabeeja* - *Abrus precatorius* (seeds)

25. Milk medicated with powdered *Vahnimoola* (*Plumbago indica*) should be used to prepare butter milk which on consumption relieves piles. ●

## **CLINICAL OBSERVATION**

The science of ayurveda is a philosophy of life. The metaphysical and ethical aspects of philosophy are very much a part of its body of knowledge. At the same time, it is evidently an applied form of science as well. The vast amount of documented knowledge available in the form of classical treatises on ayurveda are recorded experiences. Every branch of ancient Indian science is, essentially, concerned with three functions: (i) to observe meticulously the material world in its micro and macro details, (ii) to interpret such observations to make them fit into the larger philosophical concepts of the universe and (iii) to finally set forth tangible propositions for dealing with human predicaments. Such propositions do invariably have bearing both on the sublime as well as on the mundane aspects of human life. The case of ayurveda is no exception.

The Indian methodology of going about these functions is holistic in vision, rationalistic in approach and integrative in technique. This, of course, is somewhat at variance with the methods followed by western science, which are generally fragmented in vision, empirical in approach and Cartesian in technique. The western method is now adapted universally for academic activities in every domain of human knowledge. We see such modalities being extensively employed for research efforts in ayurveda also. There is nothing basically wrong in this. However, there exists a need to give a fillip to work based on ethnospecific methods and practices which are characteristically more akin to the principles and procedures of ayurveda. This realisation has prompted us to introduce a new section called "Clinical Observation " in the coming issues of "Aryavaidyan".

The basic idea is to provide the professionals with a platform to present and discuss their clinical experiences. The stress is expected to be more on subjective and functional parameters rather than on statistics. The editorial board is hopeful that the physician fraternity will find it a useful venue for professional interaction. The envisaged pattern for the contributions to this section is that, (i) it should clearly state the "case" in all its pertinent details as perceived by the author, (ii) the course of treatment with periodic changes and the rationale behind them should be stated and (iii) finally it should specifically present the results, either positive or negative. More importantly, the paper should present a logical event with logical conclusions in the frame work of ayurvedic perceptions. In order to avoid the possibility of sluggishness due to too much subjectivity, all contributions to this section will be subjected to "peer review" by subject experts to ascertain authenticity of content and objectivity of presentation, and will be accepted for publication only on the approval of the committee.

**Chief Editor**

## **Clinical Observation** **MANAGEMENT OF A CASE OF PARKINSONISM**

**Muralidharan, K. and Warriar, P. K.**

### **Abstract**

A case of Parkinson's disease of eight years duration was treated by a conventional procedure of oral as well as external therapy. The approach yielded fairly satisfactory results after about ten months. The salient features of the case are presented.

### **Introduction**

Parkinsonism is an adult neurodegenerative disorder of the extra pyramidal system characterised by tremor, rigidity and bradykinesia. The definite underlying cause is yet to be identified. By regular and long-term treatment this disease can be kept under control. It is observed that better relief is obtained in cases where ayurvedic treatment is followed while retaining the essential allopathic drugs.

### **Nature of complaints**

A male patient (47 years), an allopathic physician by profession, approached us for medical consultation in the last week of July '96. His main complaint was a difficulty in general movements as well as in

maintaining bodily balance due to generalised tremors. He was quite slow in his movements and he often had a tendency to fall backwards. He also had great difficulty to stand erect, to rise from a chair and even to change position while lying down. He felt cramps on the right leg, particularly during the nights and his toes curled. He was neither diabetic nor hypertensive.

The complaints started about eight years back. The ailment started as a pain on the 4th and 5th fingers of the right hand thus causing a difficulty in writing. Subsequently a drawing sensation set in, on the right leg and walking became difficult.

His condition was diagnosed as Parkinson's disease and he was on Sinemet (a combination of Carbidopa

and Levodopa). Discontinuation of this drug resulted in aggravation of the condition.

He also had a history of occurrence of severe pain at the hip and on the right leg in 1994. He underwent surgery for herniated disc with satisfactory results. During the same period, he also developed pain on the right shoulder after doing strenuous work. This was diagnosed as right-sided rotatorcuff tear and it was corrected by surgical repair twice; once in 1995 and then again in 1996 within six months.

The patient is married, with two children. He was a vegetarian and does not smoke, not habituated alcohol. He had good appetite and digestion. His bowel movements were regular. However, his sleep was often disturbed. There was no family history of the ailment.

#### **Course of treatment**

The following course of treatment was advised to the patient.

1. 10 ml of Dhanwantaram kashayam mixed with 1 tablet of Kulathalasanairandadi kwatham to be taken twice daily along with warm water; at 6 a.m. and 6 p.m.
2. 5 g of Atmagupta choornam mixed with warm water to be taken twice daily just before lunch and dinner.
3. 30 ml of Aswagandharishtam mixed with 1 tablet of Suvarnamuktadi gulika to be taken twice daily, immediately after lunch and dinner.
4. Dhanwantaram tailam to be applied on the head as well as on

the body before bath.

5. He was also asked to continue with his allopathic medication as necessary.

#### **Diet**

The patient was advised to take a non-spicy, non-oily vegetarian diet and to reduce the intake of chilly, tamarind, root vegetables, pulses, tea and coffee. Ice cream and other cold items, unboiled water, fried or roasted edibles, pickles, and those other items which are heavy for digestion were to be totally avoided. He was also asked not to have more than one or two head-baths in a week.

#### **Developments**

After following the suggested course of treatment for a little more than two months the patient wrote on 14.10.96 to say that on taking Atmagupta choornam, he often felt sick and had continuous bouts of vomiting. Consequently, he was advised to bring down the dosage of the item to 2.5 g instead of 5 g.

One month later, on 14.11.96, he reported his condition thus: "I am very happy to say that I see some improvement in the sense that the usual medicines now act quicker and their effects last longer. I have been able to cut down one Sinemet tablet. I see an immediate improvement in my stiffness and slow movement after taking Atmagupta choornam. Aswagandharishtam with Suvarnamuktadi gulika gives me heart burn. I have an irreparable right shoulder rotator cuff tear which gives substantial amount of pain, especially at night."

Consequent to this, the patient was advised to take Dhanwantaram kashayam and Kulathalasunairandadi kwatham tablet separately instead of being mixed together. The Atmagupta choornam was to be taken at an interval of 8 hrs. and Aswagandharishtam dosage was to be reduced to 15 ml from 30 ml. He was also advised to apply Valiya Narayana tailam at areas where there was pain. Continuing this course of treatment for a further period of three months resulted in quite satisfactory improvements in his general condition. However, he reported having a feeling of hesitancy and sensation of burning while urinating during the previous two to three weeks. But an analysis of urine did not reveal any sign of infection. The patient was advised not to effect any change in the course of medication but only to increase his intake of fluids.

The patient got a further improvement in his condition as reported three months later. He was advised to continue with the same course of treatment and is currently under observation.

#### Remarks

The signs and symptoms of Parkinson's disease are suggestive of

*vatavyadhi*, the underlying cause being *dhatukshaya*; which denotes a degeneration process in the parts affected. While designing the treatment profile, the the course of action suggested in the classical texts for the management of *vata vyadhi* in general and '*kampavata*' in particular was considered. The degeneration nature of the disease was also kept in view.

#### References

1. Dhanwantaram kashayam - (Ashtangahridayam - Sarirasthanam, II chapter)
2. Kulathalasunairandadi kwatham - (Yogagrandham)
3. Atmagupta choornam (Bhavaprakasa nighantu)
4. Aswagandharishtam - (Bhaishajyaratnavali - Mootrakrcchragacikitsa)
5. Suvarnamuktadi gulika - (Sarvarogacikitsaratnam)
6. Dhanwantaram tailam - (Ashtangahridayam - Sarirasthanam, II chapter)
7. Narayana tailam - (Bhaishajyaratnavali, Vatavyadhicikitsa)

#### CORRIGENDUM

Please regret the error crept in the abstract of Malayalam article of Aryavaidyan Vol. X, No. 4, page 261. Instead of 'Heyahradyam is the brain, described as the centre of *prana*, intellect and mental activities, whereas *upadeyahridayam* is the domain of atman, mind and intellect.' please read "*Upadeyahridayam* is the brain, described as the centre of *prana*, intellect and mental activities, whereas *heyahradyam* is the domain of atman, mind and intellect."

# आयुर्वेद का महत्व

कुञ्जिकुट्टन तम्पुरान

## Abstract

Kodungallore Kunhukuttan Tampuran was a great scholar-poet of Kerala whose works mainly made possible the renaissance in Malayalam literature. The greatest of his contributions is the translation of Mahabharatam into Malayalam, for the completion of which he took only 874 days. Actually he was a man who breathed poetry. He was a contemporary of Vaidyaratnam P. S. Varier, the founder of Arya Vaidya Sala.

"Ayurved Ka Mahatva" is an article written by Tampuran at the request of P.S. Varier and published in Dhanvantari (Book 3 No. 8, March 1906) published by the latter. Here he illustrates his ideas on "ayurveda" as a science and the *vaidyas* as its practitioners vary vividly which even today, after a lapse of a century are quite relevant.

क्या आयुर्वेद आज के संदर्भ में दोषमुक्त है ? यह प्रश्न बहुत ही विचारणीय है। वेददृष्टा ब्रह्माजी ने अपनी बुद्धि से इसे देखा था। दक्ष, अश्विनीदेवों, इन्द्र आदि विद्वानों के उपदेशों से इसे आत्मसात किया था। आत्रेय आदि महर्षियों के द्वारा प्राचीन काल से आयुर्वेद का प्रयोग इस भूमि में किया गया था। ऐसी विशेषताओं से युक्त आयुर्वेद को दोषपूर्ण बताने को मैं तैयार नहीं हूँ। किन्तु कुछ लोग वैद्य होने की बात पर गौरवान्वित होकर इस विज्ञान को संभालते हैं। उनके नियंत्रण में आयुर्वेद को पडते देखकर कहना पडता है कि वह निर्दोष नहीं है। इस विज्ञान के दोष के बारे में मुझे भी कुछ भी कहने को नहीं है। हाँ! आज के वैद्यों के दोषों के बारे में ही मुझे कुछ कहना

कुञ्जिकुट्टन तम्पुरान् केरल के एक महान पंडित थे जिनके रचनार्ये मलयालम साहित्य के पुनरुत्थान किया। उनके सराहनीय योग्य प्रयत्नों में, समस्त महाभारत को मलयालम श्लोक रूप में केवल 847 दिन में करना, एक है। यह प्रतिभाशाली, जो कई शिक्षाविधियों में प्रवीण है, आर्यवैद्यशाला के स्थापक वैद्यरत्नम पि. एस. वारियर के समकालीन थे। उन्ही के अनुरोध पर कुञ्जिकुट्टन तम्पुरान के एक लेख जो "धन्वन्तरी" में प्रकाशित किया गया था, उसमें वो अपवादों, जो आयुर्वेद वैद्यों के बारे में है और उसीके संशोधनात्मक सुधार के बारे में बताया गया है।

मूल: कुञ्जिकुट्टन तम्पुरान अनुवाद: डा. आरसू, रीटर, हिन्दीविभाग,  
कालिकट विश्वविद्यालय, केरल, 673 635

है। आज की जनता के मन में धनलोभ बढ रहा है। वैद्यों में भी यह कमज़ोरी ज़्यादा दिखाई पडती है। इस स्थिति में वे उस विज्ञान की शर्तों पर अटला नहीं रह सकते हैं। मान लीजिए एक महारोग के शिकार बने एक गरीब की पीडा के बारे में एक वैद्य सोचने लगता है। इस वक्त अचानक एक लखपती की पालकी लेकर कुछ लोग इस वैद्य के द्वार पर आ जाते हैं। तब वैद्य को क्या करना है? उस अमीर ने पिछले दिन की दावत में मीठी खीर ज़्यादा पी ली होगी। तब उसे पेट में दर्द आया होगा। या वह अमीर पिछले दिन नींद खोकर "मोहिनी आट्टम" या "कथकली" देखकर बैठा होगा। इसलिए उसे हल्का सिरदर्द आया होगा। उसे ऐसी मामूली बीमारी आयी होगी। वैद्य को उस का इलाज़ करने पर बड़ी राशि मिलेगी। गरीब की महाव्याधि का इलाज़ मुश्किल होगा। अगर पक्का इलाज़ करें तो भी पारिश्रमिक मिलने की बात संदिग्ध रह जाती है। यों वैद्य धन मिलनेवाले रास्ते की ओर जाने का निर्णय लेता है। महारोगी की बात तब छोड दी जाती है। ऐसे वैद्य संकीर्ण महारोगों से लडकर कैसे विजय पा सकेंगे?

"दक्षस्तीर्थात्तशास्त्रार्थो दृष्टकर्मा शुचिर्भिषक्" सूक्ति में वैद्यगुणों का उल्लेख है। उस में शुचित्व गुण शामिल है। मनोवाक्काय आदी सभी कर्मों में इस गुण (शुचित्व) का अधिकार है और इसी में कुछ दोष ऐसा भी है जो मन से सम्बन्धित है। लोभ उन्हीमें से एक है। जोभी कमी इस दोष से प्राप्त होगा, इसी का उल्लेख यहां किया गया है। सिर्फ इस एक दोष के कारण से ही दक्षत्वादी गुणों पर बहुत असर पड सकता है। इन गुणों से वंचित एक वैद्य की बात कमने की क्या ज़रूरत है? इस दोष से ग्रसित एक वैद्य छात्र अपने काम में कैसे सफल

बनेगा? वह कैसे एक दूसरे आदमी के शरीर के त्रिदोष, सप्तधातु, पंचेद्रिय, हृदय आदि की स्थिति की परख और पहचान कर पायेगा? दूसरी बातों को छोड दें। कम से कम शरीरशास्त्र के विषय में दृष्टकर्मा का गुण वह कैसे पा सकेगा? जंगल से प्राप्त औषधियों के गुण, वीर्य, विपाक आदि का प्रतिपादन ग्रंथ में किया गया है। उनको रटकर वह कैसे पढ पायेगा? अगर वह संभव हो जाय तो भी उनका स्वरूप कैसे समझ पायेगा? अब नई औषधियाँ बन रही हैं। उनको औषधियों के बीच में कैसे स्थान दे सकेगा? दो या तीन औषधियों का मिश्रण होते समय उनके गुण, वीर्य, विपाक आदि का अन्तर बारीकी से कैसे समझ सकेगा? रोगी के शारीर में जाने पर उनके कर्म की कैसे पहचान कर सकेगा? इनको एक एक तथा अलग अलग करके पहचानने का दृष्टकर्मत्व कैसे आर्जित कर सकेगा? देहियों को ग्रसित करनेवाले अनेक प्रकार के रोग होते हैं। उनके निदान और प्रागुरूपों की चर्चा किताबों में आई हैं। कुच्छों की चर्चा किताबों में नहीं मिलती हैं। उनके परिणाम भेद दूसरे रूपों में आये हैं। उन तत्वों को अपने अनुमान के आधार पर समझना होगा। धनलोभी वैद्य ऐसे तत्वों का इलाज़ करके दृष्टकर्मत्व कैसे प्राप्त कर सकेंगे? गुरुमुख से कुछ तत्वों को समझना है। अन्य गुरुतुल्य बुजुर्गवैद्यों से भी कुछ बातों को गहराई से समझना है। तीर्थात्तशास्त्रार्थत्व का गुण प्राप्त करना है। धनलोभ इस तत्व की प्राप्ति में भी बाधक बन जाता है। सहज प्रशिक्षण से प्राप्त दक्षत्वगुण को पुष्ट बनाना है। यह लोभ उस को भी रोक लेता है। यों वैद्य को अवश्यक माने गये चार गुणों में से किसी एक को क्षति पहुँचती है तो दूसरे गुणों पर भी उसका असर पडेगा। यों उस से कुछ भी प्रयोजन न मिलने की स्थिति



आती है। ज्यादा कहने की क्या ज़रूरत है? हमारे आयुर्वेद को आज अगर किसी प्रकार का दोष आ गया है तो वह आधेय आयुर्वेद का दोष नहीं है, लेकिन वह वैद्यों के आधार दोष के कारण आये हुए दोष हैं।

वैद्यों के दोष के कारण वैद्यशास्त्र को कई प्रकार की हानियाँ हुई हैं। इन दोषों का परिहार करना बहुत मुश्किल है। इसका कारण पहले बता चुका है। क्या ऐसे दोषपूर्ण बन गये आयुर्वेद को स्वीकार करना है? इस प्रश्न को उत्तर देना है ना! परिष्कृत लोगों की आमधारणा है कि कई प्रकार के सुधारों के कारण अलोपथी एक परिपुष्ट स्थिति तक पहुँच गई है और वह सार्वजनीन बन गई है। ऐसी बात नहीं है अलोपथी के व्यापक प्रचार के इस युग में आयुर्वेद अपरिवर्तित रहता है और दोषयुक्त आयुर्वेद से कुछ भी प्रयोजन नहीं है। परिष्कार पर गर्व रखनेवाले लोगों में भी यह तर्क प्रबल बन गया है कि उससे लोगों को कई तकलीफें भी आती हैं। हमारे पूर्वज आचार्यों ने आयुर्वेद का परिष्कार किया है। आयुर्वेद के गुण और अलोपथी के गुणों की तुलना करते समय कुछ भागों में आयुर्वेद की स्थिति श्रेष्ठतर है। यह एक तर्कसंगत बात है। विषचिकित्सा, बालचिकित्सा, मरणविकृति, दूतलक्षण जैसे कई भागों का उदाहरण ले सकते हैं। इधर सिद्ध औषधों के प्रयोग में आयुर्वेद अलोपथी से श्रेष्ठ है। सुयोग्य और निष्पक्ष अलोपथी चिकित्सक भी इस बात को मान लेते हैं। मान लीजिए कि हम आयुर्वेद को एकदम छोड़कर कुछ समय तक अलोपथी को अपनाते हैं। ऐसी स्थिति में आयुर्वेद से आज अपनाते लायक गुण भी हमारे उत्तराधिकारियों को नहीं मिलने की स्थिति आयेगी। इसलिए आयुर्वेद को भरसक अपनाना चाहिए। उसके दोषों को दूर करना है। मेरी राय

में भारत के मौसम लोगों की देहस्थिति के लिए आयुर्वेद ही अधिक ठीक लगेगा।

आयुर्वेद को अपनाते समय उसमें कई सुधार लाने की आवश्यकता है। वैद्यों का परिष्कार करने पर कई बातें सुलझ जायेंगी। वैद्यों के सुधार का मतलब आयुर्वेद शिक्षा का सुधार है। कहने का मतलब है कि अलोपथी और आयुर्वेद परस्परविरोधी होकर खड़े रहें। उनमें मेल होने पर स्थिति सुधार जायेगी। प्रथमदृष्टि में प्रतीत होगा कि ऐसा मेल असंभव है। किन्तु देशवासी एकता तो प्रयास करें तो उस में तनिक भी कठिनाई नहीं होगी। इसके लिए पहले एक नियम बनाना चाहिए। सिर्फ आयुर्वेद की परीक्षा पासकरनेवाले आदमी ही लोगों की चिकित्सा करें। सारे प्रान्त के लोग एकत्रित होकर लगातार इसके लिए निवेदन करें। ऐसी स्थिति में सरकार और रिसयारतों के राजा ऐसा नियम पारित करने के लिए मज़बूर हो जायेंगे। यह नियम लागू किया जाय तो अलोपथी के डाक्टरों को भी आयुर्वेद सीखने की स्थिति आ जायेगी। इतना ही नहीं शहर के कई भागों में आयुर्वेद के विद्यालय खुल जायेंगे। शरीरशास्त्र और शाल्य चिकित्सा जैसे विषयों में कई परिष्कार आये हैं। इन परिष्कारों का प्रतिफलन आयुर्वेद में भी दिखायी पड़ेगा। आयुर्वेद के कई गुणों से अलोपथी के डाक्टर भी अवगत हो जायेंगे। लोगों को प्रयोजन मिलेगा। रोग शांत हो जायेंगे। आयुर्वेद में अब कई जाली वैद्य हैं। इस स्थिति में उनको रोक सकेंगे। अलोपथी में आज कई प्रकार के दोष पाये जाते हैं वे भी दूर हो जायेंगे। दोनों चिकित्साएं मिलकर उत्तम ढंग से आयुर्वेद का प्रचार बढ जायेगा। इस से जनता का मंगल बढ जायेगा।

# स्वास्थ्य - कुछ विधि - निषेध

वैद्यरत्नं पि. एस. वारियर

## Abstract

'Dhanvantari' was a periodical in Malayalam published by the founder of Arya Vaidya Sala, Kottakkal, Vaidyaratnam P. S. Varier. This periodical was replete with different types of articles on all systems of the medicine and was being brought out continuously for 23 years in the first decades of this century. Here an article from 'Dhanvantari', written by the founder, quite useful for both physicians and laymen and relevant even today, is given, translated into Hindi. The dos and donots to be cared by everybody while using ayurvedic medicines are given briefly and comprehensively.

अगर कोई मरीज दवा लेता है या इलाज़ शुरू करता है तो वह सोचता है कि केवल इस से बीमारी से बिलकुल मुक्त हो जाय। किन्तु पूर्ण रूप से इसका यदि फल मिलना है तो बीमारी की ठीक जानकारी के साथ दवा चुन लेने में ध्यान देना आवश्यक है। साथ ही औषधियों के उपयोग में समय, देश, पथ्य, मात्रा आदि कई मुद्दों पर विशेष ध्यान देकर समझना भी चाहिए।

### उपचार काल

समय का ध्यान दिए बिना बुआई करने

पर एक बीज भी न उगेगा। अगर उगता है तो ठीक रूप से पनप नहीं पाता। इलाज़ पर भी इसी प्रकार सोचना चाहिए। असमय में जो इलाज़ होता है उसके सफल रहने की संभावना कम है। इसीलिए अगर आसन्नवास्था में न हो तो समय पर ध्यान देने की कोशिश करनी है। केरल की सर्दि और गरमी की स्थिति के आधार पर पूर्वजों ने इलाज़ के लिए जो समय का निर्णय कर लिया है वे कार्तिक, फागुन, सावन इन तीनों महीनों में है। बारिश, सर्दि और गरमी की कमी को ध्यान में रख कर इस प्रकार किया गया है। उनको पता था कि बारिश

अनुवाद: डा. पि. के. चन्द्रन

कोट्टक्कल आर्यवैद्यशाला के स्थापक वैद्यरत्नम पि. एस. वारियर से प्रकाशित एक मलयालम वैद्यपत्रिका है "धन्वन्तरि" इस शताब्दी के पहले दशको में लगातार २३ वर्षों तक इसका सम्मुख हुवा था, जो वैद्यशास्त्र के कई मूलतत्वी-विषयों से समृद्ध थे। 'धन्वन्तरि' में श्री पि. एस. वारियर स्वयं लिखे एक लेख का हिन्दि अनुवाद यहां दिया गया है जो वैद्यों और सामान्य व्यक्तियों को भी जिज्ञास करें। आयुर्वेद औषधों के उपयोग में जो आचरणीय या अनाचरणीय है उनके बारे में यहाँ संक्षिप्त एवं समझने लायक रूप में दिया गया है जिनसे सभी को सतर्क रहना चाहिये।

के मौसम में ठीक बारिश, सर्दी के मौसम में सामान्य ठंड, और गर्मी के मौसम में सामान्य रूप से गरमी होगी, और इसी कारण से इस प्रकार निर्णय लिया है। काल विपरीत होने से अगर इस में कुछ भिन्नता आ जाती है तो समय को ठीक करना होगा। इन तीनों महीनों की पहले और आरवरी पक्ष को (दो हफ्ते) मध्यम पक्ष के रूप में इलाज़ के लिए चुन सकते हैं। इस समय में धारा, कायसैंक षाष्टिकपिण्डखेद, स्नेहपान, वस्ती, सिरोवेध आदि कोई भी इलाज़ कर सकते हैं। काढा, भस्म, रसायन आदि लेने में कोई विरोध नहीं। सावन महीने में वातरोग की शांति या त्रिदोष शमन के लिए, कार्तिक महीने में पित्तजय के लिए तथा फागुन महीने में कफ के शोषण के लिए ज़रूरी इलाज़ करें तो ज़्यादा फल मिलेगा, ऐसा अभिमत है। अत्यंत खतरनाक बीमारियों में तथा अकस्मात् होने वाली दिक्कतों में इलाज़ के लिए समय पर ध्यान देने की ज़रूरत नहीं। किन्तु उस समय अगर सामान्य इलाज़ के समय से बढ कर सरदी, गरमी या बारिश है तो उस से कोई दोष मरीज को न आ जाय इस के लिए आवश्यक पूर्व तैयारियाँ करना आवश्यक है। बिना ज़्यादा पथ्य के करने योग्य इलाज़ों पर भी समय की इंतज़ार में रहने की कोई ज़रूरत नहीं। हल्की बीमारियों में भी समय पर कम ही ध्यान पडता है।

दवाएँ लेने के समय की भिन्नता के कारण फलप्राप्ति में भी ज़्यादा भिन्नता आ जाती है। खाली पेट में जो दवा लेते हैं उसका फल प्रायः अधिक रहेगा। अतः रोग और रोगी दोनों को शक्ति है तो उस अवसर पर बिना भोजन के ही दवा लेने की विधि है। ये दो प्रकार के होते हैं। पहला भोजन पूरा त्यज कर केवल दवा लेना तथा दूसरा छोटी मात्रा में दवा लेना और उसके पचने के उपरांत

सामान्य रूप से भोजन लेना। स्नेहपान तथा रसायन का उपयोग आदि पहले प्रकार का तथा भोजन के कुछ देर पहले काढा लेना आदि दूसरे प्रकार का होता है। जो भी हो इन दोनों ढंग का इलाज़ अन्य कई ढंग के इलाज़ों से ज़्यादा फलदायक है। लेकिन शारीरिक बल की कमी के कारण कभी कभी मरीज दवा की शक्ति तथा पथ्य सहने में अशक्त हो सकता है। ऐसे अवसर पर शाम के भोजन के पहले भी दवा ले सकते हैं। किन्तु सवेरे के समान फल मिलने की संभावना कम है। इस प्रकार जितनी भी छोटी मात्रा हो कम से कम भोजन के लिए एक घंटे पहले दवा लेनी चाहिए। फिर कुछ देर तक बाई करवट लेटना चाहिए और पचने का आभास हुआ तो खाना भी चाहिए।

वैद्यों ने यह निश्चय किया है कि कुछ ऐसी बीमारियों में स्वाभाव भेद से दवा लेने के समय को कुछ बतल दें ता ज़्यादा फल निकलेगा। अपानवायु के दोष से उद्भूत सभी बीमारियों में भोजन के पहले दवा लेनी चाहिए। दवा लेने के तुरंत पश्चात् खाना और कौर के साथ दवा लेना इस ढंग की इलाज़ में शामिल है। समानवायु के कोप से जन्य रोगों में भोजन के बीच दवा लेने से ज़्यादा जल्दी रोग शांति मिलेगी। व्यानवायु के कोप से उद्भूत रोगों में सवेरे भोजन के अंत में दवा लेनी चाहिए। अगर उदानवायु का कोप होता है तो यह शाम के भोजन के बाद होना है। प्राणवायु जब अनुकूल नहीं होती है तब हर कौर के साथ दवा लेनी चाहिए। उसके अन्त में भी आवश्यक है। ज़हर, उलटी, हिचकी, घुटन, खॉसी, प्यास आदि में "बार बार" दवा लेनी है। अरुचि में स्वादिष्ठ भोजन सामग्री के साथ दवा लेनी चाहिए। कंपकंपी, आक्षेपक (वातरोग) हिचकी आदि में भोजन के पहले और बाद

में दवा लेनी चाहिए। गलठे के ऊपर की सारी व्याधियों में रात के भोजन के बाद सोने के पहले दवा का उपयोग ज्यादा उचित होगा। नित्य शौच के लिए लेने की दवा भी इसी समय में लेनी है। कामोद्दीपन के लिए निश्चित दवा भी इसी समय लेनी चाहिए। रेचक औषधी सवेरे पांच बजे या छह बजे पीनी है। इसके बाद सोना नहीं चाहिए। मितली के लिए दवा दुपहर के पहले लेनी है। देह पुष्टि के लिए निर्दिष्ट दवा प्रायः भोजन के ऊपर लेनी है। पचने की दवा भोजन के पहले या बाद में या भोजन के साथ ले सकते हैं। आंख में गोली रखनी है या रसक्रिया डालना है तो सवेरे आठ बजे के पहले या शाम को पांच बजे के बाद होना चाहिए। आंखों में दवा की बून्द डालने के लिए किसी भी समय उचित होगा। लोहा या ज़हर मिली हुई करीब सारी दवाएँ भोजन के ऊपर लेनी है। यही अलोपथी डाक्टरों का मत है। किन्तु उपर्युक्त समानताओं को पहचानने में असमर्थ लोग दोनों समय भोजन के पहले छोटी मात्रा में दवा लेना सभी कार्यों में सफल रहेगा।

## देश

इलाज़ का पूरा फल मिलने के लिए समय के समान देश पर भी सोचविचार अत्यंत आवश्यक है। अधिक शीत प्रदेश में रह कर वातरोग के लिए इलाज़ करें या उष्ण प्रदेश में रह कर पित्त रोग के लिए इलाज़ करें तो निष्फल ही होगा। इसके बदले वात और पित्त के लोग अगर अपने पूर्व निवास स्थान बदल कर गरमी के देश में और सर्दी के देश में जाकर वसें तो और किसी इलाज़ के बिना ही स्वस्थ बन जायेंगे। वैद्य विज्ञान में देश को तीन प्रकार में बताया गया है। पानी, पेड़, ढीले आदि जहाँ कम दिखाई देते हैं उस प्रदेश को जांगल कहते हैं। इस देश में दिखाई पड़ते जानवरों के मांस

को जांगलमांस कहते हैं। उपर्युक्त जल आदि पदार्थों की जहाँ अधिकता होती है उस देश को आनूप कहते हैं। झीलों का तट और वन निबिड पहाड़ी प्रदेश इसमें शामिल है। इन दो प्रदेशों में पहला अधिक वातयुक्त तथा दूसरा कफ की अधिकता से सम्पन्न है। इन दोनों के लक्षणों से युक्ती प्रदेश को साधारण कहते हैं। सभी प्रकार की इलाज़ों के लिए स्वीकृत प्रशस्त प्रदेश यही है। दुर्गन्ध भरी हवा, वन, कूड़ा कर्कट, सड़ी चीज़ों से भरा पर्वत प्रदेश आदि से किसी भी प्रकार का इलाज़ करना ठीक नहीं। बिना साफ पानी का झरना-तट भी वर्जित है। निर्मल पानी, आवश्यक पेड़-पौधे, साफ घर, साफ हवा, प्यारे लोग इन से सम्पन्न ग्रामीण प्रदेश को इलाज़ के लिए चुन लेना चाहिए।

## पथ्य

हर प्रकार के इलाज़ में तथा जो भी दवा हम लेते हैं, उसमें भी पथ्य अत्यंत ज़रूरी है। पथ्य के आचरण का उद्देश्य है रोग के कारण का उन्मूलन तथा रोग शांति के लिए अनुकूल वातावरण तैयार करना। कुछ दवाओं के विशेष स्वभाव के कारण उसके विरोधी तत्वों का अस्वीकार करना तथा उसकी शक्ति को बढ़ाने वाली चीज़ों को जोड़ना भी पथ्य का उद्देश्य है। कुछ तेज़ औषधियों की शक्ति को आपस में आपत्ति के बिना क्रमबद्ध करने के लिए पथ्य उपयोगी है। पथ्य दो प्रकार के है। 1) इच्छापथ्य (जिसमें क्लेशपूर्ण शर्त नहीं है) 2) कृच्छ्रपथ्य (कठिन शर्तवाला)। किसी भी प्रकार के पथ्य के लिए नीचे दिए हुए नियम का पालन आवश्यक है।

(1) शौच, स्नान आदि सभी अनिवार्य कार्यों में गरम पानी का उपयोग करना है। विशेषरूप से कहा नहीं गया है तो किसी भी कार्यों में ठंडा पानी का उपयोग नहीं करना चाहिए। ऐसे शारीरिक प्रकृति

वाले जिसको गरमी का विरोध है तो वे उबले पानी को ठंडा करके उपयोग करें तो कोई दिक्कत नहीं।

- (2) मलमूत्रादि का विसर्जन ठीक समय पर हो।
- (3) खाना ठीक समय पर हो, मात्रा के अनुसार, पथ्य के साथ तथा हृद्य हो।
- (4) स्त्रीसंसर्ग छोड़ना चाहिए। (शुक्ल वृद्धि जैसे अवसर पर इसका अपवाद है।)
- (5) रात में (दस बचे के बाद) बिना सोये रहना अच्छा नहीं (विषहारी होने पर या गले की बीमारी होने पर यह नियम लागू नहीं होता)
- (6) कसरत को त्यजना चाहिए। लेकिन कुछ कफ की बीमारियों में स्थूलता जैसे मेदा पीडा में और कुछ प्रकार के त्वचा के रोगों में भी इस निम का स्वीकार करना आवश्यक नहीं।
- (7) तनाव, दुःख आदि अन्तः क्षोभों को अवसर नहीं देना है।
- (8) सर्दी, हवा, धूल, धूम, बारिश आदि से सुरक्षित रहें।
- (9) पैदल चलना या गाडी में सवार होना मना है।
- (10) ज़ोर से बोलना, पढ़ना या ध्यान से सोचना मना है।
- (11) ज़्यादा समय खड़ा होना, बैठना, चलना भी रोका गया है।
- (12) लेटते समय सिर ज़्यादा ऊपर रखना या बिस्तर निम्नोन्नत रखना उचित नहीं।
- (13) दिन के वक्त सोना निषिद्ध है।
- (14) शयनकक्षा, घर, आंगन आदि साफ हो। बर्तन, वस्त्र चादर आदि साफ रखना चाहिए।

(15) अप्रिय व्यक्ति या अपथ्य भोजन सामग्री पास न रहें।

(16) ठीक समय पर औषध सेवा, भोजन आदि दैनिक आचरण में ध्यान देना चाहिए।

जब तक इलाज जारी रखें तब तक उपर्युक्त नियमों का पालन करना है, यही शास्त्रोक्त हैं। इलाज करते समय ही नहीं स्वभाव से बलहीन व्यक्ति तथा रोग से परेशान रोगी ध्यान से इन नियमों का पालन करना ज़रूरी है।

### इच्छापथ्य

दीर्घकाल से चालू बीमारियों में तथा शक्तिहीन व्याधियों में तथा जब मरीज कठिन पथ्यों को सहने को अक्षम रहते हैं तब भी दवा के साथ इच्छापथ्य ही उचित है। इस समय कठिन पथ्य का आचरण करें तो गुण के बदले दोष ही आ जाएगा। अतः इस समय अधिक तीक्ष्ण दवा लेना भी उचित नहीं। अगर लेनी है तो भी छोटी मात्रा में ही ठीक रहेगा।

इच्छापथ्य में भी उपर्युक्त नियमों का हर संभव पालन करना चाहिए। लेकिन ज़रूरी है तो बाहर पैदल चलना, सोचना, बातें करना आदि में कोई दिक्कत नहीं। आग के पास रहना, धूप में रहना, सर्दी, बारिश आदि मना है। लाल मिर्च, नई इमली आदि का कम उपयोग करना है। वातरोग में पुरानी इमली, नमक आदि उतना निषिद्ध नहीं। पित्तरोग में मीठे, कड़ुए, खट्टे आदि रसों के अलावा बाकि उतना अच्छा नहीं। कफ रोग में कड़ुए, तीखा, खट्टा आदि को अपनाना चाहिए। नया गुड, उडद, तिल, शराब, माँस जो जांगल नहीं है सब निषिद्ध है। गेहूँ अच्छा है। षाष्टि चावल किसी भी बीमारी में निषिद्ध नहीं। मधुमेह में पुराना जौ, गेहूँ आदि के भात और पकवान

हितकर है। व्यंजन के लिए करेला, नांरगी, नींबू, लैकी, जमीकन्द, कुम्हडा, कदली केला, इमली, ऊमिया आम, अंगूर, संतरा, अदरक, काली मिर्च, हलदी, मट्टा, घी, गुड, चीनी, पापड़ (बुना हुआ) आदि चीजें थोडा सा उपयोग कर सकते हैं। मट्टा उबल कर उपयोग करें तो ज्यादा अच्छा होता है। घी के उपयोग के बाद भोजन के साथ मट्टा का उपयोग उतना अच्छा नहीं। बकरी के मांस का रस करीब सारी बीमारियों में उपयोग पर सकते हैं। दो दिन में एक बार या चार दिन में एक बार, इस क्रम से गरम पानी में नहा सकते हैं। गरमी में नहाए बिना रहना मुश्किल है तो ऐसे लोगों को हर दिन शाम को नहा सकते हैं।

### कृच्छ्रपथ्य

इसमें पहले बताए गए सोलह नियमों का पालन करना आवश्यक है। बीतरी कमरे में ही सोना चाहिए। अत्यंत आवश्यक अवसर पर ही खिड़की, दरवाजा खोल देना चाहिए। कभी फर्श पर उतरना या बाहर जाना मना है। मलमूत्रादि का विसर्जन बाहर जाए बिना किसी बर्तन में होता तो अच्छा होगा। यह असंभव है तो सिर और देह ओड़कर सदी और बारिश से बच कर खड़ा पहन कर बाहर निकलना चाहिए। भोजन के समय पेट पूरा न भरना चाहिए। दो कौर का जगह छोड़ कर ही खाना उचित होगा। लाल मिर्च, नमक आदि निषिद्ध है। पानी मत पीना है। स्नान निषिद्ध है। दूध भी प्रायः निषिद्ध है।

बीमारी के बलावल के अनुसार दोनों पथ्यों को मिल जुल करके एक मिश्रित पथ्य का आचरण भी वैधों के बीच साधारण है। यह इस प्रकार है। अगर सवेरे दवा लेते हैं तो उस समय के भोजनादि कृच्छ्रपथ्य नियम के अनुसार होगा। शाम को इच्छापथ्य नियम के अनुसरण पर होगा। यह

बेशक है कि इस प्रकार के पथ्य से दवाओं का ज्यादा गुण मिलेगा।

### मात्रा

दवा लेते समय अच्छा फल मिलने के लिए और दोषों से बचने के लिए उसकी मात्रा का निर्णय करना आवश्यक है। जो भी दवा मात्रा के बिना लेता है वह ताल के बिना संगीत जैसे सुखदायक नहीं होगा। किन्तु दुर्भाग्य की बात है कि पूर्वाचार्यों ने जटी बूटियों की मात्रा पर विस्तृत जानकारी नहीं दी है। तो भी हमने कई नवीन ग्रंथों को जाँच करके तथा अलोपथी डाक्टरों ने जिन मात्राओं का निर्णय किया है उससे समतुलन करके और अपने अनुभव के आधार पर आर्यवैद्यशाला की सभी दवाओं को निर्माणक्रम को तय करके नई सूची में जोडा है। यह मात्रा हमारी औषधियों पर ही लागू है। निर्माण की भिन्नता के कारण औरों की दवाओं में यही मात्रा ठीक रहेगा, ऐसा सोचना गलत होगा। हमारी सारी गोलियाँ एक बार उपयोग करने के उद्देश्य से बनाई गई है।

हमारी सूची में दी हुई मात्राएँ वयस्कों की मात्राएँ हैं। कुछ जगह बच्चों की मात्रा का भी परामर्श किया है। वयस्कों के लिए तैयार दवाएँ मात्रा को बदल करके बच्चों को भी दे सकते है। ऊपर लिखे नियम के आधार पर बच्चों की मात्राओं का निर्णय लेना चाहिए। एक मात्रा कहने पर यह समझना चाहिए कि यह सोलह साल के व्यक्ति के लिए है। उसको सोलह भागों में बाँट करके एक साल की मात्रा और एक साल की मात्रा को बारह भागों में बाँट कर एक महीने के बच्चे की मात्रा का अनुमान करना चाहिए। अर्थात् एक व्यक्ति की मात्रा दो आउन्स (ounce) समझिए। उसको

सोलह भाग कर दें तो एक 'द्राम', एक साल की मात्रा हैं। तब तो एक साल के बच्चे के लिए एक "द्राम", दो साल के लिए दो द्राम, चार साल के बच्चे के लिए चार द्राम, इस प्रकार हर साल के लिए निर्णय ले सकते हैं। अब, एक द्राम एक साल के बच्चे के लिए मात्रा है तो उसको बारह में बांटने पर 5 बिन्दु एक महीने के बच्चे के लिए मात्रा होगी। दो महीने के बच्चे के लिए 10 बिन्दु।

हमारी सुची में ही देखा जा सकता है कि एक ही दवा के लिए एक छोटी मात्रा और बड़ी मात्रा रखी गई है। मरीज कितना भी शक्तिशालि क्यों न हो पहले छोटी मात्रा ही देना उचित होगा।

फिर (कुछ गड़बटी न हो तो) क्रम से मात्रा को बढ़ा सकते हैं। एक दवा के लिए मात्रा एक से चार ग्रेन लिखा है तो पहले एक ग्रेन देना है और फिर क्रम से चार ग्रेन तक दे सकते हैं। स्वभाव की विशेषता (idiosyncrasy) के कारण छोटी मात्रा भी कुछ लोगों को ज्यादा होगी और बड़ी मात्रा कुछ लोगों को कम रहेगी।

इलाज के विषय में कई मुद्दों पर मरीजों को ध्यान देना है तो भी इन में प्रमुख बातों को इधर प्रस्तुत किया गया है। जो इलाज से ठीक फल मिलने की इच्छा रखते हैं उन्हें इन नियमों का पालन करना चाहिए। ●

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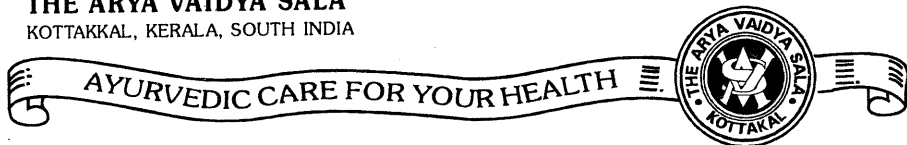
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Vol. XI. No. 1	Regn. No. 55127 / 87	Aug. - Oct., 1997
<b>Editorial</b>		
From the Pages of Vagbhata - XXX	Varier, N. V. K.	5
Evaluation of the Effect of Indigenous Herbal Drug Lasunadigugglu in the Management of Chronic Stable Angina	Awasthi, A. K., Kunal Kothari & Sharma, R. K.	8
Rasavaiseshika - XIII	Raghavan Thirumulpad, K.	21
Botanical Identificaiton of Some Ayurvedic Herbal Medicines	Tiwari, K. C., Uniyal M.R, Pandey, V. N. & Pandey, C.	25
Effect of Vijayasara Compound - I in Allozan Induced Diabetes - An Experimental study	Nageswara Rao V., Suresh, P., Dixit, S. & Gode, K. D.	33
Pharmacognostical studies on Jivanti - (Holostemma ada-kodien Schult)	Krishnan Nambiar, Sabu, T.K, Jayanti, A. & Rajendrakumar, K.	37
Detection of Ginger in Ayurvedic Preparations	Thankamma, A & Radhika, L. G.	52
Ayurvedic Management of Ischaemic Heart Diseases	Dharmapalan, P. K.	57
Excerpts from Chikitsamanjari - XXII	Unnikrishnan, P.	63
Clinical Observation	Muralidharan, K. & Warriar, P. K.	67
<b>HINDI</b>		
आयुर्वेद का महत्व	कुञ्जिककुट्टन तम्पुरान	70
स्वास्थ्य कुछ विधि - निषेध	वैद्यरत्नं पि एस वारियर	73