

ISSN 0970 - 4086

# āryavaidyan

लाभानां श्रेय आरोग्यम्

*Of all the gifts,  
the most precious is health*



Vol XV., No. 1  
August - October, 2001



A QUARTERLY JOURNAL OF  
THE ARYA VAIDYA SALA - KOTTAKKAL

# āryavaidyān

A Quarterly Journal of  
the Arya Vaidya Sala, Kottakkal.

Vol. XV, No. 1

Regn. No. 55127/87

August - October 2001

Aryavaidyān is intended to encourage scientific writing and intellectual interactions among scholars, academicians, practitioners and students of Ayurveda and allied subjects like Siddha, Unani, modern medicine, etc.

## EDITORIAL BOARD

Chief Editor

**Dr. K.G. Paulose**

Hon. Consulting Editors

**Dr. N.V.K. Varier**

**Dr. K. Madhavankutty**

## Members

**Dr. R. Bharatharajan**

Principal (Retd.)

**Dr. A. P. Haridas**

Principal, VPSV Ayurveda College,  
Kottakkal.

**Dr. Arsu**

Reader, Department of Hindi,  
University of Calicut.

**Shri P. V. S. Varier**

IAS (Retd.)

**Shri K. G. Warriar**

Teacher (Retd.)

**Shri P. Krishna Wariyar**

Headmaster (Retd.)

**Shri C. A. Varier**

Consultant, AVS.

**Dr. Indira Balachandran**

Research Officer, AVS Herb Garden,

**Dr. T. S. Murali**

Sr. Manager (R&D), AVS.

**Dr. K. Muralidharan**

Sr. Physician (AH&RC), AVS.

**Dr. C. Ramankutty**

Sr. Manager (Publications), AVS.

## Advisory Board

**Prof. V. P. K. Nambiar**

Consultant (Medicinal Plants), AVS.

**Prof. M. K. Prasad**

Formerly Pro-vice Chancellor, Calicut University

**Dr. C. K. Ramachandran**

Prof. of Medicine (Retd.), Medical College, Calicut

**Dr. K. Rajagopalan**

Susrut Bhavan, Kollam

**Dr. V. N. Pandey**

A/50/NDSE-1, New Delhi

**Dr. S. K. Misra**

Delhi

**Mr. Giorgio Filippo Barabino**

Genova

**Dr. M. S. Valiathan**

Adviser, Manipal Academy of  
Higher Education, Manipal.

**Prof. P. V. Sharma**

Gurudham, Varanasi

**Prof. N. R. Krishnaswamy**

Prof. of Chemistry, Ananthapur,  
Andhra Pradesh.

**Dr. G. Santhakumari**

Thiruvananthapuram

## CONTENTS

Editorial		3
From the pages of Vagbhata - LVI	Varier, N.V.K.	5
Pharmacognostical studies on <i>kutakappala</i> [ <i>Holarrhena pubescens</i> (Buch.-Ham.) Wall. ex Don]	Krishnan Nambiar, V.P., Jayanthi, A. and Sabu, T.K.	12
Preliminary investigations on morphological variations in <i>njavara</i> ( <i>Oryza sativa</i> ) ecotypes	Meera V. Menon and Potty, N.N.	30
Preliminary studies on the leaves and seeds of three <i>Cassia</i> species	Saraswathy Pasupathy, Vasanthakumar, K.G. and Bikshapathi, T.	34
A comparative clinical evaluation of <i>kutaja</i> ( <i>Holarrhena pubescens</i> ) in the management of <i>kitibha</i> (psoriasis)	Singh, O.P., Rai, N.P. and Pathak, N.N.	40
Chronic fatigue syndrome or <i>balavisramsa</i> - A comparative study	Champa Pant	45
Book review - Ayurvedic massage for health and healing	Madhavikutty, P.	50
Rasavaishika - XXV	Raghavan Thirumulpad, K.	52
त्रिदोष और शरीर के परमाणु (भाग २)	वारियर, पी. आर.	58

# āryavaidyan

Quarterly journal of Arya Vaidya Sala

सतताध्ययनं, वादः परतन्त्रावलोकनम् ।  
तद्विद्याचार्यसेवा च बुद्धिमेधाकरो गणः ॥

*Constant study, mutual discussion,  
learning other disciplines and  
serving the preceptor-these factors  
endow one with intelligence and memory*

## Subscription rates

Annual subscription	Rs. 120/-
Outside India	U. S. dollar 15 (Air surcharge extra)
Single copy	Rs. 35/-
Outside India	U. S. dollar 5 (Air surcharge extra)
Concessional rate for bonafide students of all systems of medicine	Rs. 100/-

Please address all enquiries and subscriptions to:

**The Chief Editor,**  
'Aryavaidyan'  
Arya Vaidya Sala,  
KOTTAKKAL - 676 503  
Malappuram District,  
Kerala State, India.

Phone : 0493-742225  
Fax : 742210, 742572  
E-mail : kottakal@vsnl.com  
kottakal@md3.vsnl.net.in



*Editorial.....*

### **The Beacon light of Alma-Ata Proclamation sheds light for all in the medical field**

We are all already citizens of the 21<sup>st</sup> century. We take it as a fortune granted to us by destiny, because we all expect better prospects in this era compared to that of the bygone century.

20<sup>th</sup> century started with imperialistic domination all over the world. It not only created and promoted cleavages amidst all sections of the people everywhere, but arrested the progress of science and knowledge which would have empowered humanity to attain prosperity enjoying peaceful life with security, not alienated from nature and society. But we also witnessed the dispelling of the darkness of this era, thanks to the pressure of the movements of the awakened people all over the world who stood for freedom from bondages for equality of opportunity and encouragement for co-operative efforts of all people of the world for promoting brotherhood and prosperity. It was this new awakening created by the progressive movements that prompted the doctors of WHO to chart the new manifesto for the medical world.

The Alma-Ata declaration of WHO was presented in the seventies of the last century. It heralded a very truthful and timely approach to the needs of the present health care and is the guiding beacon for all workers in the medical field even now.

It stood for health for all by the end of the century and insisted on co-operative action of all systems of medicines - eastern, western, modern or traditional - whatever the sources may be. The idea of establishing one advanced system of medicine alone in all countries proved a failure. It became clear that since the health problems of the present era are so variegated they can be successfully met only by co-operative action. And co-operative action is feasible only by cultivating mutual respect and efforts to promote standards of all systems with a positive approach to other disciplines also. Reports of the benefits gained by such co-operative actions flowed from China. It is spectacular, it helped both for increasing the standards of health of the people and the efficiency of participating systems. The latter proved effective also for paving the emergence of a higher medical vision and scientific outlook.

These results raised the hopes of all progressively thinking scholars and doctors and the people of the European countries also, to move for such trials. We get reports of the working of such projects in parts of America and Europe in which both modern medical practitioners and the practitioners of indigenous systems worked co-operatively. It gave hopes to western

public also and so the demand for introducing eastern medical systems as Chinese medicine and Ayurveda, is now seen getting more and more support. This movement has forced even the ruling regimes to take steps responding to these demands. That is why in America the president Clinton before he left office, consented to set up a Commission to work for utilising the services of alternative medical systems for the benefit of American citizens.

But at the same time there is the other side also. We still hear dissenting remarks from certain sources. There is no wonder in it. We know that although the message of Alma-Ata declaration is so appealing and sensible, its execution was always hindered by reactionary forces and so the aims of that noble movement is yet left unfulfilled, although the health conditions of all countries are now in a more seriously degraded state. The opposition comes from vested interests. The medical field in the world, particularly in western countries and their erstwhile depended regions is in the control of the multimillionaire manufacturing companies. How can we expect willing support from such profit-motivated company owners who wish to promote monopoly of their companies everywhere? So if some minor concessions come out from the regimes of the western states the credit for them is for the strong peoples' movement of these countries.

The ways in which they create opposition to popular co-operative efforts are manifold in form. If condemning the alternative system as a whole as unscientific is one way, the other more clever technique is to discriminate alternative systems to create feuds presenting unscientific gradations as one system is more scientific while the other is less, so as to create flare up of discriminative quarrels amongst the followers of different alternative systems. The reported analysing of the scientific merits of different alternative systems by the reactionary conservatives of the House of Lords of Great Britain is a recent example of this type of foolery.

But anyhow the trend in the West is now already out of control of these aristocratic gestures. People everywhere are more and more sensitive and are coming to realise the need of wider gestures not inspired by heresies, but actual experiences. So no need of getting provoked if those who have actually lost their ground cry aloud, afraid of imagined ghosts.

We have already passed 20<sup>th</sup> century and are advancing in the 21<sup>st</sup> century. Let us face facts as citizens of the new century.

*Atarishman Kutykharan*

## FROM THE PAGES OF VAGBHATA – LVI

Varier, N.V.K.

**Abstract:** Here, an elaborate disussion on *dhoomapana* is mentioned. Different types of *dhooma*, their indications, contra-indications and the preparation of *dhoomanetra*, etc. are detailed.

### *Dhoomapana*vidhi

Since we are dealing with the treatment for the upper part of the body, after *nasya*, the procedure for *dhoomapana* (drawing or inhaling of medicated fumes) is taken for presentation.

अथातो धूमपानविधिमाध्यायं व्याख्यास्यामः ।  
इति ह स्माहुरात्रेयादयो महर्षयः ।  
(Athato dhoomapanavidhimadhyayam  
vyakhyasyamah ।  
Iti ha smahuratreyadayo .  
maharshayah ।)

Then we going to comment the chapter titled *Dhoomapana*vidhi as the sages Athreya and others spoke.

जत्रूर्ध्वकफवातोत्थविकाराणामजन्मने ।  
उच्छेदाय च जातानां पिबेद्भूमं सदाऽऽत्मवान् ॥१॥  
(Jatroordhvakaphavatotha-  
vikaranamajanmane ।  
ucchedaya cha jatanam  
pibeddhoomam sadāṣṣatmavan ॥ 1 ॥ )

One has to draw (inhale) *dhooma* (medicated smoke) with due attention, for the prevention of troubles and for eradication of those

already arisen created by *kapha* and *vata* in parts of the body above the *jatru* (neck).

Inhalation of *dhooma* is recommended for diseases of the head and neck caused by *kapha* and *vata*, not for *pitta* and provocation of blood impurities. Because *dhooma* is the product of burning and it holds heat and so provokes *pitta* and *rakta*. Inhalation of *dhooma* and gargling with warm water are suggested as the post-procedures of *nasya* for clearing the throat. While drawing *dhooma* one must be careful not to divert his attention elsewhere.

स्निग्धो मध्यः स तीक्ष्णश्च, वाते वातकफे कफे ।  
योज्यः.....

(Snigdho madhyah sa teekshnascha,  
vate vatakaphe kaphe  
yofyah.....)

*Snigdha* (unctuous), *madhya* (middle - neither too unctuous nor too acute) and *teekshna* (acute) are the three forms of *dhooma* to be used in three stages, as with excess of *vata*, *vata* and *kapha* predominating and *kapha* predominating conditions.

न रक्तपित्तातिविरक्तोदरमेहिषु ॥२॥  
 तिमिरोर्ध्वानिलाध्मानरोहिणीदत्तवस्तिषु ।  
 मत्स्यमद्यदधिकीरक्षौद्रस्नेहविषाशिषु ॥ ३ ॥  
 शिरस्यभिहते पाण्डुरोगे जागरिते निशि ।

(.....na raktapittartti-  
 viriktodaramehishu ॥ 2 ॥ )  
 Timiordhvaniladhmana  
 rohineedattavastishu ।  
 matsyamadyadadhiksheera-  
 kshaudrasnehavishashishu ॥ 3 ॥  
 Sirasyabhigate pandu-  
 roge jagarite nisi । )

It is not advisable in the following conditions. *Raktapitta* (haemothermia), after purgation, *udara* (ascitis), *prameha* (diabetics), *timira* (cataract), upward provocation of *vayu*, distention of stomach, *rohini* (one of the *mukharogas* which obstructs the throat), after *vasti*, and after taking fish diet, alcohol, curd, milk, honey, fats or poison. Also it is not indicated in one with head injuries, anaemia and after sleepless nights.

The conditions in which *dhooma* is contraindicated are given above. The heat and dry nature of *dhooma* may accentuate the disease further.

रक्तपित्तान्ध्यबाधिर्यतुण्मूर्च्छामदमोहकृत् ॥ ४ ॥  
 धूमोऽकालेऽतिपीतो वा  
 (raktapittandhyabadhira  
 trinmoorchamadamahakrit ॥ 4 ॥  
 Dhoomoऽkaleऽtipeeto va )

If *dhooma* is taken untimely or in excess, it causes *raktapitta*, blindness, deafness, thirst, swoons, intoxication and delusions.

तत्र शीतो विधिर्हितः ।  
 (atra seeto vidhirhitah । )

In these troubles, cooling procedures are recommended as intake of ghee, *nasya*, anointing the body, irrigation, etc. Samgraha says –

एषां हि भ्रमज्वरशिरोभितापेन्द्रियोपघाततालुशोष-  
 पाकधूमायनच्छर्दिमूर्च्छारक्तपित्तादितानि मृत्युं वा धूमो  
 जनयेत्, अतिमात्रश्चान्येषामपि । तत्र वातकफान्यतरसंसृष्टं  
 पित्तमुपलक्ष्य यथास्वं सर्पिष्कषायपाननस्यास्यलेपाञ्जन-  
 परिषेकान् स्निग्धरूक्षशीतान् प्रयुञ्जीत । एतेन सर्व-  
 धूमोपघातप्रतीकारा व्याख्याताः । विशेषस्तु सर्वघ्नोतोभिगते  
 धूमे तीव्रतरा वेदना भवन्त्यूषाध्माननेत्ररोगश्चासकास-  
 पीनसाङ्गस्वरसादाम्लकाः । तत्र घृतक्षीरिक्षुरसद्राक्षाशर्करो-  
 पयोगस्तद्विधैरेव वमनम् । कटुतिकैरपि च नस्यगण्डूषाः ।

*Eshamhi bhramajvarasirobhitapendriyo-  
 paghatatalusoshapakadhoomayanacchardimoorccharaktapittarditani mrityum va  
 dhoomo janayet, atimatraschanyeshamapi ।  
 Tatra vatakaphanyatarasamsrishtampittam-  
 upalakshya yathasvam sarpishkashayapana-  
 nasyasyalepanjanaparishekan snigdha-  
 rookshaseetan prayunjeeta । Eetena sarva-  
 dhoomopaghataprateekara vyakhyatah ।  
 Viseshastu sarvasrotobhigate dhoomo teevra-  
 tara vedanabhavantyooshadhmananetraroga-  
 svasakasapeenasangasvarasadamlakah ।  
 Tatra ghritaksheerekshurasadrakshasarkaro-  
 payogastadvidhairiva vamanam । Katu-  
 tiktairapi cha nasyagandooshah ।*

In these people *dhooma* creates dizziness, fever, headache, injuries to organs, dryness and inflammation of palate, smoke stuffed sensation, vomiting, swoons, *raktapitta*, facial paralysis and even death. Excess of *dhooma* creates these troubles even in normal people. There, aiming at the provoked *pitta* in combination with *vata* or *kapha*, intake of ghee or *kashaya*, *nasya*, *asyalepa* (face anointment), collyriums, irrigation are to administered as per



the *dosha* combination. In *vata-pitta* combination the medicines for these steps are to be selected as unctuous and cold. In *kapha-pitta* combination, *rooksha* (harsh) and cold substances are preferred. This explains the remedies for all cases of excess *dhooma*. Particularly, when *dhooma* has pervaded all body pores, acute pain, burning sensation, distension of the stomach, eye troubles, asthma, tiredness, cough, rhinitis, weakness of voice and acid eructation are created. Here ghee, milk, sugarcane juice, grapes and sugar are to be used. Emesis also with such substances is helpful. *Nasya* and *gandhoosha* can be done with medicine, acrid and bitter of tastes.

क्षुतजृम्भितविष्मूत्रस्त्रीसेवाशस्त्रकर्मणाम् ॥ ५ ॥  
 हासस्य दन्तकाष्ठस्य धूममन्ते पिबेन्मृदुम् ।  
 कालेष्वेषु निशाहारनावनान्ते च मध्यमम् ॥ ६ ॥  
 निद्रानस्याञ्जनस्नानच्छर्दितान्ते विरेचनम् ।

(*kshutajrimbhitavinmootra-  
 streesevasastrakarmanam* ॥ 5 ॥  
*Hasasya dantakashthasya  
 dhoomamante pibhenmridum* ।  
*kalashveshu nisahara-  
 navanante cha madhyamam* ॥ 6 ॥  
*Nidranasyanjanasnana-  
 charditante virechanam* । )

After actions as that of sneezing, yawning, defaecation, urination, mating, surgical performances, laughter, tooth-cleaning, etc., take *mridu* (soft) *dhooma*. At these times and at the ends of night, after food intake, and after *nasya*, take *dhooma* of the middle type. At the end of sleep, performance of *nasya*, *anjana*, bath, and after emesis take *virechana dhooma*.

The exact times preferable for appropriate use of *dhoomas* are indicated here. *Mridu* or unctuous *dhoomas* are preferable after the

eight functions mentioned above from sneezing up to tooth cleaning. *Mridu* or soft means, *dhooma* with *snehas*. The time preferable for usage of *madhyama* type - neither too unctuous nor hard - are here recorded as eleven. This includes the eight occasions prescribed for *mridu dhoomas*, and besides them, three more are regarded, as at the end of night, food intake and after *nasyas*. The time prescribed for acute or purgatory *dhoomas* are the five occasions as at the end of sleep, *nasya*, *anjana*, bath, and performance of emesis.

Then the nature of the instrument to take *dhooma* is described.

वस्तिनेत्रसमद्रव्यं त्रिकोशं कारयेदृजु ॥ ७ ॥  
 मूलाग्रेऽङ्गुष्ठकोलास्थिप्रवेशं धूमनेत्रकम् ।  
 (*vastinetrasamadravyam  
 trikosham karayedruju* ॥ 7 ॥  
*Moolagreऽngushthakolasthi-  
 pravesam dhoomanetrakam* । )

Arrange to make a *dhoomanetra* (by a craftsman) with the same materials used for constructing *vasti netra* (the instrument for doing *vasti*). It is to be straight, three sheathed in sequence, the base with a hole that allows entrance of ones thumb and the top that allows the passage of a *kola beeja* (jujube).

Here the instruction for constructing the instrument for *dhoomapana* is given. All the materials used for manufacturing *vastinetra*, as metals like gold, silver and others, wooden stuffs, bones or canes, etc. can be taken for the construction of *dhoomanetra* also. It is to be straight, but with three *kosas* (joints of hollow sheaths one by one). At the base and at the top with holes, the first for the entrance of *dhooma* to the hollow pipe and the other at

the top is for drawing in the fumes through the nose or mouth. The width of the hole at the base is directed as to allow the entrance of the thumb, and at the top, the entrance of a *kola beej* (jujube). The three *kosas* are tubes serially arranged.

तीक्ष्णस्नेहनमध्येषु त्रीणि चत्वारि पञ्च च ॥ ८ ॥  
अङ्गुलानां क्रमात्पातुः प्रमाणेनाष्टकानि तत् ।

(*teekshnasnehanamadhyeshu  
treeni chatvari pancha cha ॥ 8 ॥  
Angulanam kramatpatuh  
pramanenashtakani tat ॥*)

The desired length of the *dhoomanetra* is indicated here. For using acute, unctuous and middle type of *dhoomas*, the length should be correspondingly three *ashtakas* (a group of eight) of *angulas* (24 fingers) four *ashtakas* (32 fingers) and five *ashtakas* (40 fingers) respectively.

In suggesting the lengths, two purposes are considered. The *dhooma* should not harm eyes, ears and other organs. But the intensity should be sufficient to have the required effect. Charaka says, दूराद्विनिर्गतः पर्वच्छिन्नो नाडीतनूकृतः । नेन्द्रियं बाधते धूमः । Having come from a distance and having broken (the intensity reduced by the joints) and attenuated by the tubes, the *dhooma* does not trouble the organs. The units suggested as *angulas* are as per the fingers of the man who takes *dhooma*.

Samgraha presents another opinion on the required length of the *netras*, as per the cases to be treated (*Sootrasthanam*, 30). For treating cough and after performance of emesis, the length of the *netra* used should be ten *angulas*. The circumference should be equal

to the girth of a *kalaya* seed (green pea) and the hollow that can allow the entrance of a hoarse gram seed. In the absence of *netra*, make use of the pipes of reeds, bamboos hollowed castor stalks and similar ones.

How to take *dhooma*:

ऋजूपविष्टस्तच्चेता विवृतास्यस्त्रिपर्ययम् ॥ ९ ॥

पिधाय छिद्रमेकैकं धूमं नासिकया पिबेत् ।

(*rijoopavishtastaccheta  
vivritasyastripariyayam ॥ 9 ॥  
Pidhaya chidramekaiikam  
dhoomam nasikaya pibet ॥*)

Having seated erect, and paying full attention to the action, the mouth opened, inhale *dhooma* three times alternatively through each nose while the other nose is closed, one by one.

The person, who draws *dhooma*, should sit in an erect position. Then his whole attention should be concentrated in this performance. Mouth is to be opened. Then draw *dhooma* through one nostril while the other is closed. Push out the *dhooma* by mouth. Then draw *dhooma* by the other nostril while the former is closed. Repeat this three times.

प्राक् पिबेन्नासयोत्क्लिष्टे दोषे

घ्राणशिरोगते ॥ १० ॥

उत्क्लेशनार्थे वक्त्रेण, विपरीतं तु कण्ठगे ।

(*prak pibennasayotklishite  
doshe ghranasirogate ॥ 10 ॥*)

*Utklesanarthe vaktrena,  
vipareetam tu kanthage ॥*

When the *doshas* are already in nose and head and in a provoked (stimulated by increase) condition, draw in the fumes through the nose at first. But if the *doshas* are situated

in throat, draw in through the mouth at first.

मुखेनैवोद्वेद्धूमं नासया दृग्विघातकृत् ॥ ११ ॥

(*mukhanaivodvamedhoomam  
nasaya drigvighatakrit* ॥ 11 ॥)

Always let the smoke go out only through the mouth. If done through nose it is harmful to eyes.

आक्षेपमोक्षैः पातव्यो धूमस्तु त्रिस्त्रिभिस्त्रिभिः ।

(*Akshepamokshaih patavyo  
dhoomastu trisribhistribhiih* ।)

In each course of *dhooma*, intake and letting out of *dhooma* are to be done thrice at a stretch, and this is to be repeated three times.

अहः पिबेत्सकृत् स्निग्धं, द्विर्मध्यं,  
शोधनं परम् ॥ १२ ॥

त्रिश्चतुर्वा .....

(*ahnah pibetskrit snigdham,  
divirmadhyam, sodhanam param* ॥ 12 ॥  
*Trischaturva*.....)

Do unctuous *dhooma* once in a full day. The middle type of *dhooma* twice and the acute one is to be taken three or four times.

.....मृदौ तत्र द्रव्याण्यगुरुगुग्गुलु ।  
मुस्तास्थौणेशैलेयनळदोशीरवाळकम् ॥ १३ ॥  
वराहकौन्तीमधुकवित्वमज्जैलवालुकम् ।  
श्रीवेष्टकं सर्जरसो ध्यामकं मदनं प्लवम् ॥ १४ ॥  
शल्लकी कुङ्कुमं माषा यवाः कुन्दुरुकस्तिलाः ।  
स्नेहाः फलानां साराणां मेदो मज्जा  
वसा घृतम् ॥ १५ ॥

(.....*mridau tatra  
dravyaguruguggulu* ।  
*mustasthauneyasaileya-  
naladoseeravalakam* ॥ 13 ॥

*Varangakaunteemadhuka-  
vilvamajjailavalukam* ।  
*sreeveshtakam sarjaraso  
dhyamakam madanam plavam* ॥ 14 ॥  
*Sallakee kunkumam masha  
yavah kunturukastilah* ।  
*Snehah phalanam saranam  
medo majja vasa ghritam* ॥ 15 ॥ )

For soft (*mridu*) *dhooma*, take the materials as *aguru* (*Aquilaria agallocha*), *guggulu* (*Commiphora mukul*), *mustha* (*Cyperus rotundus*), *sthauneya* (*Saussurea lappa* - substitute), *saileya* (*Parmelia perlata*), *nalada* (*Nardostachys grandiflora*), *useera* (*Vetiveria zizanioides*), *valaka* (*Plectranthus vettiveroides*), *varanga* (*Cinnamomum veram*), *kauntee* (*Piper cubeba*), *madhuka* (*Glycyrrhiza glabra*), *vilvamajja* (pulp of *Aegle marmelos*), *elavaluka* (*Prunus avium*), *sreeveshtaka* (Resin of *Pinus roxburghii*), *sarjarasa* (Fruit pulp of *Shorea robusta*), *dhyamaka* (*Cymbopogon martinii*), *madana* (*Catunaregum spinosa*), *plava* (*Cyperus esculentus*), *sallaki* (Resin of *Boswellia serrata*), *kunkuma* (*Crocus sativus*) *masha* (*Vigna radiata*), *yava* (*Hordeum vulgare*) *kunturukkam* (*Liquidamber orientalis*) *tila* (*Sesamum indicum*), *sneha* [the oil extracted from fruit seeds and *sara vrikshas* (trees with heartwood)], *meda* (fat), *majja* (marrow), *vasa* (tallow) and ghee, for producing smoke.

*Saravrikshas* are trees like *khadira* (*Acacia catechu*), *asana* (*Pterocarpus marsupium*), *devadaru* (*Cedrus deodara*), etc. Arunadatta insists that by ghee it is the cow's ghee that is intended.

शमने शल्लकी लाक्षा पृथ्वीका कमलोत्पलम् ।  
न्यग्रोधोदुम्बराश्वत्थप्लक्षरोध्रत्वचः सिता ॥ १६ ॥

यष्टीमधु सुवर्णत्वक् पदकं रक्तयष्टिका ।

गन्धाश्चाकुष्ठतगराः .....

(*Samane sallakee laksha*

*prithvika kamalotpalam ।*

*nyagrodhodumbarasvatha-*

*plaksharodhratvachah sita ॥ 16 ॥*

*Yashtimadhu suvarnatvak*

*padmakam raktayashtika ।*

*gandhaschakushtatagarah.....)*

For *samanadhooma*, take the materials as *sallaki* (*Boswellia serrata*), *laksha* (*Laccifer lacca*), *prithveeka* (*Elettaria cardamomum*), *kamala* (*Nelumbo nucifera*), *ulppala* (*Kaempferia rotunda*), *nyagroda tvak* (bark of *Ficus benghalensis*), *udumbara tvak* (bark of *Ficus racemosa*), *asvatha tvak* (bark of *Ficus religiosa*), *plaksha tvak* (bark of *Ficus microcarpa*), *lodhra* (*Symplocos laurina*), *sita* (sugar), *yashtimadhu* (*Glycyrrhiza glabra*), *suvarna tvak* (*Aragvadha tvak* - bark of *Cassia fistula*), *padmaka* (*Prunus cerasoides*), *raktayashtika* (*Rubia cordifolia*) and *gandhadravys* excluding *kushta* (*Saussurea lappa*) and *tagara* (*Valeriana jatamansi*).

.....तीक्ष्णे ज्योतिष्मती निशा ॥ १७ ॥

दशमूलमनोद्दालं लाक्षा श्वेता फलत्रयम् ।

गन्धद्रव्याणि तीक्ष्णानि गणो मूर्द्धविरेचनः ॥ १८ ॥

(.....*teekshne jyotishmatee nisa ॥ 17 ॥*

*Dasamoolamanohvalam*

*laksha sveta phalatravam ।*

*gandhadravyani teekshanani*

*gano moordhvavirechanah ॥ 18 ॥*)

In *teekshna* (acute) *dhooma* take the materials as *jyotishmati* (*Celastrus paniculatus*), *nisa* (*Curcuma longa*), *dasa-moola*, *manohva* (realgar), *ala* (orpiment), *laksha* (*Laccifer lacca*), *sveta* (*Acorus gramineus*),

*phalatrava* (*Terminalia chebula*, *Phyllanthus emblica* and *Terminalia bellerica*), *gandhadravys* of acute type and the drugs mentioned in *moordha virechana gana* (15<sup>th</sup> chapter of *Sootrasthana*).

How to make the *dhooma vartti*:

जले स्थितामहोरात्रमिषीकां द्वादशाङ्गुलाम् ।

पिष्टैर्धूमौषधैरेवं पञ्चकृत्वः प्रलेपयेत् ॥ १९ ॥

वर्तिरङ्गुष्ठकस्थूला यवमध्या यथा भवेत् ।

छायाशुष्कां विगर्भो तां स्नेहाभ्यक्तां

यथायथम् ॥ २० ॥

धूमनेत्रार्पितां पातुमग्निप्लुष्टां प्रयोजयेत् ।

(*Jale sthitamahoratra-*

*misheekam dvadasangulam ।*

*pishtairdhoomaushadhairevam*

*panchakritvah pralepayet ॥ 19 ॥*

*Vartirangusthakasthoola*

*yavamadhya yatha bhavet ।*

*chayasushkam vigarbho tam*

*snehabyaktam yathayatham ॥ 20 ॥*

*Dhoomanetrarpitam patum-*

*agniplushtam prayojayet ।*)

Take a *darbha* grass (*Desmostachya bipinnata*) of twelve fingers long and keep it in water for a day and night. Then take it and smear the paste prepared with the stuffs that are suggested for *dhooma*. Then dry it. Repeat this process five times. Thus as directed, make the *vartti* (wick) as stout as the thumb and shaped as a *yava* (i.e. the middle portion is stout.) Then dry it in shade and remove the grass from the hollow. Smear the wick with *snehas* as ghee, etc. and insert it in the hole of the *dhoomanetra* and burn. This can be used for *dhoomapana*.

A suggestion for doing *dhoomapana* for patients suffering from cough:

शरावसम्पुटच्छिद्रे नाडीं न्यस्य  
 दशाङ्गुलाम् ॥ २१ ॥  
 निर्द्धूमाङ्गारविन्यस्तयुक्तद्रव्यस्य नालिकाम् ।  
 अष्टाङ्गुलां वा वक्त्रेण कासवान्  
 धूममापिबेत् ॥ २२ ॥

(*saravasamputachidre*  
*nadim nyasya dasangulam* ॥ 21 ॥  
*Nirdhoomangaravinyasta-*  
*yuktadravyasya nalikam ।*  
*ashtangulam va vaktrena*  
*kasavan dhoomamapibet* ॥ 22 ॥ )

Take two *saravas* (shallow earthenware).  
 In one of them put burning charcoals and the  
 stuff for *dhooma*. Then cover it with the other,  
 which has already with a hole in the middle.  
 Now insert a pipe, eight or ten fingers long,  
 into this hole and draw *dhooma* through it.  
 This is particularly meant for patients suffering  
 from cough.

कासः श्वासः पीनसो विस्वरत्वं  
 पूर्तिर्गन्धः पाण्डुता केशदोषः ।  
 कर्णास्याक्षिन्नावकण्ड्वर्तिजाड्यं  
 तन्द्रा हिष्मा धूमपं न स्पृशन्ति ॥ २३ ॥

(*Kasah svasah peenaso visvaratvam*  
*pootirgandhah pandhuta kesadoshah ।*  
*karnasyakshiravakandhvartijadhyam*  
*tandra hidhma dhoomapam*  
*na sprusanti* ॥ 23 ॥ )

The troubles like cough, asthma, rhinitis,  
 loss of voice, putrid smell, paleness, diseases  
 of the hair, discharges, itching pain and dull-  
 ness affecting ears, mouth and eyes, laziness  
 and hiccup do not affect those who practice  
*dhoomapana*.

इति श्रीवैद्यपतिसिंहगुप्तसूनुश्रीमद्वाग्भटविरचिता-  
 यामष्टाङ्गहृदयसंहितायां सूत्रस्थाने धूमपानविधि-  
 नामैकविंशतितमोऽध्यायः ॥ २१ ॥

(*Iti sreevaidyapatisimhaguptasoonu-*  
*sreemadvagbhatavirachitayamashtanga-*  
*hridayasamhitayam sootrasthane dhooma-*  
*panavidhirnama vimssati-*  
*tamo's dhyayah* ॥ 21 ॥ )

Thus ends the twenty-first chapter of the  
*sootrasthana* titled 'the instructions for  
*dhoomapana*' of *Ashtanga Hridaya Samhita*  
 composed by *Vagbhata*, the son of *Simhagupta*.



AN EAGERLY AWAITED NEW EDITION

*Kottakkal Ayurveda Series:*

## TRIDOSHA THEORY

A Study on the Fundamental Principles of Ayurveda

By

Dr. V.V. Subrahmanya Sastri

This is the revised and enlarged edition of the *Tridosha Theory* published earlier.  
 The learned scholar has scientifically explained the physiology of human  
 body through the principles of *vata*, *pitta* and *kapha* keeping in view some  
 of the processes as explained by modern science without detriment to the  
 main concept as postulated in *Ayurveda*.  
 - in Press



## PHARMACOGNOSTICAL STUDIES ON KUTAKAPPALA [*HOLARRHENA PUBESCENS* (BUCH.-HAM.) WALL. EX DON]

Krishnan Nambiar, V.P., Jayanthi, A. and Sabu, T.K.\*

**Abstract:** This paper deals with pharmacognostic studies, chemical studies and propagation techniques of the raw drug *kutajah* (*Holarrhena pubescens*) which will help to identify correct raw drug from the possible adulterants.

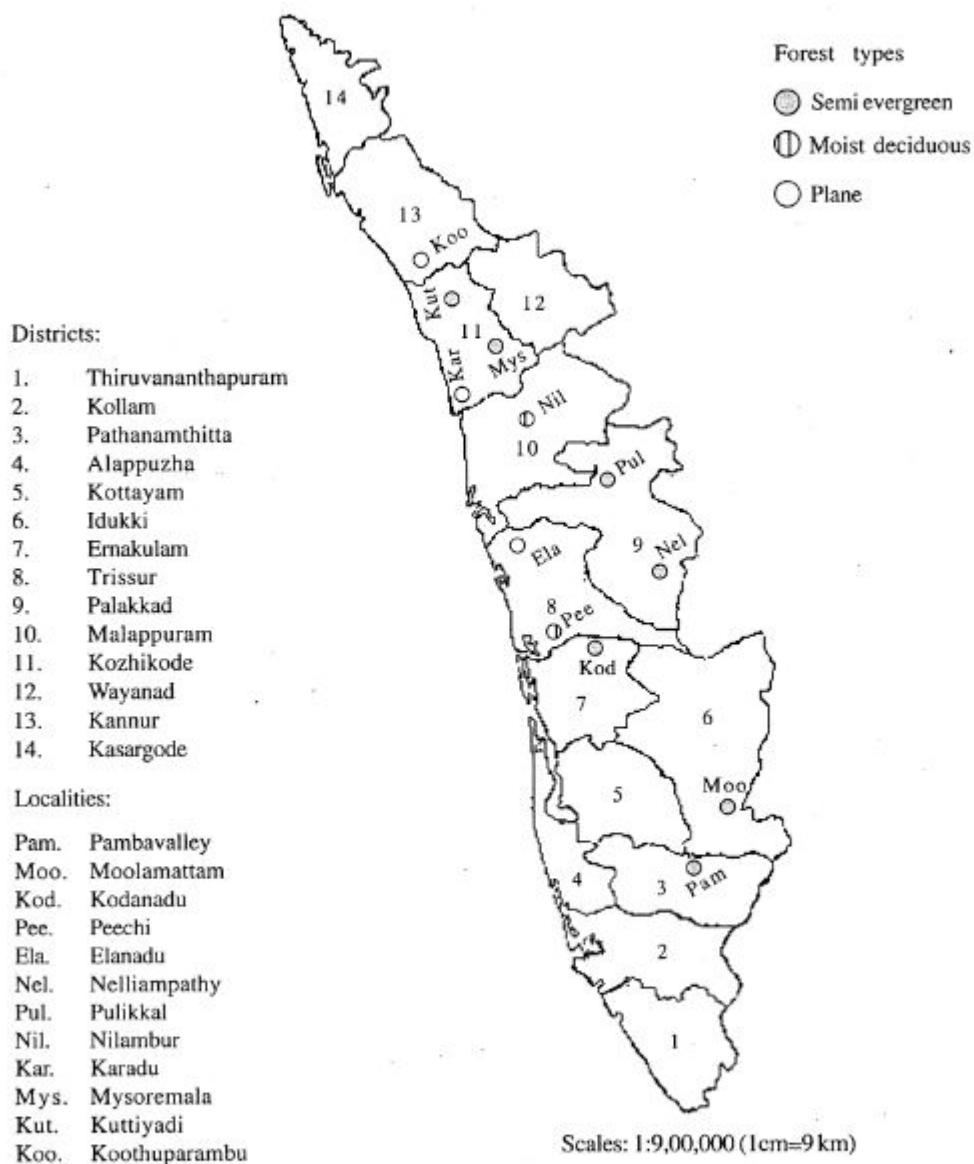
### Introduction

*Holarrhena pubescens* belonging to the family Apocynaceae is known as *kurchi* and *tellichery* bark in English; *kurchi* in Hindi; *kutakappala* in Malayalam; *kutajah* in Sanskrit and *veppalai* and *kutasappalai* in Tamil. The officinal parts are stem-bark and seeds. The drug used in more than 42 ayurvedic formulations like *Amritarishtam*, *Ayaskriti*, *Kutajarishtam*, *Chavikasavam*, *Dasamoolarishtam*, *Moolakadyarishtam*, *Aragwadhadhi kashayam*, *Guggulutiktakam kashayam*, *Yogarajagugguluvatika*, etc. (S.R. Iyer, 1983). This plant is distributed throughout in India in deciduous forest up to 900m elevation and also occasionally cultivated. In Kerala it is abundantly seen in Karad, Kuttiady and Mysoremala of Calicut district, Kuthuparambu of Kannur district, Nilambur of Malappuram district, Moolumattam of Idukki district, Pambavalley of Pathanamthitta district, Pulikkal and Nelliampathy of Palakkad district, Kodanad of Ernakulam district, Peechi and Elanadu of Thrissur district. (Fig. 1)

Bark and seeds are bitter, astringent, anthelmintic and useful in amoebic dysentery, and diarrhoea (Warrier et al, 1995; WHO, 1990; Kurup et al, 1979; Khanna et al, 1991; Narayana Aiyer & Kolammal, 1960; Sarin, Y.K., 1996). It is anthelmintic and used against piles (Narayana Aiyer & Kolammal, 1960; Kurup et al, 1979; Khanna et al, 1991; Warrier et al, 1995). It is antiperiodic (Warrier et al, 1995; Narayana Aiyer & Kolammal, 1960; Dey, 1980) and useful in rheumatism, fever and malaria (Warrier et al, 1995; Dey, 1980). It is carminative, refrigerant, digestive, febrifuge and useful in skin diseases (Kurup et al, 1979; Warrier et al, 1995), thirst, leprosy (Narayana Aiyer & Kolammal, 1960; Kurup et al, 1979), hepatosplenomegaly, general haemorrhages, vomiting, uropathy (Warrier et al, 1995; Narayana Aiyer & Kolammal, 1960). Leaves are used in chronic bronchitis (Warrier et al, 1995; Krishnamurthy, 1993). Bark and seeds are aphrodisiac, expectorant, tonic and are useful in constipation, gastropathy, hepatopathy, bronchoneumonia and verminosis (Warrier et al, 1995). It is also useful in heart

\*IDRC Project, Arya Vaidya Sala, Kottakkal 676 503.

Fig.I. *Holarrhena pubescens* - Location Map



diseases, colic pains, phlegmatic tumours and pruritus (Narayana Aiyer & Kolammal, 1960). The decoction of the seeds mixed with honey is used against diarrhoea and dysentery. Bark and seeds are used as blood purifier (Krishnamurthy, 1990). Roots and barks are used against dysentery and constipation by tribes of Koenjhar forest of Orissa (Singh & Uppendra Dhar, 1993). Roots mixed with *Diospyros melanoxylon* stem-bark are used for treating malaria by Kathodies (a monkey eating tribes in Rajasthan) (Prabhakar Joshi, 1993). Bark is used for treating haemophilic disorders, loss of appetite and skin diseases. Seeds are used for treating intermittent fever (Sarin, Y.K., 1996).

### Morphological description

A medium sized deciduous tree with thick gray bark having numerous raised perforations, leaves 10-30 cm long and 4-14 cm broad, exstipulate, short petioled, glabrous or at times pubescent, ovate, oblong, acute, veins prominent; flowers white puberulous in terminal or axillary cymose clusters; calyx 5-lobed, lobes ovate, overlapping to the right; corolla gamopetalous, tube slender, slightly dilated opposite to the stamen, limbs five; stamens five, sagittate forming a cone over the stigma, inserted between the base and middle of the tube, filament very short, slender, anthers lanceolate; fruits two slender pendulous follicles, 20-40 cm long, seeds linear, tipped at the apex with a deciduous white tuft of silky hairs; seeds 1.25 cm long, narrow, elongated, light yellowish brown in colour (Fig. II & III).

### Materials and Methods

Plant materials for macro and microscopic observations were collected from different parts

of Kerala and fixed in F.A.A. Seeds 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 was found out using samples treated in 5% KOH solution. For determining stomatal index, ten epidermal peeling from both surfaces of a fresh leaf were taken and ten counting 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 and number of stomata of unit area respectively (Salisbury, 1928). The values are represented graphically. Palisade ratio was determined by using 5 fresh leaves. From each of these four pieces (ie. one from base, one from apex, one from margin and one from centre were selected). After clearing, washing and staining they were mounted in glycerin. From these 100 readings were recorded, taking 5 counts from each piece. Average of these is the palisade ratio. The values are represented graphically. The report that number of palisade cells per unit area increases successively from base to apex with the ratio always remaining constant (Zorning & 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 1 sq. mm of cleared leaf samples taken from 5 different leaves. The values are represented graphically. All these numerical values may be considered as a diagnostic constant and will help for identifying the plant species.

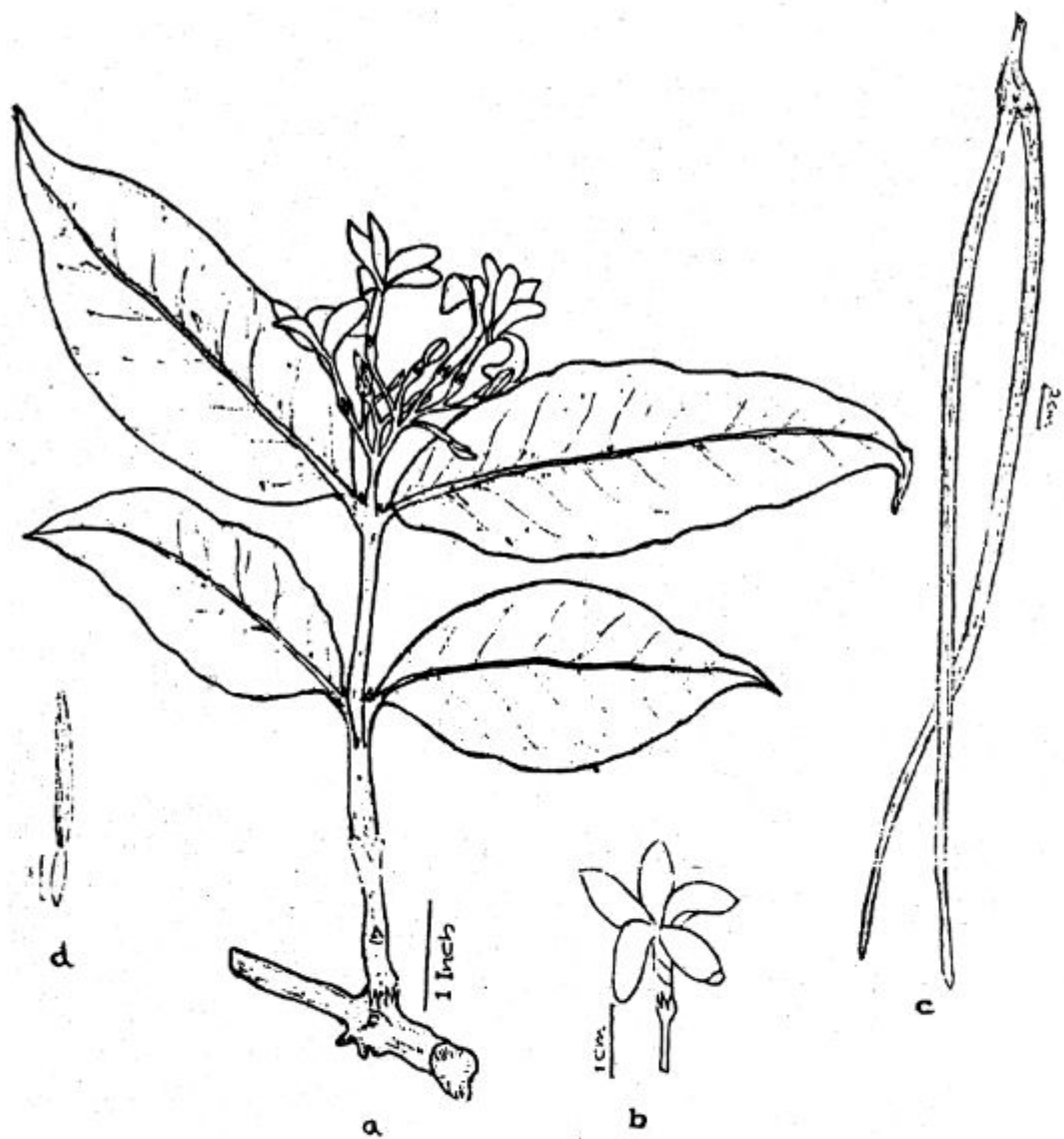


Fig. II. a - d *Holarrhena pubescens* - a) A twig with flowers  
b) Single flower c) Fruit d) Seed

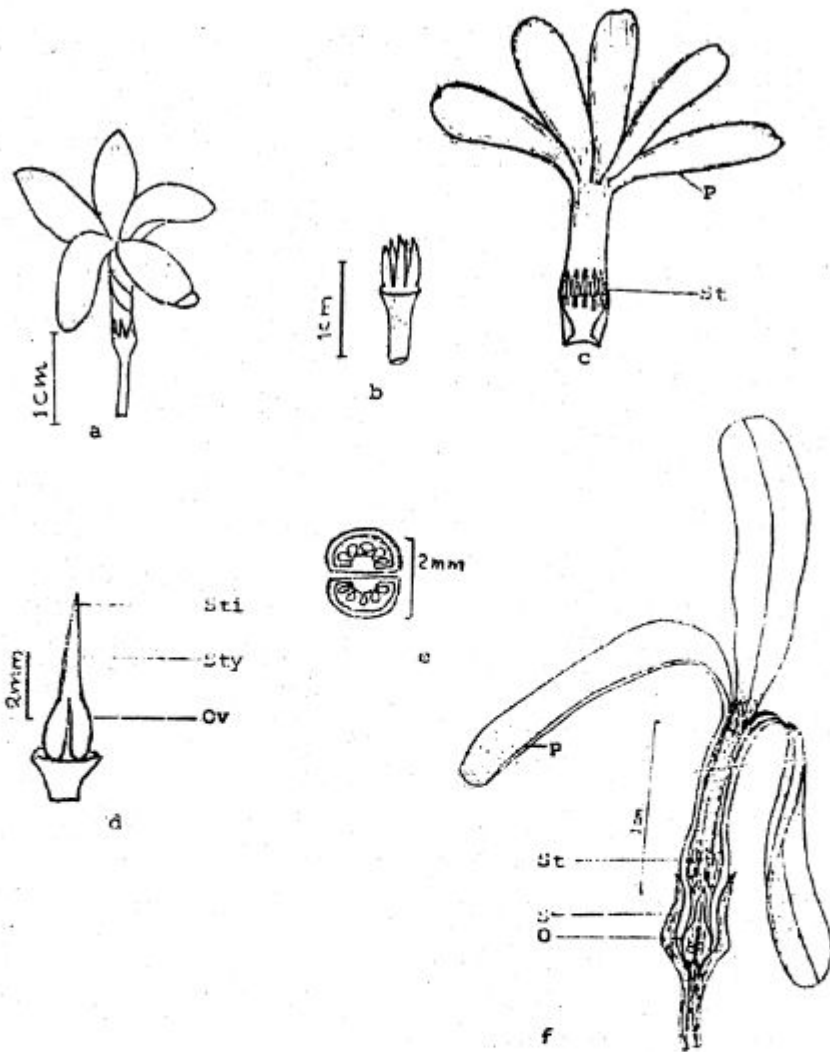


Fig. III. **a-f** *Holarrhena pubescens* - Floral biology **a)** Single flower **b)** Calyx  
**c)** Corolla tube split opened **d)** Gynoecium **e)** Ovary C.S. **f)** Flower L.S.  
**Gy.** Gynoecium **O.** Ovary **P.** Petal **S.** Sepal **St.** Stamen **Sti.** Stigma **Sty.** Style



## **Floral vasculature**

### **Calyx**

Single vascular strand enters each lobe of the calyx and remains unbranched after giving rise to two lateral branches, which again branch and rebranch repeatedly (Fig. IVc).

### **Corolla**

Three vascular strands parallelly running through the corolla tube supply each lobe and each one branches repeatedly several times in the lobe without any net work formation (Fig. IVa).

### **Stamen**

A single vascular strand supplies each epipetalous stamen (Fig. IVa).

### **Pistil**

Each carpel of the bicarpellary apocarpous pistil is supplied with one thick and prominent unbranched dorsal bundle which supplies the style and stigma and two ventral bundles which supply the ovules. In addition to this there are six lateral strands supplying each carpellary wall (Fig. IVb).

## **Anatomy**

### **Stem**

The stem is circular in outline in cross section. The 6-8 layered cork tissue forms the outermost region. The cork cells are filled with yellowish contents. Interior to the cork tissue is the 1-2 layered phellogen followed by 2-4 layered thick walled cells containing starch and rhomboid crystals. Latex cells are also met with frequently. The secondary phloem consists of bast fibres with occasional latex cells. The xylem consists of vessels of large lumen, trachei and parenchyma. In between the xylem and phloem is the 1-2 layered cambium. The

medullary rays are uniseriate containing plenty of starch grains. In the parenchymatous pith are seen scattered several conspicuous schlerenchyma aggregates. Starch grains are abundant in the pith parenchyma (Fig.V).

### **Bark**

The outermost tissue is cork consisting of 10-12 layers of thick walled brown cells filled with yellowish contents. The phellogen consists of few layers of thin walled colourless cells. The phelloderm consists of thin walled rectangular cells, containing starch grains and rhomboidal calcium oxalate crystals. This is followed by a zone consisting of polygonal cells. Some of them contain starch grains and calcium oxalate crystals. A number of large stone cells are seen scattered in this region. In the inner region the stone cell groups form an almost continuous band. Parenchymatous cells near the stone cell groups contain rhomboidal calcium oxalate crystals. Latex cells are seen here and there in this region. In the outer phloem region the cells are very prominent. In the newly formed phloem which forms the inner bark the cells are slightly smaller than those in the middle bark and are thin walled. Small sized crystals occur in very few cells. Lactiferous ducts in cross sections are also present. Medullary rays are biseriate and extend up to the outer phloem. Their cells are also loaded with starch grains (Fig.VI).

### **Root**

In T.S, the root is circular in outline. The outermost bark consists of 5-7 layers of thick walled cells with brown content. Phellogen is single layered. Phelloderm consists of 4-5 layers of tangentially elongated thin walled cells. Cells are rich in starch grains and some

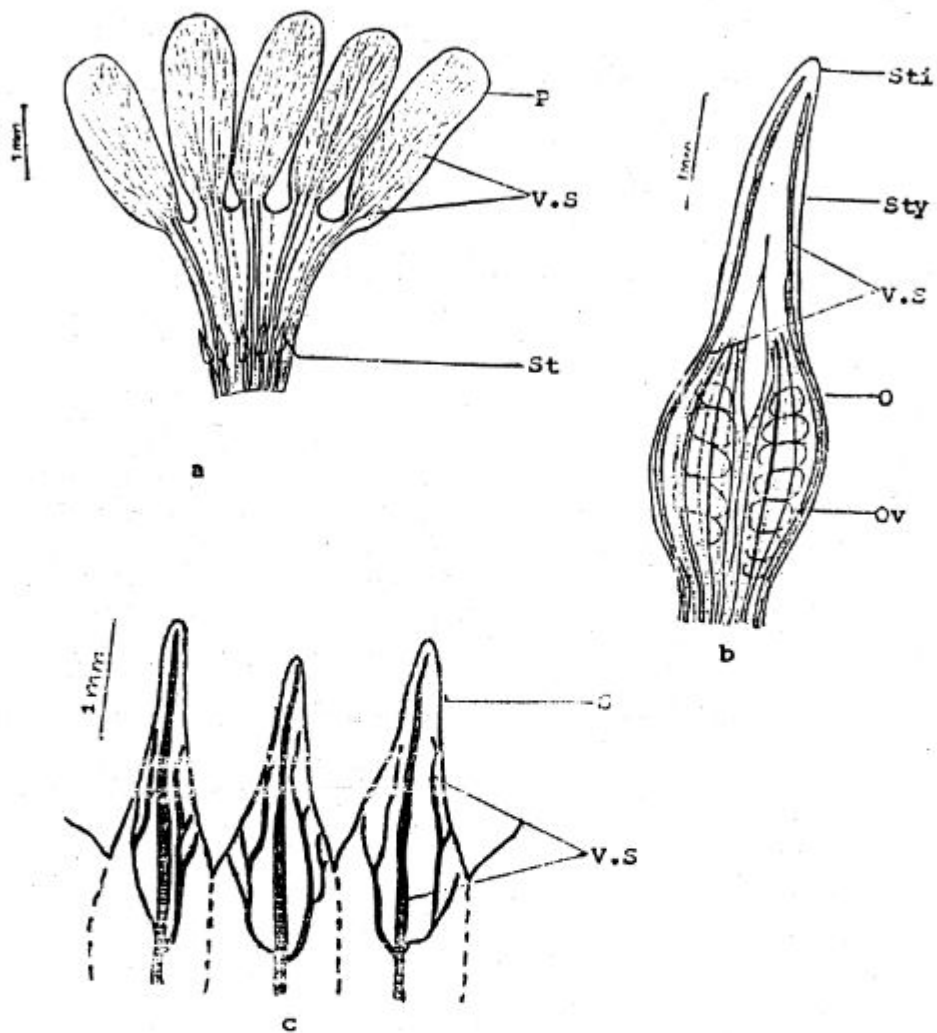


Fig. IV. a - c *Holarhena pubescens* - Floral vasculature

a) Corolla with Stamens b) Gynoecium c) Sepals

Ov. Ovule O. Ovary P. Petal S. Sepal St. Stamen Sti. Stigma  
 Sty. Style V.S. Vascular supply

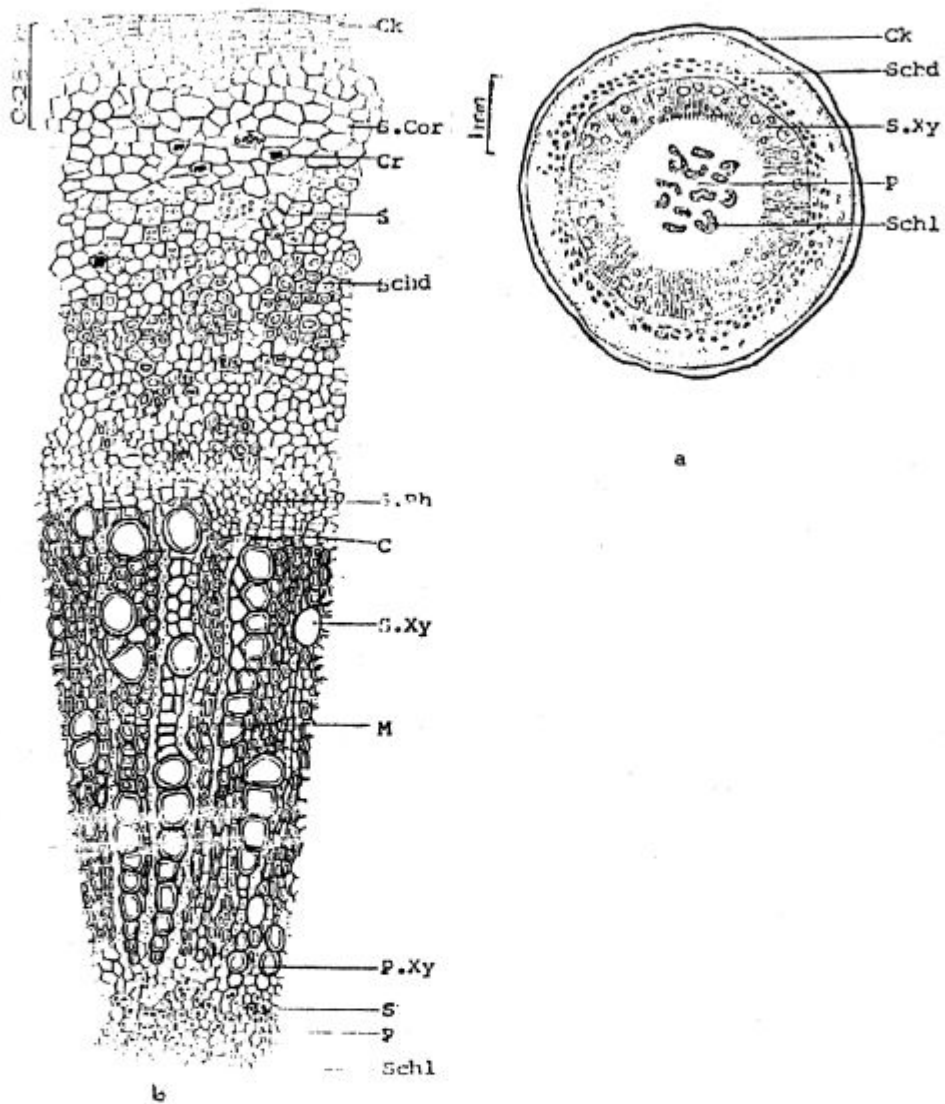


Fig. V. a & b *Holarrhena pubescens* - a) T.S of stem - diagrammatic b) A portion enlarged

C. Cambium Ck. Cork Cr. Crystal M. Medullary ray P. Pith P.Xy. Primary xylem  
 S. Starch grain S.Cor. Secondary cortex Schl. Schlerenchyma Schd. Schleried group  
 S.Ph. Secondary phloem S.Xy. Secondary xylem

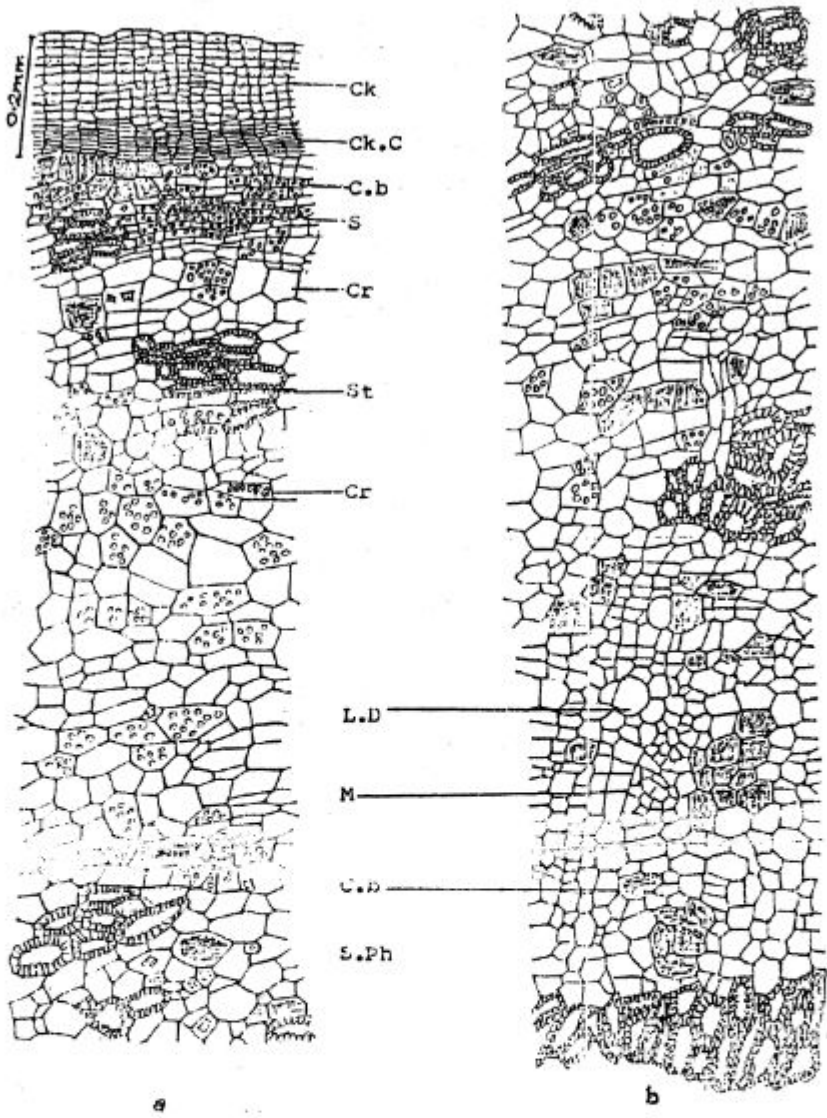


Fig. VI. a & b *Holarrhena pubescens* - Stem bark cellular

Ck. Cork Ck.C. Cork cambium Cr. Crystals LD. Latex duct  
 M. Medullary ray S. Starch grain St. Stone cells S.Ph. Secondary phloem

of them contain rhomboid crystals. The cells of the outer cortex are large and polygonal with a few tangentially elongated ones. Most of the cells contain starch grain, but a few are filled with dark reddish content along with rhomboid crystals. Several stone cells of varying sizes are seen scattered in groups. Some such groups get arranged almost as a continuous ring towards the central region of the mid-rib bark. The inner bark consists of regular phloem elements with alternating rows of stone cell groups. Medullary rays are uniseriate and extend up to the outer phloem region. Latex ducts and starch grains are characteristic in this region. Some of the stone cell groups contain rhomboidal crystals. Phloem cells are thin walled, some with red contents. They are devoid of starch grains. The cambium is 2-4 layered. The xylem consists of few vessels and tracheids (Fig.VIIa-c).

#### **Leaf**

**Petiole :** The petiole somewhat shield shaped in cross section. The epidermis is single layered. Multi-cellular and unicellular epidermal hairs are common. The cortex is made up of thick-walled cells with intercellular spaces. Towards the periphery some cells contain chlorophyll. The outer 2-3 layers of cortex have brown contents in their cells. Some cells contain druses and calcium oxalate crystals of varying shapes. Vascular bundle is C-shaped and few vascular traces are seen in the cortex (Fig.VIII).

**Lamina :** The T.S of Lamina shows common dicotyledonous characters. The epidermis is uniseriate and is provided with unicellular and multi-cellular hairs. In the mid-rib region interior to the epidermis there are 8-10 layers of collenchyma followed by parenchymatous

tissue with intercellular spaces. Brownish content, rhomboidal crystals and druses are met with in some of these cells. The vascular bundle is C-shaped. Schlerenchymatous groups are present on both sides of the vascular bundles. The palisade consists of single layer of compactly arranged columnar cells having brown contents. The spongy tissue consists of several layers of cells interior to the lower epidermis with brown contents in some (Fig. IX). Stomata are of Rubiaceous type (Fig.VIII c&d).

The stomatal index of lower epidermis is 31.63. Palisade ratio is 5.9 and vein-islet number is 14.72 (Fig. X - XI, Table I-II).

#### **Propagation**

Natural regeneration is through seeds and roots. When the fruits (follicles) became brown in colour, they are collected tied in polybags and kept in the sun for drying. The fruits dehisce within three days and the comose seeds are collected in the polybag. The hairs are removed from the seeds carefully and the seeds are stored in airtight containers. The seeds are soaked in cold water for 6 hrs. and are sown on beds before the onset of monsoon. The beds should be regularly watered and partially shaded. Germination commences on the 7<sup>th</sup> day onwards and will be completed within two weeks. The percentage of germination is around 60. Three weeks old seedlings are transplanted in polybags containing potting mixture or they can be planted in the field directly. Seeds can be collected from a four-year-old tree and bark can be collected from 8<sup>th</sup> year onwards.

#### **Chemical studies**

##### **Review**

The stem bark is called *kurchi*. It contains 2% total alkaloids, 1% acid-insoluble ash



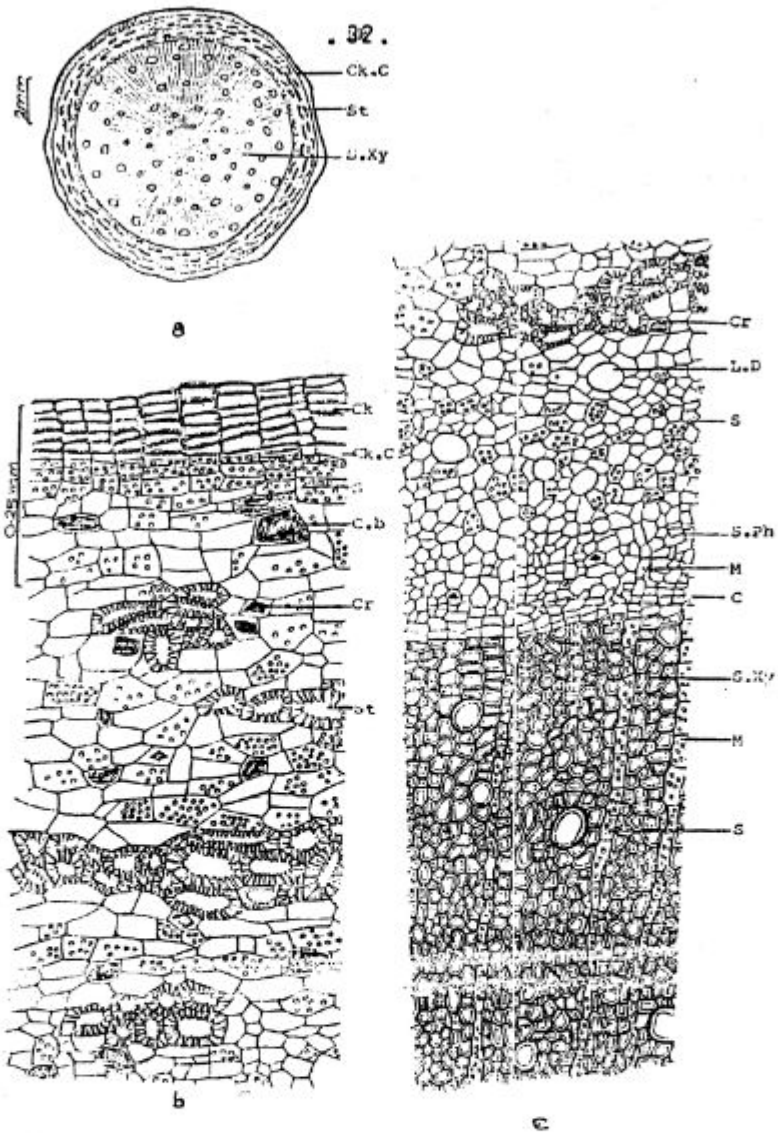


Fig. VII. a - c *Holarrhena pubescens* - a) T.S of root - diagrammatic  
b & c) Portion of root-cellular

C. Cambium C.b. Cells with brown content Ck. Cork Ck.C. Cork cambium  
Cr. Crystal LD. Latex duct M. Medullary ray S. Starch grain  
S.Ph. Secondary phloem St. Stone cell S.Xy. Secondary xylem

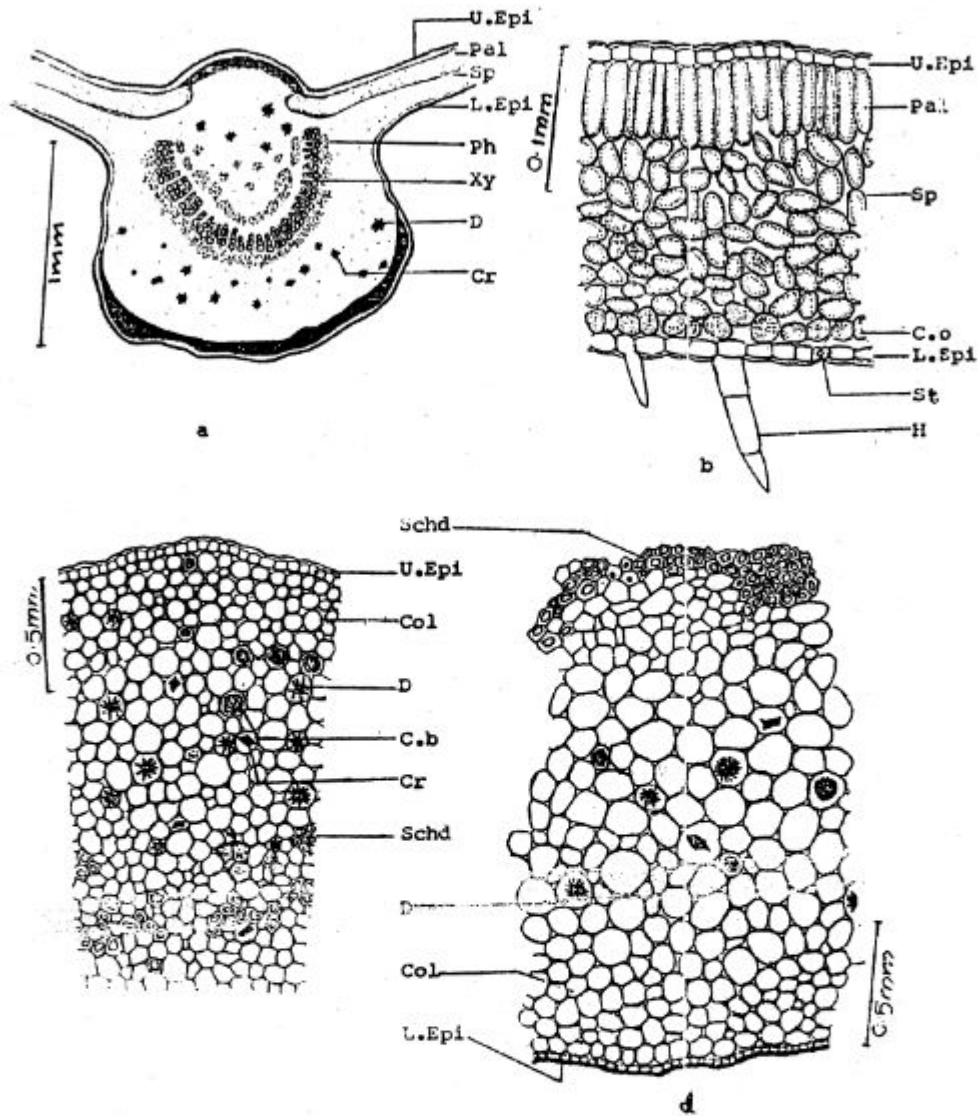


Fig. VIII. a - d *Holarrhena pubescens* - a) T.S of leaf through midrib b) Detailed T.S of lamina  
 c) Upper portion of midrib-cellular d) Lower portion of midrib-cellular

Cb. Cells with brown content Col. Collenchyma Cr. Crystal D. Druses H. Hair  
 L.Epi. Lower epidermis Pal. Palisade Ph. Phloem Schd. Schlerieds Sp. Spongy cells  
 St. Stomata U.Epi. Upper epidermis Xy. Xylem

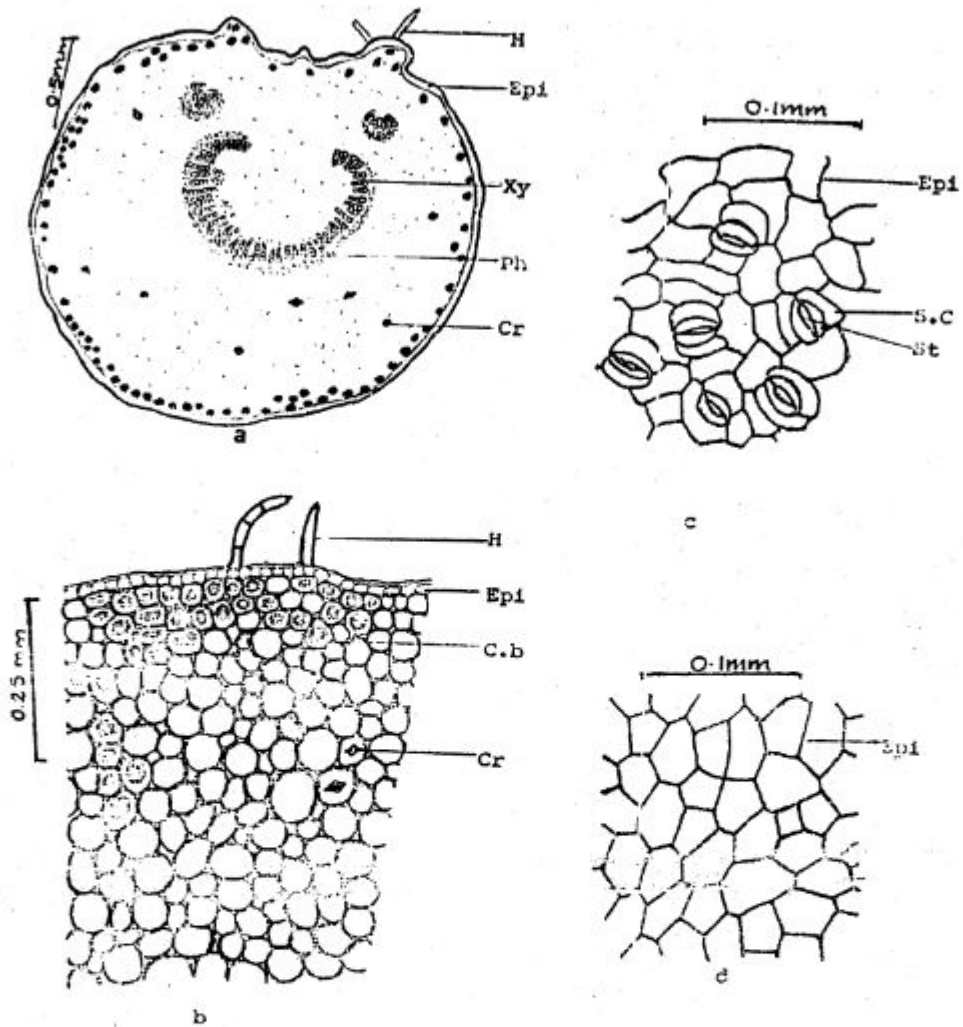


Fig. IX. a - d *Holarrhena pubescens* - a) T.S of Petiole - diagrammatic b) A portion of petiole showing epidermis and cortex c) Lower epidermis d) Upper epidermis

**Cb.** Cells with brown content **Cr.** Crystal **Epi.** Epidermis **H.** Hair **Par.** Parenchyma  
**Ph.** Phloem **S.C.** Subsidiary cell **St.** Stomata **Xy.** Xylem

Table I : *Holarrhena pubescens* - Palisade ratio

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				
Readings	9	6	8	8	5	9	8	5	6	3	5	6	6	7	4	7	6	7	4	7	6	5	4	5
	8	7	5	4	7	8	8	5	4	4	5	5	6	6	5	5	5	4	4	8	5	4	4	8
	8	8	9	7	8	8	9	3	5	5	6	6	6	6	7	4	7	6	7	5	7	6	5	5
	4	9	7	7	6	4	7	4	5	4	5	4	7	5	6	4	5	5	8	8	5	5	8	8
	7	7	8	6	6	5	6	7	3	6	5	4	4	5	7	5	7	5	6	5	7	5	6	5
Average	7.2	7.4	7.4	6.4	6.4	6.8	7.6	4.8	4.6	4.4	5.2	5	5.8	5.8	5.8	5	6	5	5.4	6.2	6	5	5.4	6.2
Leaf average	7.1				6.4				4.8				5.6				5.65							

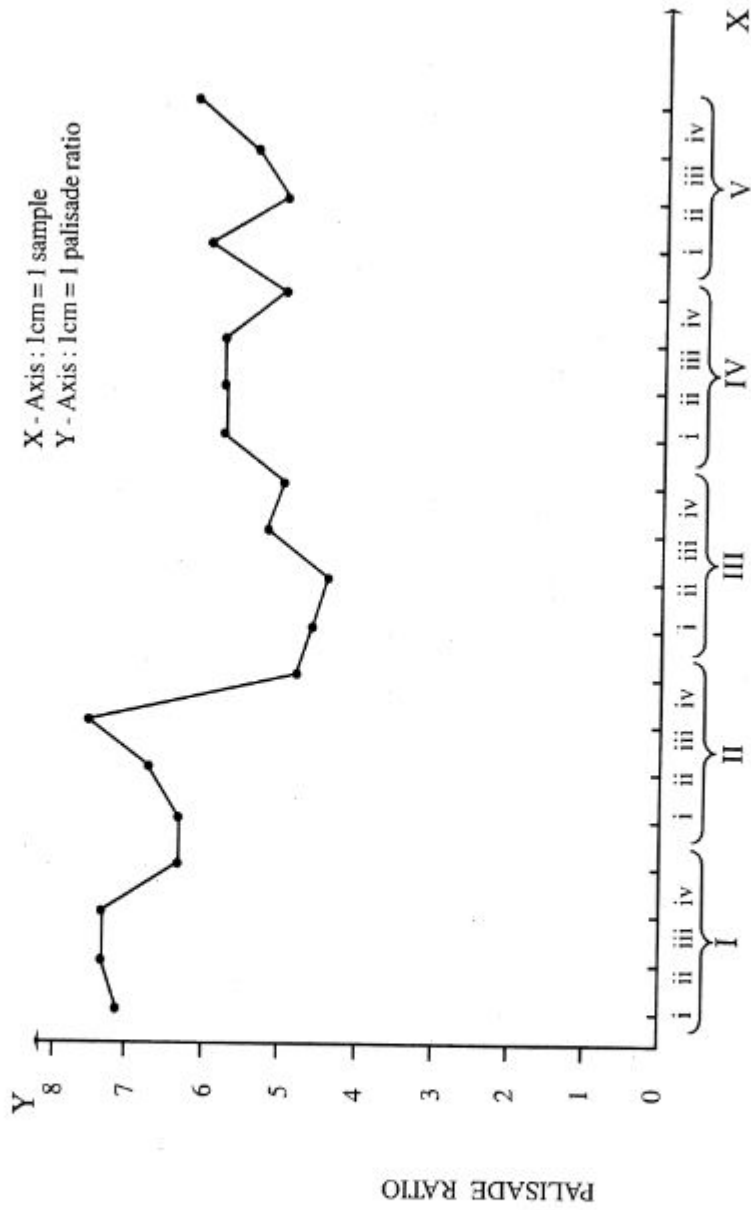
Range : 4.8 - 7.1 Mean : 5.91 Standard deviation 1.53

Table II: *Holarrhena pubescens* - 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
Readings	14	17	18	11	14	15	13	17	14	15	17	17	13	16	16	14	17	15	13	17
	17	13	14	13	14	17	14	18	17	13	13	14	14	13	18	15	12	13	17	15
	18	11	16	13	15	16	15	16	18	17	14	18	14	15	17	17	10	11	18	11
	12	10	15	14	12	15	13	11	11	14	13	17	18	16	14	17	15	11	16	16
	17	15	17	16	17	16	12	14	14	15	14	13	11	15	18	14	12	14	14	17
Average	15.6	13.2	16	13.4	14.4	15.8	13.4	15.2	14.8	14.8	14.2	15.8	14	15	16.6	15.4	13.2	12.8	15.6	15.2
Leaf average	14.55				14.7				14.9				15.25				14.2			

Range : 14.2 - 15.25, Mean : 14.72, Standard deviation 2.13.

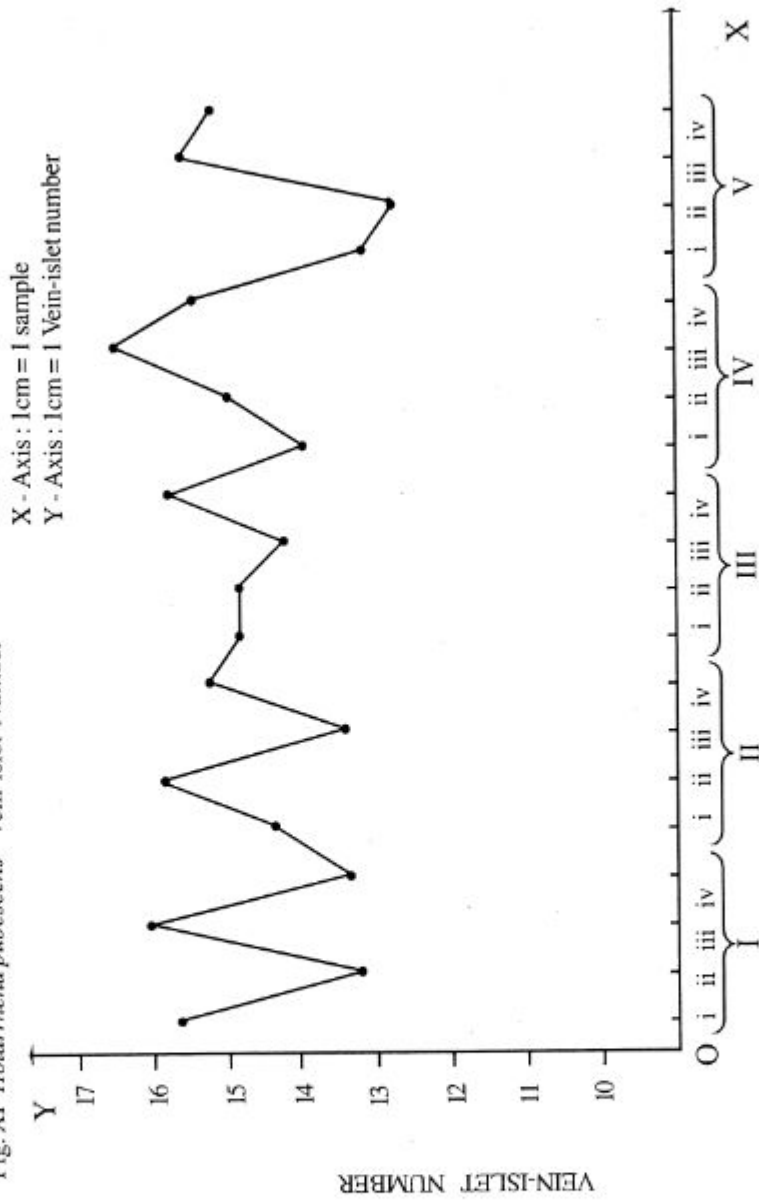
Fig. X. *Holarrhena pubescens* - Palisade ratio



20 SAMPLES FROM 5 DIFFERENT LEAVES



Fig. XI *Holarthena pubescens* - Vein-islet Number



20 SAMPLES FROM 5 DIFFERENT LEAVES

and 5% foreign organic matter. The therapeutic value of *kurchi* is due to the presence of alkaloids, which occur as tannate. The total alkaloid content of Indian *kurchi* is 0.22-4.2% (av. 2.2%). The average total alkaloid contents in other parts of the plant are: stem, 0.52; leaves, 0.97; flowers, 0.55; and seeds, 1.825%. The principal alkaloid of *kurchi* is conessine (yield 0.4%), a stanol with a structure resembling 7-ergoston-3-ol and  $\gamma$ -stigmatsterol. Seventeen other alkaloids besides conessine have been isolated and described, but the identity of some of them is still doubtful. In addition to the alkaloids, *kurchi* contains gum, 9.56; resin, 0.2; and tannin, 1.14%. A triterpene alcohol lupeol and sitosterol have been isolated from the unsaponifiable matter of the bark. The seeds contain many of the alkaloids present in the bark but in a lower concentration (1.82). A glycoalkaloid has also been isolated. Small amounts of tannin and resin are also present in the seeds.

The latex of the plant contains: water and water solubles, 57.0-91.1; and caoutchouc, 1.5-9.7%. The coagulae contains: Caoutchouc, 15.0-22.8; resins, 74.1-82.8; & insolubles, 0.9-5.9%. Two resinols, lettoresinol-A and lettoresinol-B have been isolated from the latex. The ash from the wood is rich in potash. It contains: total solubles, 17.5;  $K_2CO_3$ , 10.82; KCl, 4.2;  $K_2SO_4$ , 2.48 & insolubles, 80.74% (Wealth of India, 1959).

### Result and discussion

The unscientific extraction of the bark causes deterioration of the natural source. The scientific extraction and cultivation of this species is the only solution for this. This scarcity has remarkably tempted the suppliers to

adulterate the bark with similar looking bark of other tree species.

### Acknowledgements

The authors are extremely grateful to Dr. P.K. Warriar, The Managing Trustee & Chief Physician (Project Leader) for giving us encouragement and extending the necessary facilities for the work. The constant encouragement and helpful suggestions received from Sri. K.K. Nair I.F.S. (Retd.), Local consultant of the project, Dr. C. Ramankutty, Sr. Manager, Publications, A.V.S, Kottakkal, Dr. Indira Balachandran, Research Officer, A.V.S. Herbal Garden, Kottakkal and Dr. G.P. Mukundan, Manager, A.V.S. Branch, Thiruvananthapuram are gratefully acknowledged. We are thankful to Mr. V.K. Uthaman, Computer Assistant who did the typing work.

We acknowledge our grateful thanks to the International Development Research Centre, Ottawa, Canada for providing financial assistance to conduct the research work.

### References

1. Dey, A.C., 1980, *Indian Medicinal Plants used in ayurvedic preparations*, Bishen Singh & Mahendra Pal Singh, Dehradun.
2. Iyer, S.R., 1983, *Ayurveda Yoga Samgraham* (Unpublished).
3. Khanna, K.K., Saran, R., Mudgal, V. 1991, *Flora of Kasturbagram*, Indore, Madhya-pradesh, 155.
4. Krishnamurthy, T., 1993, *Minor forest Products of India*, Oxford & IBH, New Delhi 64, 297, 398.
5. Kurup, P.N.V., Ramdas, V.N.K. & Prajapati Joshi, 1979, *Hand Book of Medicinal Plants*, 129-130.
6. Narayana Aiyer and Kolammal, 1960,

*Pharmacognosy of Ayurvedic drugs*, Kerala, Trivandrum, 1 (4) 49.

7. Prabhakar Joshi, 1993, *Ethano-medicine of Kathodias* - A monkey eating tribe in Rajasthan, *Medicinal Plants : New Vistas of Research*, (Part. I), 88.

8. Sarin, Y.K., 1996, *Illustrated Manual of herbal drugs used in ayurveda*, 88, 138, 240.

9. Singh, V.K., Uppendra Dhar, 1993, *Folk Medicines of Orissa : Keonjhar forests*,

*Medicinal plants: New vistas of research*, (Part. I), 105.

10. Warriar, P.K., Nambiar, V.P.K. & Ramankutty, C., 1995, *Indian medicinal Plants* - A compendium of 500 species, Vol. III., 156.

11. *Wealth of India*, 1959, Vol. V, (H-K), 103.

12. World health Organization, 1990, *A Manual for health Workers in Southeast Asia*, 51.



### **New columns in Aryavaidyan**

It is generally felt that the content of Aryavaidyan has to be enriched by the addition of new items to cater the interest of our readers. Following are the proposals before us.

- a. to include in each issue an invited article on an important subject of topical interest.
- b. to have exclusive columns devoted for research activities in the Universities/ Colleges/Institution in the field of Ayurveda - their progress and findings, clinical experiences of eminent doctors, book-reviews and readers' response. Research papers on indological studies also will be welcomed.

Suggestions on the above are invited. Publishers/authors who wish their books to be reviewed are advised to send two copies of the publication to the Chief Editor.

## PRELIMINARY INVESTIGATIONS ON MORPHOLOGICAL VARIATIONS IN NJAVARA (*ORYZA SATIVA*) ECOTYPES

Meera V. Menon and Potty, N.N.\*

**Abstract:** Eight collections of the medicinal rice variety, *njavara* (*Oryza sativa*) were made from different locations in the state of Kerala and were raised in a field trial at Regional Agricultural Research Station, Pilicode, to evaluate their morphological characters. The crops were grown under wetland situation during the second crop season of 1994-95. The types differed significantly in growth and yield characteristics. Two distinct biotypes were identified, viz. black and gold, based on plant growth and glume colour. Within these biotypes the different collections differed in growth and yielding habits, the variation being less in black types. Two ecotypes in the black biotype and three ecotypes in the gold biotype could be distinguished. Variation in the growth, development and grain characters of the different types suggests the possibility of differences in the medicinal value also.

### Introduction

*Njavara* is a unique short duration rice variety grown for its medicinal value in Kerala. It is extensively used in the treatment of rheumatic ailments in indigenous medicine. Elsy et al. (1992) have reported that *njavara* yields up to 2.5 tons per hectare under wet system of cultivation. The crop has escaped scientific attention, as it not used commonly as a food crop. Different local types with widely varying characteristics are cultivated and used at present. But its significance as an effective medicine calls for a morpho-physiologic characterisation of the crop. With this objective, collections were made from different locations in the state and their characteristics

were studied at Regional Agricultural Research Station, Pilicode. This paper contains the results of the experiment on the morphological evaluation of the crop.

### Materials and methods

Collections of *njavara* seed were made from different parts of the State and based on their location and glume colour were named *pattambi black*, *calicut black*, *vellanikkara black*, *odakkali black*, *payyannur gold*, *vellanikkara gold*, *kollam gold* and *pilicode gold*. Of these, five collections were made from research stations coming under the Kerala Agricultural University and the rest from ayurvedic physicians. The treatments were laid out in a randomised block design with three

\* Department of Agronomy, College of Horticulture, Vellanikkara - 680 656, Thrissur, Kerala.

replications during the period from October 1994 to January 1995. The soil type was laterite and acidic in reaction and of medium fertility. Weather conditions were normal. Observations on biometrics & yield and yield attributes were made on ten plants in each plot and their means were compared. Statistical analysis was done as per standard procedures (Panse and Sukhatme, 1978).

### Results and discussion

Data on the growth and yield characteristics of the various types of *njavara* are presented in Tables 1a and 1b. Data showed that irrespective of the eco or morphological differences, *njavara* was a slow growing as well as a low yielding plant and was dwarf in stature compared to traditional *indica* rice. Its grain-straw ratio was found to be intermediate between traditional and improved varieties. This

appeared to be the unique feature of the crop, which differentiates it from both traditional and high yielding types. Elsy et. al. (1992) have reported that *njavara* yields 2.5 tons of grain in second crop season in a duration of 69 days. The low yield in the present experiment as well as the extended duration appears to be due to a differential seasonal influence at Pilicode when compared to Pattambi. Menon (1976) has stated that yield and quality of *njavara* varies with the location. The comparatively low yield in spite of dwarfness and favourable grain-straw ratio may be because of the energy diversion for biosynthesis of medicinal components. The low yield has resulted from a fewer number of grains per panicle as well as low seed weight.

The data also showed that black and gold glumed types differed not only in colour of the

Table 1a. Biometric observations at maturity of different *njavara* types

<i>Njavara</i> type	Length of leaf (cm)	Width of leaf (cm)	Height of plant (cm)	No. of tillers per hill	No. of productive tillers/hill
<i>Pattambi black</i>	23.30	0.48	73.78	7.13	7.13
<i>Calicut black</i>	31.58	0.58	94.71	7.47	7.47
<i>Vellanikkara black</i>	27.82	0.56	72.98	8.07	7.73
<i>Odakkali black</i>	26.62	0.58	72.01	7.80	7.73
<b>Mean of black types</b>	<b>27.33</b>	<b>0.55</b>	<b>78.295</b>	<b>7.618</b>	<b>7.515</b>
<i>Payyannur gold</i>	32.87	0.45	92.61	7.20	7.20
<i>Vellanikkara gold</i>	31.64	0.52	85.04	5.07	4.86
<i>Kollam gold</i>	29.83	0.45	87.15	7.00	7.00
<i>Pilicode gold</i>	38.99	0.59	96.59	4.90	4.93
<b>Mean of gold types</b>	<b>33.33</b>	<b>0.50</b>	<b>90.438</b>	<b>6.043</b>	<b>5.998</b>
CD (0.05)	3.779	0.053	7.482	1.418	1.360
SEm	1.762	0.025	3.488	0.661	0.634

Table 1b. Yield and yield attributes of different *njavara* types

<i>Njavara</i> type	Days to maturity	Grain yield kg/ha	Straw yield kg/ha	Grain straw ratio	Length of panicle (cm)	No. of grains per panicle	No. of field grains per panicle	% of filled grains per panicle	1000 grains weight (g)	Length of seed (cm)	Breadth of seed
<i>Pattambi black</i>	96	809.2	118.33	0.736	15.13	38.4	33.4	86.88	19.0	0.79	0.3 <i>Calicut</i>
<i>black</i>	96	1266.7	2582.33	0.513	16.59	41.5	30.8	75.54	20.7	0.76	0.3
<i>Vellamikkara black</i>	96	1191.5	1545.33	0.793	14.41	35.7	29.4	82.67	19.6	0.77	0.3
<i>Odakkali black</i>	96	967.8	1403.00	0.700	14.61	37.7	30.4	80.31	19.0	0.78	0.296
<b>Mean of black types</b>	<b>96</b>	<b>1058.8</b>	<b>1662.25</b>	<b>0.686</b>	<b>15.19</b>	<b>38.33</b>	<b>31.0</b>	<b>81.35</b>	<b>19.58</b>	<b>0.775</b>	<b>0.299</b>
<i>Payyannur gold</i>	100	1958.1	2379.0	0.820	18.80	62.3	52.8	83.61	19.0	0.78	0.3
<i>Vellamikkara gold</i>	114	1655.1	4432.67	0.373	21.35	114.9	95.5	83.27	20.3	0.74	0.31
<i>Kollam gold</i>	100	1960.1	3050.00	0.646	16.49	52.2	44.7	86.68	22.3	0.77	0.3
<i>Piticode gold</i>	103	1809.6	2704.33	0.670	19.97	63.7	57.1	89.18	20.06	0.81	0.306
<b>Mean of gold types</b>	<b>104.25</b>	<b>1845.73</b>	<b>3141.5</b>	<b>0.627</b>	<b>19.15</b>	<b>73.28</b>	<b>62.53</b>	<b>85.69</b>	<b>20.42</b>	<b>0.775</b>	<b>0.304</b>
CD (0.05)		197.64	429.21	0.122	1.16	16.07	14.67	5.48	0.56	0.026	0.01
SEm		92.13	200.09	0.057	0.54	7.49	6.84	2.55	0.259	0.012	0.0048



glumes but also in all growth and yield characteristics. Black types produced shorter but broader leaves shorter panicles and fewer numbers of grains per panicle and were marginally shorter in duration. The fact that marginal variation in leaf area or duration cannot totally account for the low yield of black types indicate the possibility of qualitative variations between the black and gold glumed types especially in the light of the usual observation of inverse relationship between qualitative and quantitative yield. In the normal situation, the low yield of black types in spite of a narrower grain-straw ratio and comparable photosynthetic surface would suggest a higher level of energy utilisation for higher quality. It has been reported in the *Susrutasamhita* that black and gold *njavara* manifest qualitative variation. The differences in morphological characters and efficiency in production probably are indicative of structural and/or qualitative variation in the essential components and calls for detailed investigation.

Observations on growth and yield characteristics of the different collections within the black and gold biotypes showed that significant variation existed among them. The magnitude of variation was more in gold types. The grain yield in black types varied between 809 and 1191 kg per hectare while in gold types yield ranged between 1191 and 1960 kg per hectare and these values were linked to corresponding variations in growth and yield attributes on both types. This points out to the possibility of functional differences among the ecotypes within each biotype. Available literature on indigenous medicine supports this result.

Among the gold types, *vellanikkara gold* produced awned grains and showed a wide grain-straw ratio. Its grain-straw ratio was 0.3, which was significantly lower than that of other gold or black types, and was nearer to that exhibited by traditional rice varieties. This suggests that *vellanikkara gold* may possibly be another biotype. *Pilicode gold* also differed from other two types and may possibly be another ecotype. Qualitative analysis should however, confirm this.

Comparison between the black types of *njavara* showed that *pattambi*, *vellanikkara* and *odakkali* collections did not significantly vary in grain or growth characteristics though each of them differed from *calicut black*. This points out to the possibility of *calicut black* and the other three types being two different ecotypes. Thus, results show that morphologically, at least two ecotypes each exist in both biotypes and this necessitates a detailed classification taking into account quality aspects as well.

#### Literature cited

1. *Njavara - A rice variety with special characters*, Oryza, Elsy, C.R., Rosamma, C.A. and Potty, N.N., 1992, 29:55-56.
2. *Ashtangahridayam*, Kuttikrishna Menon, V.M., 1976, Sahitya Pravarthana Sahakarana Sangham, National Book Stall, Kottayam.
3. *Susrutasamhita*, 1977, Commentate by M. Narayana Vaidyar, The Dhanwanthari Printing Press, Kuttikkakam, Etakkad.
4. *Statistical Methods for Agricultural Workers*, Panse, V.G. and Sukhatme, P.V., 1978, ICAR, New Delhi.

## PRELIMINARY STUDIES ON THE LEAVES AND SEEDS OF THREE CASSIA SPECIES

Saraswathy Pasupathy, Vasanthakumar, K.G. and Bikshapathi, T.\*

**Abstract:** Preliminary chemical studies of the leaves and seeds of *Cassia tora*, *Cassia auriculata* and *Cassia occidentalis* have been carried out and presented in this paper.

### Introduction

*Cassia* species is a genus of ornamental herbs, shrubs and trees predominantly distributed in the tropical warm regions. Several of these yield timber, tannin, dyes, medicines (mainly purgative), fodder, vegetable, edible fruits and seeds, which are used as substitute for coffee. Leaves and seeds of some *Cassia* species namely *Cassia tora* Linn., *Cassia auriculata* Linn. and *Cassia occidentalis* Linn. are found to be of high medicinal value.

They are widely used in Indian system of medicine as single drugs and in compound formulations. The leaves and seeds are known for their purgative property. The purgative activity of leaves has been attributed to the presence hydroxyanthraquinone derivatives.

*Cassia tora* which is known as *chakramarda* in Sanskrit has *katurasa*, *ushnaveerya*, *laghurooksha gunas*, *katuvipaka* as properties. It is used in fungal diseases, worm infection, abdominal tumours, bronchitis and asthma. *Cassia auriculata* which

is known as *telapotakam* in Sanskrit has *kashaya tikta rasas*, *seetaveerya*, *laghurooksha gunas* and *katuvipaka* as properties. It is used in diarrhoea, worm infection, skin diseases and eye diseases. *Cassia occidentalis* which is known as *kasamarda* in Sanskrit has *tiptomadhura rasas*, *ushnaveerya*, *laghurooksha gunas* and *katuvipaka* as properties. It is useful in bronchitis, asthma, hiccup, fungal diseases, skin diseases and elephantiasis (Nistewar, 1987, Sharma P.V., 1975.)

### Materials and methods

Fresh leaves and seeds of *Cassia tora*, *Cassia auriculata* and *Cassia occidentalis* were supplied by S.M.P. unit of our institute. They were shade dried and powdered coarsely and used for the analysis. The physico-chemical studies were carried out following the standard methods (Anonymous 1966).

Fluorescence analysis of the powdered seeds and leaves under ultra violet light was done according to the methods described by Chase and Pratt (1949). Thin layer

\* Regional Research Institute (Ay.), Jayanagar, Bangalore - 560 011

chromatographic studies were carried out following Igon and Stahl (1969).

### Physico-chemical studies

Physico-chemical studies were carried out separately for the leaves and seeds and the values are presented in Table I and II respectively.

### Fluorescence analysis

The powdered drug was sieved through No. 120 mesh and the fine powder was treated with different reagents. The fluorescence characters of the powder in each reagent under ordinary and ultra violet [short wave (245 mm) and long wave (365 mm)] were observed and the results are recorded in Table III & IV.

Table I. Physico-chemical constants of leaves (Proximate analysis)

Experiment	<i>Cassia tora</i>	<i>Cassia occidentalis</i>	<i>Cassia auriculata</i>
Loss on drying at 110°C	0.35	3.94	0.85
Ash content	11.21	12.41	11.23
Acid insoluble ash	0.05	0.56	0.9
Exhaustive extraction (hot)			
Pet. ether 60-80°C	0.04	9.33	5.11
Benzene	1.04	1.53	1.62
Chloroform	11.79	0.61	1.62
Ethyl alcohol	19.36	12.58	26.7
Solubility (at room temp.)			
Ethyl alcohol	15.27	8.05	20.35
Water	8.82	32.63	26.21
Crude fibre	2.2	2.01	1.9

Percentage w/w

Table II. Physico-chemical constants of seeds (Proximate analysis)

Experiment	<i>Cassia tora</i>	<i>Cassia auriculata</i>	<i>Cassia occidentalis</i>
Loss on drying at 110°C	8.47	14.86	10.25
Ash content	4.54	3.71	3.92
Acid insoluble ash	0.21	0.07	0.25
Exhaustive extraction (hot)			
Pet. ether 60-80°C	Nil	0.27	0.12
Benzens	0.0027	0.21	0.025
Chloroform	0.25	0.03	0.02
Ethyl alcohol	0.91	0.75	0.81
Solubility (at room temp.)			
Ethyl alcohol	11.07	0.18	0.52
Water	12.31	4.0	6.61
Crude fibre	12.52	3.8	5.25

Percentage w/w

Table III. Fluorescence analysis of powdered drug (leaves)

Treatment	<i>Cassia tora</i>			<i>Cassia occidentalis</i>			<i>Cassia auriculata</i>		
	Colour under ordinary light	Colour under U.V. light		Colour under ordinary light	Colour under U.V. light		Colour under ordinary light	Colour under U.V. light	
		Short wave	Long wave		Short wave	Long wave		Short wave	Long wave
Powder as such	Green	Light green	Light brown	Olive green	Dark green	Light brown	Light green	Light green	Brownish green
Powder + NaOH in water	Green	Dark green	Gray	Greenish brown	Very dark green	Dark gray	Brownish green	Dark green	Dark gray
Powder + NaOH in methanol	Light brown	Light green	White	Light green	Dark green	Light gray	Green	Dark green	Light brown
Powder + 50% HCl	Light green	Light green	Whitish gray	Light green	Dark green	Dark gray	Light green	Dark green	Dark gray
Powder + 50% HNO <sub>3</sub>	Light green	Dark green	Brown	Light brown	Dark green	Dark violet	Light brown	Dark green	Dark gray
Powder + 50% H <sub>2</sub> SO <sub>4</sub>	Dark green	Dark green	Light brown	Greenish brown	Blackish green	Blue with violet tinge	Yellowish green	Dark green	Light brown
Powder + Methanol	Light green	Dark green	White in orange	Light brown	Dark green	Pink with orange tinge	Yellowish green	Dark green	Orange
Powder + Water	Light green	Dark green	Light gray	Light green	Dark green	Dark gray	Brownish green	Dark green	Dark gray

Table IV. Fluorescence analysis of powdered drug (seeds)

Treatment	<i>Cassia tora</i>				<i>Cassia occidentalis</i>				<i>Cassia auriculata</i>			
	Colour under ordinary light		Colour under U.V. light		Colour under ordinary light		Colour under U.V. light		Colour under ordinary light		Colour under U.V. light	
	Short wave	Long wave	Short wave	Long wave	Short wave	Long wave	Short wave	Long wave	Short wave	Long wave	Short wave	Long wave
Powder as such	Yellow	Green	Light Green	Light	Greenish brown	Green	Greenish yellow	Light green	Green	Light brown	Green	Light brown
Powder + NaOH in water	Brown	Green	Olive green		Brown	Dark green	Fluorescent green	Dark brown	Dark green	Yellow		
Powder + NaOH in methanol	Yellowish brown	Green	Light gray		Dark brown	Greenish black	Dark brown	Dark brown	Dark green	Brownish yellow		
Powder + 50% HCl	Brown	Green	Light green		Light brown	Light green	Yellow	Light brown	Green	Yellow		
Powder + 50% HNO <sub>3</sub>	Reddish brown	Dark green	Brown		Brown	Yellowish green	Yellowish brown	Brown	Dark green	Dark brown with red tinge		
Powder + 50% H <sub>2</sub> SO <sub>4</sub>	Reddish brown	Dark green	Very light green		Brown	Dark green	Greenish yellow fluorescence	Light brown	Dark green	Dark yellow		
Powder + Methanol	Yellow	Light green	Bluish green		Light brown	Green	Pale green fluorescence	Light green	Dark green	Fluorescent bluish green		
Powder + Water	Bright yellow	Green	Bluish green		Light brown	Green	Fluorescent green	Greenish brown	Green	Yellowish brown		

### Thin layer chromatographic studies

The thin layer chromatographic studies were carried out on different solvent extracts of leaves and seeds separately using silica gel G as adsorbent and 50% sulphuric acid in ethanol as spraying reagent and the Rf values are

reported in Table V and VI respectively. The oil which has been extracted from seeds using solvent ether was analysed as it is widely used for skin diseases. The oils from the seeds of *Cassia tora* and *Cassia occidentalis* were analysed and the result are as yield of oil 5.2%,

Table V. Thin layer chromatography Rf values (leaves)

Extracts	Solvent System	<i>C. tora</i>	<i>C. occidentalis</i>	<i>C. auriculata</i>
Petroleum ether 60-80°C	Benzene:	0.2, 0.3, 0.34,	0.25, 0.28, 0.47	0.32, 0.36, 0.42
	Alcohol (9:1)	0.42, 0.45, 0.49, 0.55, 0.62, 0.81, 0.95.	0.59, 0.69, 0.8, 0.95	0.5, 0.72, 0.99
Benzene	Benzene:	0.15, 0.19, 0.25,	0.32, 0.43, 0.5,	0.13, 0.34, 0.38,
	Alcohol (9:1)	0.3, 0.35, 0.37, 0.4, 0.45, 0.55, 0.63, 0.75, 0.91, 0.98.	0.55, 0.61, 0.96, 0.97.	0.43, 0.93,
Chloroform	Chloroform:	0.21, 0.32, 0.46	0.34, 0.95	0.08, 0.14, 0.21,
	Methanol (9:1)	0.5, 0.57.		0.25, 0.35, 0.54, 0.62.
Alcohol	Chloroform:	0.07, 0.13, 0.19,	0.15, 0.51, 0.90.	0.07, 0.26, 0.42,
	Methanol (7:3)	0.39, 0.57, 0.86, 0.91, 0.96.		0.6, 0.69, 0.91

Table VI. Thin layer chromatography Rf values (seeds)

Extracts	Solvent System	<i>C. tora</i>	<i>C. occidentalis</i>	<i>C. auriculata</i>
Petroleum ether 60-80°C	Benzene:	0.14, 0.33, 0.46,	0.14, 0.31, 0.42,	0.14, 0.33, 0.43,
	Alcohol (9:1)	0.56, 0.63, 0.75, 0.93.	0.46, 0.56, 0.63, 0.75, 0.88, 0.95.	0.56, 0.63, 0.89.
Benzene	Benzene:	0.17, 0.35, 0.44,	0.17, 0.32, 0.35,	0.17, 0.32, 0.35,
	Alcohol (9:1)	0.49, 0.52, 0.65, 0.8, 0.96.	0.43, 0.45, 0.52, 0.65, 0.77, 0.96.	0.43, 0.47, 0.52, 0.6, 0.83, 0.95.
Chloroform	Chloroform:	0.3, 0.85, 0.96.	0.28, 0.37, 0.45,	0.31, 0.51, 0.9,
	Methanol (9:1)		0.55, 0.85, 0.97.	0.97.
Alcohol	Chloroform:	0.04, 0.06, 0.11,	0.06, 0.17, 0.45,	0.07, 0.18, 0.29,
	Methanol (7:3)	0.17, 0.25, 0.43, 0.6, 0.85, 0.9, 0.96.	0.62, 0.73, 0.93.	0.45, 0.93.

2.8% specific gravity 0.89, 0.91 acid value 4.2, 5.32, iodine value 111.3, 110.6, saponification value 164.2, 175.9 and un-saponifiable matter 5.6, 8.25 respectively.

### Summary

The leaves and seeds of *Cassia tora*, *Cassia auriculata* and *Cassia occidentalis* are found to contain high medicinal properties. Hence, a preliminary study has been taken up and presented in this paper.

### Conclusion

Authentic and fresh leaves and seeds of *Cassia tora*, *Cassia auriculata* and *Cassia occidentalis* were supplied by the S.M.P. unit of our institute and preliminary chemical analysis has been carried out and presented.

### Acknowledgement

The authors are indebted to the Director, CCRAS, New Delhi for evincing interest in this work and Dr. K.R. Keshava Murthy for supplying the genuine drugs.

### References

1. Anonymous, 1966, *Pharmacopoeia of India*, 2<sup>nd</sup> Edn., Manager of Publications, Govt.

of India, New Delhi.

2. Anonymous, 1992, *Wealth of India - Raw materials*, Vol. 3, Publication & Information Directorate, CSIR, New Delhi, pp. 327 - 328

3. Chase, C.R. and Pratt, R., 1949, Fluorescence of powdered vegetable drugs with particular reference to development of system identification, *J. Am. Pharm. Assoc. (Sci. edn.)* 38: 324-331.

4. Igon Stahl, 1969, *Thin Layer Chromatography - A Laboratory Handbook*, Springer - Verlag Berlin, Heidelberg, New York, pp. 52-56, 127-128, 900.

5. Nisteshwar, 1987, *Dravyaguna prayog vijnanam*, Indian Medicine Industries, Vijayawada.

6. Sharma, P.V., 1975, *Dravyaguna Vigyan*, Ed. 3, Vol. II, Chowkhamba Vidya Bhavan, Varanasi.

7. Vaidya Ratnam Murugesha Mudaliar, K.S., 1988, *Materia Medica - Vegetable Section*, Part I, Tamil Nadu Siddha Board, Chennai, pp. 63, 395, 462.



Await the release....

*Kottakkal Ayurveda Series:*

## LECTURES ON AYURVEDA

Fifteen masterly treatises by reputed Scholars/Scientists arranged under following heads :

- i. History & Philosophy
- ii. Ayurveda in its pristine purity
- iii. Surgery in Ayurveda
- iv. Ayurveda & Yoga
- v. Ayurveda in the present context



## A COMPARATIVE CLINICAL EVALUATION OF *KUTAJA* (*HOLARRHENA PUBESCENS*) IN THE MANAGEMENT OF *KITIBHA* (PSORIASIS)

Singh, O.P.\*, Rai, N.P.\*\* and Pathak, N.N.\*\*\*

**Abstract:** A Decoction of *kutaja* (*Holarrhena pubescens*) had been evaluated clinically on twenty patients of *kitibha* (psoriasis) for three months and found effective. Ten patients were evaluated in corticosteroid group. The sign and symptoms were reduced earlier in this group in comparison to *kutaja* group. The results of both the groups were significant in statistical analysis.

### Introduction

*Kutaja* (*Holarrhena pubescens*), a small deciduous tree with woody branches belongs to the family Apocynaceae. It is found throughout India especially in deciduous forests, hilly areas, up to 900 meters of Kalinga and Vatsaka. The plant is small laticiferous. The bark is thick brown, wrought with abundant milky white latex, leaves 10-14 pairs of conspicuous nerves. Flowers are white in terminal corymbose cymes. Fruits are long, narrow, cylindrical pendulous follicles often dotted with white spots. Seeds are linear oblong tipped at the apex with a spreading coma of brown colour.

The synonyms of *kutaja* i.e. *varatikta* and *sakra* are suggestive that it is a bitter drug. It possesses *katu*, *tikta*, *kashaya rasas*, *laghu*, *rooksha gunas*, *seeta veerya* and *katu vipaka*. In Charakasamhita, *kutaja* has been

described under *kandughna mahakashaya*. It is the *dravya prabhava* of the drug by virtue of which it acts as *kandughna* (antipruritic). By virtue of *guna prabhava* i.e. *tikta* and *kashaya rasa*, it acts as *krimighna*, *kandughna*, *kushthghna*, *agnideepana*, *samsamana* and *ropana*.

In ayurveda, skin disorders have been described by the general term *kushtha*. Again *maha* and *kshudra kushthas* are the two varieties. The disease entity *kitibha* comes under *kshudra kushtha*. According to the *tridosha* theory of ayurveda, unhygienic irregular dieting affects *vata*, *pitta* and *kapha* which in terms affect the skin and cause different skin disorders. Charaka, Vagbhata and Madhavakara have been described *kitibha* as a dry wound-like lesion, rough, hard in touch and bluish in colour while Susruta has added

\* Asst. Research Officer, Central Research Institute (Ay.), Unit-I, Bhubaneswar.

\*\* Lecturer, Dept. of Kayachikitsa, IMS, BHU, Varanasi.

\*\*\* Director-in-charge, Central Research Institute (Ay.), Unit-I, Bhubaneswar.

with exudate eruptions, circular in shape, thick, itchy, glossy and blackish in colour. According to Kasyapa it is blackish/reddish in colour, rough and hard to touch with some secretions and appearing again and again.

Though there are many signs and symptoms described according to prevalence of *dosha* in *kushtha*, very few can be found in *kitibha*. Amongst the symptoms present in *kushtha* due to vitiated *vata* are *rauakshyam* (dryness), *parushyam* (hardness) and *kharatvam* (roughness). Symptoms due to vitiated *pitta* are *daha* (burning), *raga* (redness) and *parisarp* (exudation). In vitiated *kapha* category *sveta* (whiteness), *kandu* (itching), *utseda* (elevation) and *varnabheda* (discolouration) are pragmatically encountered in patients of *kitibha*. There may be predominance of one or two *doshas* but all the *kushthas* are *tridosha* in origin.

Hensler and Christopher proposed two forms of psoriasis. Type 1 is hereditary has an age onset of 16 years for females and 22 years for males and tendency to follow irregular course and become generalised. Type 2 has peak incidence at around age of 60 years. It is clear that there is an ongoing immune response in and around the psoriatic lesion. Some authors have also proposed the viral aetiopathogenesis. A vertically transmitted RNA retrovirus may be the cause. Certain predisposing factors like traumatic injury, excessive exposure to sunlight, certain drugs and season may be additional factors.

In modern medicine there is no promising treatment for the disease. Coal Tar, PUVA, retinoids, methotrexate, corticosteroids are often prescribed, but the drugs are known to have

hazardous side effect. In ayurveda it is suggested that a drug pacifying the disease process without producing other disorders is the best drug.

## Materials and methods

### Objective of the study

The difficulties in treating psoriasis continues and limitations and disillusionment with systemic modalities as the liver-scare of methotrexate, mutagenic potentials of PUVA, skeletal toxicity of retinoids and systemic and local toxic effects of corticosteroids necessitate search for newer and safer drugs.

### Selection of patients

Patients having age group between 11 to 70 years were selected from *kayachikitsa* and dermatology OPD of S.S. Hospital, BHU, Varanasi. They were registered on the basis of proforma made for Ph.D. research work. Patients were diagnosed on presenting history, sign, symptoms and clinical examination. The present study includes the patients having psoriasis vulgaris, guttate psoriasis, palmoplantar psoriasis and nummular psoriasis.

### Exclusion criteria

- Patients having cardiac, renal, endocrine disorders were excluded from the study to avoid overlapping of symptomatology.
- Patients of psoriatic arthropathy and psoriatic erythroderma were also excluded.
- Patients having associated disease and inconclusive diagnosis were discarded.
- Patients below 10 and above 70 years were excluded.

### Grouping of the patients

Clinical study has been carried out in different groups but here *kutaja* group needs

mention. 20 patients were selected in each trial group including *kutaja* group. Comparative study was also done with a control group i.e. corticosteroid group of 10 patients.

#### Plan for the basal study

The selected patients were interviewed along with their family members to get detailed information about the disease and the patient itself i.e. their demographic and clinical profile. All the patients were subjected to physical examination and following laboratory tests:

- TLC, DLC, Hb%, ESR
- Blood sugar - F/PP
- Blood urea
- S. Creatinine
- S. Uric acid
- ASO Titre
- LFT/AG Ratio

#### Preparation of trial drug, dose, method of administration and duration of treatment

Crude form of stem-bark of *kutaja* was taken separately after identification in consultation with *Dravyaguna* Department. The patients were advised to prepare the *kvatha* (decoction) of the drug by the classical method advised to them as follows.

Take *Yuvakuta churna* 1 part (100 gm) + water 16 parts (1600 ml). Put it on the furnace to be reduced up to 1/8 part (200 ml). Decoction to be taken in two divided doses (100 ml) each in the morning and evening before meals. The total duration of treatment was for three months with a regular follow up of after each month.

#### Control group

In this group tablet prednisolone was used in a tapering manner as - Prednisolone 20 mg - TID for 1 month and BD for 1 month and OD for 1 month.

#### Criteria for diagnosis

- Sharply defined erythmosquamous lesions varying in size from pinpoint to large papule
- Presence of erythema, scaling and induration in the lesions
- Surface consists of non-coherent scales
- Positive auspitz sign (bleeding after scratching the lesion)
- Positive onion peeling sign (after scratching scales fall like peels of onion)

#### Scoring

Psoriasis area severity index scores (PASI Score): It has been employed in numerous clinical trials to assess difference between before and after treatment in a fairly vigorous and consistent manner that is understandable between investigators and centres. The four main anatomic sites are assessed. 1. The head (h), 2. upper extremities (u), 3. trunk (t) and 4. lower extremities (l).

PASI score was introduced for studies of synthetic retinoids in 1978. It had been calculated as  $PASI = 0.1 (Eh + Sh + Ih) Ah + 0.2 (Eu + Su + Iu) AU + 0.3 (Et + St + It) At + 0.4 (El + Sl + Il) Al$  where, E - Erythema, S - Scaling, I - Induration, A - Area.

E.S.I. were assessed according to a 4 point scale where no symptom = 0, slight symptom = 1, moderate symptom = 2, marked symptom = 3 and severe symptom = 4. 'A' is assigned a numerical value based on the extent of lesion in a given anatomic site. 1 - < 10%, 2-10 - 29%, 3-30 - 49%, 4-50 - 69%, 5-70 - 89% and 6-90 - 100%.

#### Modified rule of nine

Head - 3%, scalp - 6%, ant. trunk - 14%, post. trunk 16%, genetelia and perinium 1%,

leg 16% (each), dorsum foot - 2% (each), sole 2% (each), arm 7% (each), dorsum hand 1.5% (each) and palm 1.5% (each).

PASI score varies in step of 0.1 units from 0 to 72. The highest score represents completed erythroderma of severest possible degree.

#### Parameters for assessment

- Estimation of PASI score index
- Patient's report of himself
- General assessment of researcher
- Photographs taken at regular intervals
- Side/Toxic effect of drug if any

PASI score comparison after 3rd follow-up

Controlled Vs Trial Group

$$t = 9.26$$

$$p < 0.001$$

The table shows that there is a significant difference in the efficacy of corticosteroid and *kutaja* decoction. But separately both the drugs are statistically significant in reducing PASI score in psoriasis.

#### Conclusion

Observations and the result of this study

Table 1. PASI Score Mean,  $\pm$  SD

	BT	AT <sub>1</sub> /FU <sub>1</sub>	AT <sub>2</sub> /FU <sub>2</sub>	AT <sub>3</sub> /FU <sub>3</sub>
<i>Kutaja</i> Group	m = 23.14 SD = $\pm$ 9.45	22.19 9.31	21.59 9.27	21.19 9.64
Controlled Group	m = 26.57 SD = $\pm$ 12.24	20.73 11.07	18.03 10.84	16.03 11.56

Table 2. PASI Score mean difference,  $\pm$  SD

	BT - AT <sub>1</sub>	BT - AT <sub>2</sub>	BT - AT <sub>3</sub>
<i>Kutaja</i> Group	d = 0.95 SD = $\pm$ 1.57 SE = 0.351 t = 2.7 p < 0.01	1.5 2.23 0.5 3 p < 0.001	1.9 2.71 0.606 3.1 p < 0.001
Controlled Group	d = 5.7 SD = $\pm$ 1.41 SE = 0.448 t = 12.72 p < 0.001	8.5 1.9 0.6 14.16 p < 0.001	10.5 2.22 0.703 14.93 p < 0.001

open newer vistas for further research. The study will prove to be great help in developing strategies for the care of patients of *kitibha* (psoriasis) particularly in India where the major proportion of the population depends on ayurveda treatment.

#### References

1. *Bahl practice of dermatology*, C.B.S. Publishers & Distributors, 1987.
2. *Clinical evaluation of some Ayurvedic drugs in the management of Kitibh* (psoriasis) - Ph.D. thesis by Singh, O.P. under Rai, N.P., 2000 Feb., Dept. of *Kayachikitsa*, I.M.S., B.H.U., Varanasi.
3. *Charakasamhita* translated by Prof. P.V. Sharma, Published by Choukhamba Surabharati Prakasan, Varanasi, Edn. 1998.
4. *Susrutasamhita* (English Trans.) by K.L. Bhisagaratna, Published by Choukhambha Sanskrit Series Office, Varanasi, Edn. 1991.
5. *The Skin* - free radicals and oxidative stress puglise, pt. et. al, dermatology Nursing 7 (6): 361-9, quiz 370-1, 1995, Dec.

#### RESEARCH CORNER

##### **A Profile on Some Important Medicinal Plants of the Western Ghats, India.**

This scientific volume composed by Dr. P.K. Warriar, Prof. V.P.K. Nambiar and Dr. P.M. Ganapathy is an attempt to share the findings of the five year long research work supported by the International Development Research Centre, Canada. It provides a detailed scientific profile for 20 medicinal plant species found in the Western Ghats. The work meticulously carried out by a team of dedicated Researchers of Arya Vaidya Sala, Kottakkal will be found useful by researchers, Ayurvedic practitioners, students and teachers in the field of medicinal plants.

This volume, elegantly brought out with illustrations, stands as a model for the much wanted research methodology in the field of Ayurvedic studies.

## CHRONIC FATIGUE SYNDROME OR *BALA-VISRAMSA* A COMPARATIVE STUDY

Champa Pant\*

**Abstract:** The paper presents a comparative study of chronic fatigue syndrome and *bala-visramsa*. The scope of ayurveda in the treatment of CFS is also discussed.

### Introduction

Chronic fatigue syndrome is a heterogeneous characterised by chronic and severe musculoskeletal fatigue and a cluster of medically unexplained physical and mental symptoms.

During last decade chronic fatigue syndrome has received a lot of attention especially in western countries. Experts are trying to find out the exact etiopathogenesis and effective treatment through vigorous experimental studies and research work. In India less attention is being paid to chronic fatigue syndrome presently. But ancient Indian medical science was not completely unaware of it. A disorder termed as *bala-visramsa* (diminished *bala* or strength) in ayurveda bears striking similarity with chronic fatigue syndrome.

### A. Chronic Fatigue Syndrome

According to Holmes, G.P., et al, a case of CFS must have the following two major criteria: i.) A new onset of persistent, relapsing or debilitating fatigue that impairs the daily activity level to below 50% of pre-morbid levels for atleast six months and ii.) exclusion of

other physical psychiatric disorders that could produce similar symptoms (i.e. diabetes, hypo and hyperthyroidism, schizophrenia, etc.) Also required is six or more of the eleven characteristic symptoms (mild fever, sore throat, painful lymph nodes, unexplained muscle weakness, myalgias, arthralgias, prolonged fatigue after exercise, headache, neuropsychogenic complaints, sleep disturbances and rapid onset of the main symptom complex) and two or more physical examination criteria (low grade fever, non-exudative pharyngitis, palpable or tender anterior or posterior axillary or cervical lymph nodes).

But some experts recommend revision of CFS definition as patients reporting a large number (nine or more) of the unexplained physical symptoms may suggest recurrent psychiatric illness. Secondly many patients of CFS with few physical symptoms are likely to be excluded from etiological and treatment studies on the basis of this definition.

### B. *Bala - visramsa*

Ayurvedic concept of metabolism and tissue formation is not very different from the

\* 259, Shiv Mandir Marg, P.O. Ranikhet, Dist. Almora (U.P.)

modern concept. According to it *aharam* (food) taken is digested and converted into *dhatu*s (histological units of the body) by *agni*. There are seven *dhatu*s in the body. These are *rasa* (body fluid), *rakta* (blood), *mamsa* (muscle), *meda* (fats and lipids), *asthi* (bone), *majja* (bone marrow) and *sukra* (semen) formed respectively in body. The condition of the *dhatu*s in the body reflects the health of the body.

The *sara* (cream) of these *dhatu*s is called *oja* or *bala* (strength of the body).

तत्र रसादीनां शुक्रान्तानां धातूनां यत्परं तेजस्तत्  
खल्वोजस्तदेवबलमित्युच्यते, - सु.सू. 15/24.

*Oja* and *bala* are not very different. If *oja* is *dravya* (matter) then *bala* is its *kriya* (action).

According to Susruta, *bala* enables the man to perform all functions. *Manah* (psyche), *buddhi* (intellect) and *sarira* (body) perform their functions with the help of *oja* and *bala*.

तत्र बलेन स्थिरोपचितमांसता सर्वचेष्टा-  
स्वप्रतिघातः स्वरवर्णप्रसादो

बाह्यानामाभ्यन्तराणां च करणाना-

मात्मकार्यप्रतिपत्तिर्भवति । - सु.सू. 15/25

Low level of *oja* or *bala* not only decays the body but mental and physical activities are also affected badly.

तदभावाच्च शीर्यन्ते शरीराणि शरीरिणाम्

- सु.सू. 15/27

Susruta has categorized three stages of decay of *oja* and *bala* which are termed *bala-visramsas*, *bala-vyapat* and *balakshaya* respectively.

#### Comparative study of CFS and *bala-visramsas*

Low level of *bala* in a person makes the simplest activity too tiresome. According to Susruta, the symptoms of *bala-visramsas*

comprises *srama* (fatigue), severe pain in joints as if they are dislocated, imbalance of *doshas* and decreased body activities.

विश्लेषसादौ गात्राणां दोषविघ्नंसनं श्रमः ।

अप्राचुर्यं क्रियाणां च बलविघ्नंसलक्षणम् ॥

- सु.सू. 15/30

According to Charaka, due to low level of *oja* physical as well as mental symptoms like anorexia are also seen in patients.

.....ओजश्च हीयते ।

.....

प्रतिश्यायं ज्वरं कासमङ्गमर्दे शिरोरुजम् ॥

श्वासं विद्भेदमरुचिं पार्श्वशूलं स्वरक्षयम् ।

- च.चि. 8/24, 25

[Due to the rage, agony, anxiety, jealousy, the body decays and the resulting *ojakshaya* leads to fever, body-ache, cough, cold, disturbed bowel movements, anorexia, pain in the chest, sore throat and difficult in breathing.]

Besides the physical symptoms like fever, myalgia, arthralgia, headache, sore throat and emotional disturbances the most characteristic symptom of chronic fatigue is incapacitating fatigue (which is named as *srama* by Susruta). The activities of the patient are reduced to less than 50% of the premorbid state. Fatigue is worsened by any kind of activity. Physical fatigue is accompanied by features of mental fatigue such as low morale, loss of concentration, disturbed sleep, depression, anxiety, etc.

These emotional disturbances are described by Charaka as below -

बिभेति दुर्बलोऽभीक्ष्णं ध्यायति व्यथितेन्द्रियः ।

दुश्छायो दुर्मना रूक्षः क्षामश्चैवौजसः क्षये ॥

- च.सू. 17/73



[Due to *ojakshaya* the patient become anxious, worried, low spirited and the functions of sensory organs are also effected.]

### **Etiopathogenesis of CFS and *bala-visramsā* – a comparison**

The non-specific nature of the symptoms has lead to controversies regarding the etiopathogenesis of CFS. There are many suggestions such as viral infections, immunological upsets, psychiatric and neuro-endocrine dysfunction, etc. Despite the several theories the exact cause of the syndrome is still uncertain.

#### **1. Role of viral infections**

Viral infections are considered one of the most important causes of the chronic fatigue syndrome. Several studies indicate a close relation between viruses and CFS due to following reasons:

- a. Post-viral fatigue is a common problem met after many viral infections. About half of the patients with CFS have a preceding acute febrile illness suggesting a viral infection.
- b. Enteroviral RNA antigens have been demonstrated in muscle biopsy of patients of CFS.
- c. Antibody titres to various viruses such as Epstein – Barr virus, cyto megalovirus, herpes virus, measles virus, rubella virus, coxsackie virus, etc. have been found to be elevated in CFS patients.

There are studies which indicate that viral infections can precipitate chronic fatigue syndrome.

Charaka has described some *rajani-chara* (microbes) which eats and destroys *oja* or *bala*. ओजोशनानां रजनीचरणामाहारहेतोर्न शरीरमिष्टम् (च. शा. 2/9)। [These *rajani-chara* exclusively eat *oja* or *bala*.] The term *rajani-chara*

described by Charaka indicates viruses. These *rajani-chara* attack the body and destroy the *oja* leading to diminished *bala*, making the patient bed-ridden and affecting his day to day activity.

#### **2. Role of emotional upsets**

Emotional upsets associated with chronic fatigue syndrome have stimulated a debate over whether these symptoms are the cause or effect of CFS. Ayurveda accepts the effect of the mind over the body and vice versa. The effect of mind over matter is clearly indicated in the definition of *svasta* given by Susruta –

समदोषः समाश्रिच समधातुमलक्रियः ।  
प्रसन्नात्मेन्द्रियमनाः स्वस्थ इत्यभिधीयते ॥  
- सु.सू. 15/41

For complete health, *soma* and psyche, both should be healthy. Any disturbance of *manah* (psyche) will lead to *bala-visramsā* or *ojakshaya*.

.....तश्चौजः परिरक्षता ।  
परिहार्या विशेषेण मनसो दुःखहेतवः ॥  
- च.सू. 30/12

[For protecting *oja*, factors having adverse effect on *manah* (psyche) should be avoided.]

Now-a-days some workers too believe that CFS is merely a form of a typical depression with accentuated physical manifestations.

#### **3. Role of immunological disturbances**

A variety of immunological disturbances have been known to occur in this disorder such as reduction in the count and functions of T-helper, T-suppressor cells, natural killer (NK) cells, decreased synthesis of interleukin-2, and gamma interferon, decreased level of immuno globulins and decreased blastogenic

response of B-cells. Etiological role of these abnormalities is unexplained yet.

According to Charaka *bala* enables body to eradicate *doshas*.

बलं ह्यलं निग्रहाय दोषाणाम् ॥ - च.सू. 3/170

[*Bala* protects body from harmful *doshas* and *rajanicharas*.] In other words *bala* is defence of body and whenever *bala* level decline bodies defence mechanism is also effected causing various immunological disturbances.

It is obvious by this comparative study that like chronic fatigue syndrome, cause of *bala-visramsas* are complex comprising both physical and psychiatric disorders.

### Scope of ayurvedic medicines in treatment of CFS

Current therapeutic approach to chronic fatigue syndrome includes a combination of medicinal, psychological and rehabilitative measures to provide a synergistic effect. Anti-viral drugs, anti-depressants, immunoglobulins, vitamins, minerals, pain killers, anti-anxiety drugs along with cognitive behavioral therapy (BT) and graduated physical and rehabilitative programmes have been tried so far. But clinically antiviral drugs and immunoglobulins are avoided because of their doubtful efficacy.

The modern treatment given currently for CFS is symptomatic and empirical. In this condition ayurvedic drugs used for treating *bala-visramsas* may be tried to treat chronic fatigue syndrome. In ayurveda, a combination of mental and physical treatment to fight *bala-visramsas* is given. The drugs which provide *bala* to the body are called *balya*. These drugs include *aindri* (*Bacopa monnieri*), *satavari* (*Asparagus racemosus*), *mashaparni* (*Vigna radiata*), *asvagandha* (*Withania somnifera*),

*bala* (*Sida cordifolia*) and *atibala* (*Abutilon indicum*). These drugs increase the vitality of the body.

Some drugs are capable of relieving fatigue. These drugs are termed as antifatigue (*srama-hara*) or acopics. These drugs include *draksha* (*Vitis vinifera*), *khajoor* (*Phoenix sylvestris*), *dadim* (*Punica granatum*), *phalgu* (*Ficus carica*), *parushak* (*Phoenix pusilla*), *ikshu* (*Saccharum officinarum*) and *priyaal* (*Buchanania lanzan*).

The *srama* or fatigue is caused by elevated levels of *vata*. These drugs have *madhura snigdha* property and hence are capable of balancing elevated *vata* levels. *Angamardaprasamana dravya* (restoratives) and *soolaprasamana dravya* (analgesics) may be tried to relieve myalgia and arthralgia. Mental support for a patient of *bala-visramsas* is necessary. He should be kept happy and things which be made available to him.

हृद्यं यत् स्याद्यदोजस्यं स्रोतसां यत् प्रसादनम् ।  
तत्तत् सेव्यं प्रयत्नेन प्रशमो जनमेव च ॥

- च.सू. 30/13

[The patient should be kept in a healthy environment which will keep him mentally peaceful. Besides this, *medhya* (intellect promoting) drugs like *brahmi*, *sankhapushpi* may be given to elevate the mood and spirit.]

*Abhyanga* (massage by oil) and *snana* (bath) are considered anti-fatigue in ayurveda. शरीबलसन्धानं स्नानमोजस्करं परम् । - च.सू. 5/94.

Decoction of acopics may be used for *snana* and *abhyanga* by oil treated with these drugs may prove vital in treatment of CFS.

As no effective treatment of CFS is available, ayurvedic drugs should be tried in clinical trials to evaluate their efficacy.

### Acknowledgement

For all my teachers and K.N. Pant, Mr. T.D. Kandpal and Miss Anita Pant.

### References

1. *Susrutasamihta*, pp. 61, Vol. I
2. *Charakasamhita*, pp 129, 584, 839, 350, 1<sup>st</sup> Vol.
3. Sharma, P. V., *Dravyaguna Vigyan*, II<sup>nd</sup> Vol.
4. Holmes G., Kaplan, J., Gontz, N., et al, *Chronic fatigue syndrome – A working case definition*, Ann. Int. Med., 1988, 108:387-9
5. Lloyd A., Wakefield, D., et al, *Immunological abnormalities in chronic fatigue syndrome*, Med. J., Aust., 1989, 151: 122-4.
6. Kendal, R.E., *Chronic fatigue, virus and depression*, Lancet, 1991. 337.
7. Manu, R., et al, *Mental health of patients with a chief complaint of chronic fatigue; a prospective evaluation and follow up.*, Arch. Intern. Med., 1988, 148 pp 2213-2217.
8. Buchwald, D., Komaroff, A.L., *Review of Laboratory findings in chronic fatigue syndrome.*, Res. infect. Dis. 1991, 13:512-18.



## Centenary Special

We propose to publish a special centenary volume of Aryavaidyan. It will carry papers/comments/extracts on the following subjects of topical interest.

- i. Patent rules and Ayurveda
- ii. Education: Study of Ayurveda in Universities and Colleges
- iii. Ayurveda and Tourism

We are sure that your participation will make this venture more meaningful. Send your papers so as to reach here by 31.12.2001. Our readers look forward to the teachers, students and physicians in this field to lead this discussion.

## Book Review

### **AYURVEDIC MASSAGE FOR HEALTH & HEALING**

Author: S.V. Govindan

Publishers: Shakti Malik Abhinav Publications,  
E-37, Hauz khas, New Delhi 110 016.

**Madhavikutty, P.\***

This is a treatise on the technique of massage. The practice of massage might have originated from the natural instincts even of low animals; but the human genius developed and sustained it. Its significance and role advanced later. Today we have different systems of massage in all countries varying according to locality or related to religious practices or cults. But there is a common feature - the feature of holistic approach. The scientists and doctors working in advanced fields of research speak loudly on the necessity of a re-study of our ancient wisdom. On the background of past experiences the research programmes may be presented in the new light as Needham project in China.

So, a work like the present one is valuable and highly appreciative, it urges all workers in medical field to divert their attention to re-evaluate these techniques for the benefit of their better performances, and for laymen as a guide for studying and practicing massage techniques, understanding the underlying significance of the steps. In this work of 162 pages the author has tried to do maximum justice to this claim. He gives the details of Ayurvedic massage and its background evolved from *yoga tantra chakras* and *asanas* which he terms as spiritual approach. It is important since ayurvedic anatomy and physiology is explainable only in terms of its evolution, in the order of *triguna*, *panchabhoota*, *shaddhatu*, *tridosha* and *marma* concepts. Attempts to present any ayurveda technique in mechanical terms are unscientific.

The contents with illustrations of anatomical locations and various masseurs, coloured photos of massages, charts of *marmas* and informative references to treatments have helped to make this work impressive and attractive. Besides the four chapters dealing with information for the main text as background, types of ayurvedic massages, case studies, medicines and diets, and on *kundhalini* and *chakras*, the author takes our attention to studies of other disciplines of a similar nature as accupressure and reflexology in one appendix, and to *yoga nidra kayakalpa* and

---

\*Arya Vaidya Pharmacy, Shoranur.

other useful information in other appendix. So, in the context of present trends, this work is relevant and so commendable.

The forewords to the first and second editions by Padmasree Dr. P.K. Warriar are meant not only to recommend this new work as worthy of serious consideration, study and practice by all physicians, but also to remind the fact that medical profession has always gathered knowledge and experience not from practicing physicians alone, but from other sources also, even non-medical. Sri. S.V. Govindan is not a physician nor is he drawn from the academic circle. He is a devoted disciple of Mahatma Gandhi and Vinoba Bhave at present an inmate of Bramha Vidyamandira, Punar. But he is always on foot, spreading the message of *satyagraha*, not by speeches but by service and practice. He has already travelled many countries including Europe and America, propagating the message of *charka* with daily spinning and helping all with massage technique. He started studying and doing massage inspired and guided by Sri. K. Kelappan, the great patriot and political leader of Kerala, a pioneer of *satyagraha* movement. Since it is the same earnestness that has prompted him to publish his experiences it deserves a place equal to the contributions of *siddhas*, who have enriched ayurveda in the bygone days.

**Vaidyaratnam P.S. Variar**  
**Medical Library & Information Centre**

The Kottakkal Arya Vaidya Sala has decided to set up a Medical Library and Information Centre. The aim of the Centre is:

- a. to collect and preserve precious manuscripts and other documents related to traditional medicine and to disseminate the information contained in them,
- b. to be a comprehensive depository of Ayurvedic and allied knowledge,
- c. to promote Ayurvedic study and research and
- d. to help scientists, teachers, researchers working in all systems of medicine by providing them necessary information for research/studies.

The Centre when fully developed will have facilities to provide updated information on the development in the field of Ayurveda. It will be a reliable reference center for learners for any information related to Ayurvedic studies. The center will have in its collection traditional manuscripts, international journals with back volumes and latest scientific publications in the field.

Those in possession of ancient manuscripts and texts on Ayurveda are requested to co-operate with the venture. These books can either be entrusted to the library for safe keeping in their original form or Arya Vaidya Sala can be allowed to keep its copy.

More details can be had from The Chief Editor (Publications), Arya Vaidya Sala, Kottakkal - 676 503, Malappuram Dist.

## RASAVAISESHIKA – XXV

Raghavan Thirumulpad, K.\*

**Abstract:** Different aspects of *veerya* is explained here in detail.

The first chapter of Rasavaisesika is introductory, the second chapter deals with *dravya* and the third chapter with *rasa*. In the last fourth chapter, the first thirty *sootras* explain *veerya*, the next twenty-five *sootras* explain *vipaka*. The fifty- sixth *sootra* just explain what *karma*, the final *padartha* is. The remaining seventeen *sootras* conclude the text explaining certain stray aspects of ayurveda.

01. वीर्याणि पुनः छर्दनीयानुलोमनीयोभयतोभाग-  
प्रशमनीयसंग्रहणदीपनीयप्राणघ्नमदनविदारणश्वयथुकरण-  
विलयनानि ।

वीर्याणि पुनः छर्दनीयानुलोमनीयोभयतोभाग-  
प्रशमनीयसंग्रहणदीपनीयप्राणघ्नमदनविदारणश्वयथुकरण-  
विलयनानि भवन्ति ॥

(The *veeryas* are *chardaneeya*, *anulomaneeya*, *ubhayatobhaga*, *prasamaneeya*, *samgrahaneeya*, *deepaneeya*, *pranaghna*, *madana*, *vidarana*, *svayadhukarana* and *vilayana*.)

*Veerya* is *karmalakshana*, that which is identified by particular action. That which prompts the particular action of *dravya* is its *veerya*. That which prompts vomiting is *chardaneeya*, that which eliminates downwards

through the anus is *anulomaneeya* and that which prompts elimination both ways - upwards and downwards is *ubhayatobhaga*. That which pacifies the *doshas*, without elimination just bringing down them to their natural state is *prasamaneeya*, that which controls and constipates is *sangraheeya*, that which kindles the digestive fire is *deepaneeya*. That which causes death is *pranaghna*, that which causes *mada* (intoxication) is *madana*, that which bursts boil, swelling, etc. is *vidarana* and that which causes swelling is *sobhakara*. That which cures swelling is *vilayana*. In Rasavaisesika, the term *karma* is used in two meanings - the specific action of a drug, and the preparation and application of the drug. In *veerya*, the specific action of the drug is indicated.

02. तत्र सर्वान् रसान् गुणांश्चाश्रित्य छर्दनीयम् ।

तत्र छर्दनीयं सर्वान् रसान् गुणान् च आश्रित्य प्रवर्तते ॥

(In this context, the *veerya chardaneeya*, inducing vomiting, can depend on all the *rasas* and *gunas*)

The drug with potency to vomiting can be with any of the *rasas* and *gunas*.

\* Raghava Ayurvedics, Chalakkudi, Trichur Dist., Kerala.



03. तदाग्नेय वायव्यम् च ।  
तद् आग्नेय वायव्यम् च ॥

(The drug that induces vomiting has to be of the *bhootas agni* and *vayu*.)

*Agni* always burns upwards, and *vayu* prompts motion. So the *veerya chardaneeya* is induced by the two *bhootas*. द्रव्यमूर्ध्वगमनं तत्र प्रायोमिपवनोत्कटम् । Here, there can be a doubt. *Katu* is the *rasa* and *teekshna* is the *guna* caused by the *bhootas agni* and *vayu*. Here it is stated that the drug inducing vomiting can be of all the *rasas* and *gunas*. *Rasa, guna, veerya, vipaka* and *karma* in a *dravya* are the results of particular combustion of the *bhootas*, in the process of the evolutions of the *dravyas*. For the *veerya, chardaneeya*, the basic *bhootas* are *agni* and *vayu*. The basic *bhootas* for the *rasas* in the same *dravya* can be different, so also for the *gunas*. So the *dravya* which induces vomiting can have any *rasa* and *guna*.

04. तथानुलोमनीयम् ।  
तथा अनुलोमनीयम् ॥

(In the same way *anulomaneeya*, that which eliminates downwards through the anus can be with any *rasa* and *guna*.)

The *dravya* with the *anulomaneeya veerya* can have any of the six *rasas* and the *gunas*.

05. तत् पार्थिवमाप्यं च ।  
तत् पार्थिवमाप्यं च ।

(The *dravya* with *anulomaneeya veerya* is with the *bhootas bhoomi* and *jala*.)

अधोगामि च भूयिष्ठं भूमितोयगुणाधिकम् ।

Usually the *gurutva* of the *bhootas, bhoomi* and *jala* prompts downward action. The *laghu guna* of *akasa* and *vayu* usually prompts upward action causing vomiting.

06. वातलांश्च रसान् पित्तलांश्च गुणानुभयतोभागम् ।  
उभयतोभागम् वातलां रसान् पित्तलां गुणान् च  
आश्रयते ॥

(Drugs with action both ways, inducing both vomiting and purging have the *rasas* that increase *vata* and *gunas* that increase *pitta*.)

*Vata* is *chala*, inducing movement, *pitta* is *drava* with liquefaction. Liquids usually move downwards. The *vata* with its lightness moves upwards. *Katu, tikta* and *kashayas* are the *rasas* that prompt *vata* and *teekshna, ushna* and *laghu* are the *gunas* that prompt *pitta*.

07. तत् पार्थिवाप्यतैजसवायव्यम् ।  
तत् पार्थिवाप्यतैजसवायव्यम् ॥

(*Ubhayatobhaga dravya* has the *bhootas bhoomi, jala, agni* and *vayu* as dominant.)

The *bhootas* with heaviness, *bhoomi* and *jala*, prompts downwards and *agni* and *vayu* with lightness prompts upwards. Here lightness and heaviness, instead of pacifying each other, acts individually, prompting their own action, *karma* and *vamana* and *virechana* occur at the same time. *Pitta* with its *sara* and *drava gunas*, induces purging. *Vata* with its upward movement induces vomiting. In the same way, the *bhoota* structure of the *dravyas* with other *veeryas* also can be inferred. But there can be differences of opinions with all cases. The importance is that the *dravyas* act in these ways in spite of the difference in arguments. The argument is just trying to find out why such a *dravya* acts in such a way. In spite of our knowing or not knowing why of things - the *dravya* acts in its own way. The importance is in understanding how the *dravya* acts, by experiments and experience.

08. यथाप्रत्यनीकं प्रशमनम् ।  
यथाप्रत्यनीकं प्रशमनं ॥



(Depending upon being opposite in *gunas*, the *prasamana veerya* develops.)

Similar in *gunas* and *karmas* increases, and dissimilar in *gunas* and *karmas* decreases. *Prasamana* decreases the increased *doshas*. When used even after attaining *samyā*, the balance, it leads to *kshaya*. Decrease up to the balance can be *prasamana*. Further decrease can be said to be *kshaya*. The *bhootas akasa* and *vayu* constitute *vata*. So the *rasas* and *gunas* caused by *akasa* and *vayu* (both or either) increases *vata*. *Agni*, mainly constitute *pitta*. So the *rasas* and *gunas* with *agni* mainly increase *pitta* and *kapha*, others decrease it. *Kapha* is constituted with the *bhootas jala* and *bhoomi*. So *gunas* and *rasas* with *jala* and *bhoomi* as base increase *kapha*, and other *gunas* and *rasas* decrease it. *Vata*, *pitta* and *kapha* are *dravyas*. *Dravya* is increased only with *dravya*. For increase of *rasa* and *guna*, *dravyas*, with the same *gunas* and *rasas* have to be used.

09. लवणतीक्ष्णोष्णेभ्योऽन्यत् सांग्राहिकं । तत् पार्थिववायव्यम् ।

लवणतीक्ष्णोष्णेभ्यः अन्यत् सांग्राहिकं । तत् पार्थिववायव्यं भवति ॥

(*Rasas* except *lavana* and *gunas* except *teekshna* and *ushna* control elimination of faeces and urine.)

*Abhaya* is said to be *vilavana*, without the *rasa lavana*. So it cannot be eliminative. But it eliminates. That is the exception. It may contain some particular element that induces elimination. Also it does not contain the *gunas teekshna* and *ushna*. It can be said that all these are some general statements. There can be exceptions. The final criterion is experience.

10. पित्तळान् रसान् गुणांश्च दीपनीयं । तदाग्नेयम् ।  
पित्तळान् रसान् गुणान् च आश्रित्य दीपनीयं ।  
तदाग्नेयम् ॥

(Depending on the *rasas* and *gunas* that increase *pitta*, the *veerya deepaneeya* exists. It is basically of *agnibhoota*.)

*Deepaneeya* assists digestion and assimilation. *Amla*, *lavana* and *katuka* are the *rasas* which increase *pitta*. The *gunas* which increase *pitta* are *teekshna*, *ushna* and *laghu*. These *rasas* and *gunas* have mainly *agnibhoota* as constituent. The digestive power is attributed to *pitta*, *pachakapitta*. *Pitta* is said to be *agni*. *Dravya* with *deepaneeya veerya* increases digestion.

11. सर्वान् रसान् तीक्ष्णोष्णरूक्षलघुविशदांश्च गुणान् मदनीयम् ।

मदनीयं सर्वान् रसान् तीक्ष्णोष्णरूक्षलघुविशदान् गुणान् च आश्रित्य ॥

(The *veerya madaneeya* depends on all *rasas* and the *gunas*, *teekshna*, *ushna*, *rooksha*, *laghu* and *visada*.)

*Mada* is intoxication. The *dravya* that intoxicates can have any of the six *rasas* and any of the four *gunas teekshna*, *ushna*, *rooksha*, *laghu* and *visada*. *Rasavaiseshika* accepts ten *gunas* as effective i.e. *karmanya*. *Seeta*, *ushna*, *snigdha*, *rooksha*, *visada*, *picchila*, *guru*, *laghu*, *mridu* and *teekshna*.

(शीतोष्णस्निग्धरूक्षविशदपिच्छिलगुरुलघुमृदुतीक्ष्णाः गुणाः कर्मण्याः ।)

Of these, *seeta*, *snigdha*, *guru* and *mridu*, five *gunas* can be termed *soumya*, soothing, and *ushna*, *rooksha*, *visada*, *laghu* and *teekshna*, five *gunas* as *agneya*. The *agneya gunas* agitate the mind. Intoxication is a condition of the agitated mind.

12. तदाग्नेयं वायव्यं च ।

तद् आग्नेयं वायव्यं च ॥

(The *veerya madaneeya* depend on the *bhootas agni* and *vayu*.)

The five *gunas teekshna*, etc. are produced in the *dravya* with *agnibhoota* assisted by *vayubhoota*. Without *vayubhoota*, *agnibhoota* cannot work. The other effective *bhoota*, *jala* pacifies *agni*, making it ineffective. *Jala*, *agni* and *vayu* are the effective *bhootas*. The other *bhootas*, *bhoomi* and *akasa* are passive as can be inferred from the functions attributed to them in process of the evolution of the *dravya*. *Bhoomi* is said to provide *atisthana*, the basic material and *akasa* is said to provide space, *avakasadana*. Associating with *bhoomi*, *jalabhoota* produces the *kaphadosha* and associating with *akasa*, *vayubhoota* produces *vataadosha*. *Pittadosha* is predominantly of *agnibhoota*. In *mada*, the agitated *doshas* are *pitta* and *vata*.

13. शैघ्रसौषिर्यव्यवायित्वविकापित्वानि च प्राणघ्नम् ।

शैघ्रसौषिर्यव्यवायित्वविकापित्वानि च प्राणघ्नम् ॥

(All the aforesaid general *gunas* in addition with the particular *gunas* of *saighrya*, *saushirya*, *vyavayitva* and *vikashitva* constitute the *veerya*, *pranaghna*.)

*Pranaghna* is the *veerya* of *visha*, which kills. *Visha* can have any *guna* and *rasa*. *Saighrya* is *asukari*, the capacity of sudden action. *saushirya* is causing a hole. *Visha* can easily pass through any duct, even where there is no duct. *Vyavayitva* is being *vyavayi* which is piercing, easily spreading. *Vikashitva* is being extremely able in opening the passage.

उष्णं तीक्ष्णं च सूक्ष्मं च विकाषि विशदं लघु ।

व्यवायि रूक्षं च विषं शीघ्रं नवगुणं मतम् ।

पापक्ति धातुनुष्णत्वात् तैक्ष्ण्यान्मर्म छिदं विषम् ।  
सौक्ष्म्याद्धातून् प्रविशति विकापित्वाद्विसर्पति ।  
विश्लेषयति वैशद्यात् सन्धीन् धावति लाघवात् ।  
व्याप्नोति च व्यवायित्वात् रूक्षत्वात् स्नेहनाशनम् ।  
शीघ्रत्वान्मारयत्याशु विषं गौतमषड्भूमम् ॥

*Visha* has nine *gunas* - *ushna*, *teekshna*, *sookshma*, *vikashi*, *visada*, *laghu*, *vyavayi*, *rooksha* and *seeghra*. Being *teekshna*, it pieces the *marmas*. Being *sookshma* enters the *dhatu*s without hindrance. Being *vikashi*, it spreads, being *visada* separates the joints, being *laghu* speedily reaches every point as if running. Being *vyavayi* spreads without hindrance to everywhere. Being *rooksha*, destroys the smoothness and being *seeghra*, kills easily. Thus *visha* endowed with these *gunas* assisting each other without any *guna* in resistance, *visha* extinguishes life, making the body unsuitable for life.

14. तदाग्नेयम् ।

तद् आग्नेयम् ॥

(The *veerya pranaghna* is *agneya*, predominantly of the *agnibhoota*.)

*Jeevana* is with predominance of *jalabhoota*, *jeevana* is enlivening, *pranaghna*, strictly opposite comes death.

The *veerya jeevana* is that which sustains life. It is opposite to *pranaghna* and is due to the *jalabhoota*. Independently *agnibhoota* and *jalabhoota* are directly opposite in qualities not in a particular *dravya*. A *dravya* which is with predominance of *jalabhoota* can be *jeevana*, having the *veerya*. Another *dravya* in which *agnibhoota* is in predominance is *visha* with the *veerya* of *pranaghna*.

15. पित्तञ्जान् रसान् गुणांश्च प्रदरणम् ।

प्रदरणं पित्तञ्जान् रसान् गुणान् च आश्रयते ॥

(The *veerya pradarana* depends on the *rasas* and *gunas* which increase *pitta*.)

*Pradarana* is that which bursts, boils, swelling, etc. It has to be of the *agnibhoota* with the *dosha pitta* acting, the *rasas katuka*, *amla* and *lavana* and the *gunas teekshna*, *ushna* and *laghu* belong to *pitta*.

16. तत् पार्थिवमाग्नेयं च ।  
तत् पार्थिवं आग्नेयं च ।

(The *veerya pradarana* is of the *bhootas*, *bhoomi* and *agni*.)

The *veerya pradarana* with its *rookshata*, the *bhoota bhoomi* destroys the slimy aspects and with its burning properties, the *bhoota agni* destroys the cohesion of the *dhatu*s.

17. अम्लमधुरकषायान् रसान् तीक्ष्णोष्णरूक्षान् च  
गुणान् श्वयथुजननम् ।

श्वयथुजननं अम्लमधुरकषायान् रसान् तीक्ष्णो-  
ष्णरूक्षान् गुणान् च ॥

(The *veerya* that produces *svayathu*, swelling, depends on the *rasas*, *amla*, *madhura* and *kashaya* and on the *gunas teekshna*, *ushna* and *rooksha*.)

The *veerya* producing swelling has the *rasas*, *amla*, *madhura* and *kashaya* and the *gunas teekshna*, *ushna* and *rooksha*.

18. तदाग्नेयं वायव्यं च ।  
तद् आग्नेयं वायव्यं च ।

(The *veerya*, inducing *svayathu* is of the two *bhootas agni* and *vayu*.)

The *bhootas agni* and *vayu* destroy the tension of the tissues and there at the spot, swelling appears.

19. सर्वान् रसान् शीतमृदुपिच्छिलांश्च गुणान् विलयनम् ।  
विलयनं सर्वान् रसान् शीतमृदुपिच्छिलान् गुणान्  
च आश्रयते ॥

(The *veerya vilayana*, depends on all the *rasas* and the *gunas*, *seeta*, *mridu* and *picchila*.)

*Vilayana* is soothing, curing the swelling. A drug which cures swelling can be of any *rasa*, with the *gunas seeta*, *mridu* and *picchila*.

20. तत् सौम्यं पार्थिवं च ।  
तत् सौम्यं पार्थिवं च ।

(The *veerya vilayana* is with the *bhootas jala* and *bhoomi*.)

The *bhootas agni* and *vayu* cause the *veerya svayathu janana* producing swelling and naturally the *bhootas* with opposite *gunas*, *bhoomi* and *jala* cause its opposite aspect of pacifying a swelling.

21. शोधनं पुनरन्यस्य हेतोः प्रयुक्तमप्येकं वानेकं वा  
शोधयेत् ।

शोधनं पुनः अन्यस्य हेतोः प्रयुक्तं अपि एकं वा  
अनेकं वा शोधयेत् ॥

(Eliminatory treatment even if used for a particular *dosha*, eliminates one or more *dosha*.)

*Vamana*, *virechana* and *kashayavasti* are the three important eliminatory therapies for *kapha*, *pitta* and *vayu* in their order. *Vamana* inducing vomiting eliminates *kapha* from its abode, thoracic region with it *pitta* also, *virechana* inducing elimination of *pitta* from its *sthana*, the duodenal area and *kapha* also associated with it. *Kashayavasti* given to eliminate *vayu* from its abode eliminates *pitta* and *kapha* also in association. If there is no increase of the other *doshas*, the *sodhana* eliminates the particular *dosha* alone.

22. अग्नेर्दहनशक्तिवत् त्वङ्मांसास्थिदाहे रसगुणैरनुमेयं  
प्रशामनं ।

त्वङ्मांसास्थिदाहे अग्नेः दहनशक्तिवत् रसगुणैरनुमेयं  
भवति ॥

(In the burning of the skin, flesh and bone just like the burning property of *agni*. The *veerya prasamana* has to be inferred with the *rasas* and *gunas* of the *dravya*.)

The *rasas* and *gunas* which increase a *dosha* are considered its *rasas* and *gunas*. *Rasas* and *gunas* which do not belong to it are considered to be its *prasamana* which control it.

वृद्धिस्मानैस्सर्वेषां विपरीतैर्विपर्ययः ।

Always like increases and unlike decreases. The quality of burning of *agni* used in the treatment is inferred by its capacity to burn the tissues, *tvak*, *mamsa* and *asthi*. Like that the pacifying property of *rasas* and *gunas* of a *dravya* are inferred by their action of pacifying the *dosha*.

23. द्वयोर्निग्रहणं सांग्राहिकम् ।

द्वयोः निग्रहणं सांग्राहिकम् भवति ॥

(That which controls the two *doshas*, *kapha* and *pitta*, is the *veerya* of *samgrahika*)

*Samgrahika* is a constipating. The *bhootas*, *bhoomi*, *jala* and *vayu* constitute it. The *doshas*, *kapha* and *pitta*, cause *atisara*. In a *dravya* with the *samgrahikaveerya*, the aspect of the *jalabhoota* controls *pitta*, the aspect of *vayubhoota* controls *kapha* as *lavanarasa* and *teekshnaguna* agitate *kapha* and *pitta*. In the 9<sup>th</sup> *sootra* it is said *samgrahika* is said to be with the *rasas* except *lavana* and *gunas teekshna* and *ushna*.

लवणतीक्ष्णोष्णेभ्योन्यत् सांग्राहिकम् । तत् पार्थिववायव्यम् ॥

Some *acharyas* say that here *dvayoh* means *chardi* and *atisara*. The *dravya* which controls *atisara* is said to be *grahi*. The term *grahi* denotes generally the meaning of controlling *atisara* (loose-motion). So *sangrahika-veerya* is controlling only *atisara* not *chardi* (vomiting).

24. अतिसारस्य वातकर्तृकतामिच्छन्ति केचित् ।

केचित् अतिसारस्य वातकर्तृकतां इच्छन्ति ॥

(Some *acharyas* consider *atisara* being caused by the *dosha vata*)

The opinion that *atisara* is caused by *vata* cannot be sustainable. Watery loose motions, by its nature can only be with *pitta* and *kapha*. *Vata* is controlled by *ushna*, but *ushna* agitates *kapha* and *pitta* increasing *atisara*.

ज्वरे चैवातिसारे च पूर्वं पित्तमुपक्रमेत् ।

*Vata* is said to be *yogavahi* - meaning that it co-operates with any other *dosha* in *kopa* as well *sama* - in agitation as well in pacification.

25. सर्वदोषप्रकोपणं प्राणहननं मदनं प्रदरणं च ।

प्राणहननं मदनं प्रदरणं च सर्वदोषप्रकोपणं भवति ॥

(The *veeryas*, *pranaghna*, *madana* and *pradarana* agitate all the *doshas* in the course of action.)

*Pradarana* is that which bursts the ripe swelling, etc. *Pranaghna* is killing, meaning poison and *madana* is intoxicating as in *madya*.

## त्रिदोष और शरीर के परमाणु (भाग २)

वारियर, पी. आर.

### त्रिदोष शक्तिरूप नहीं

कुछ लोग वात आदि की अलग अलग शक्तिरूपता मानते हैं। “शरीर के अंगों को गति देनेवाली एवं गति की नियामिका रहनेवाली शक्ति वात, भोजन को पचानेवाली, गर्मी देनेवाली एवं रंग को चमकानेवाली शक्ति पित्त और शरीर को स्थिरता देनेवाली, गर्मी पर नियंत्रण रखनेवाली एवं वात-पित्त आदि को रोकनेवाली शक्ति कफ मानी जाती है।” एक हद तक यह सही है तो भी पुराने आचार्य इसे स्वीकारते नहीं हैं। उन्होंने वायु की शक्तिमत्ता को (शक्तियुक्त होने का भाव) स्वीकार किया है, लेकिन शक्तिरूपता को स्वीकार नहीं किया है। चरक के अनुसार -

“वायुस्तन्त्रयन्त्रधरः प्राणोदानसमानव्यानोऽपानात्मा, प्रवर्त्तकश्चेष्टानामुच्चावचानां, नियन्ता प्रणेता च मनसः सर्वेन्द्रियाणामुद्योतकः सर्वेन्द्रियार्थानामतिवोढा सर्वधातु व्यूहकरः सन्धानकरश्शरीरस्य, प्रवर्त्तको वाचः, प्रकृतिः स्पर्शशब्दयोः, श्रोत्रस्पर्शनयोर्मूलं, हर्षोत्साहयोनिः समीरणोत्रेः, संशोषणो दोषाणां, क्षेप्ता बहिर्मलानां, स्थूलाणुस्रोतसां भेत्ता, कर्त्ता, गर्भाकृतीनां, आयुषोनुवृत्ति-प्रत्ययभूतो भवत्यकुपितः” - (वातकलाकलीयमध्यायम्)

वाग्भट के विचार में -

विभुत्वादाशुकारित्वात् बलित्वादन्यकोपनात् ।

स्वातन्त्र्यात् बहुरोगत्वात् दोषाणां प्रवरोऽनिलः ॥

शार्ङ्गधर का कहना है -

पित्तं पङ्गुः कफः पङ्गुः पङ्गवो मलधातवः ।

वायुना यत्र नीयन्ते तत्र गच्छन्ति मेघवत् ॥

उपर्युक्त तीनों कथन यहाँ ध्यान देने योग्य हैं। अगर विशेष्यविशेषणों के अभेदोपचारता से वायु की शक्तिरूपता स्वीकृत की गयी है तो भी असहमति नहीं है। पित्त में तो पचन जैसी शक्तियाँ समान वायुओं के सहयोग से ही बनती है, दूसरे प्रकार से नहीं। इसलिए ही वाग्भट ने कहा है - “सन्धुक्षितसमानेन पचत्यामाशयस्थितं; औदर्योऽग्निः...।”

सब लोग यह जानते हैं कि वायु से मिले बिना आग जलती नहीं। वायु के साथ उसकी मैत्री प्रसिद्ध है। इसी कारण से पित्त में शक्तिरूपता का आरोप करना बहुत क्लिष्ट है। जिस प्रकार मूर्तामूर्तता का आरोप किया है उसी प्रकार अर्धशक्तिरूपता भी मानी जा सकती है। इसलिए यह स्वीकार किया गया है कि कफ की तुलना में इसमें अधिक रोगकारिता, आशुकारिता, तीक्ष्णता आदि गुण मौजूद हैं। कफ तो वैसे ही मन्द है। इसलिए दूसरों की प्रेरणा के बिना कुछ भी नहीं कर सकता। इसी कारण से इसमें शक्तिरूपता को स्वीकार करना बिलकुल बेबुनियाद है। यह मानना पड़ेगा कि स्थिरीकरण की शक्तिमत्ता भी केवल वात में पायी जाती है। यह विशेष रूप से कहा गया है कि सभी चेष्टाओं के काम एवं नियंत्रण तन्त्र एवं यन्त्र से प्राप्त होते हैं। तन्त्रयन्त्रधरता वायु का गुण माना गया है। वात आदि की शक्तिमात्ररूपता को मानने पर भी हम एक ऐसी कठिन दशा में पहुँचने हैं

जहाँ इनके आधार के रूप में देह का निर्माण करनेवाले सभी मूर्तद्रव्यों के उपादान कारण के रूप में किन्हीं नये पदार्थों या भूतसंघात को स्वीकारना पड़ता है।

### द्रव्य ही है

दूसरे ढंग से भी इसकी व्याख्या कर सकते हैं। त्रिदोष, चाहे जो भी हो, उन्हें उन छह पदार्थों में शामिल करना चाहिए जो वैशेषिक मत के आधार पर बने हैं। ये छह पदार्थ संसार के क्रियाकर्मी का संपूर्ण और सामान्य तौर पर विश्लेषण करके बनाये गये हैं। छः पदार्थ हैं - द्रव्य, गुण, कर्म, सामान्य, विशेष और समवाय (किसी ने अभाव को भी मिलाकर पदार्थों के सात भेद माने हैं)। सामान्य और विशेष की परिभाषा पर विचार करें तो उन पदार्थों में किसी में भी त्रिदोषों को शामिल नहीं कर सकते। वात-पित्त-कफों के तो अपने कुछ गुण निर्दिष्ट किये गये हैं। इसलिए वे गुण नहीं हो सकते, क्योंकि एक गुण में किसी दूसरे गुण का रहना असंभव है। इसी कारण से त्रिदोष कर्मों की कोटि में भी नहीं आते। इसलिए वे द्रव्य ही हो सकते हैं। द्रव्य नौ हैं - पृथ्वी, अप, तेज, वायु, आकाश, आत्मा, मन, दिशा एवं काल। इनमें से अंतिम चार तत्वों को हटाने पर बाकी रहनेवाले पंचभूत होते हैं। त्रिदोष भी ये ही हैं। इसलिए आचार्यों ने इन्हें भी द्रव्य ही माना है।

### त्रिधातु गर्भबीज में

धातुत्व का मतलब है शरीर की समवायिकारणता। इसलिए शरीर के सभी समवायिकारणों को धातु कह सकते हैं। चरक के पुरुषविचयमध्याय में भूतों पर भी धातुत्व का आरोप किया गया है। “पृथिव्यापस्तेजो वायुराकाशम् ब्रह्म चाव्यक्तमित्येत एव षड्धातवः समुदिताः पुरुष इति शब्दं लभन्ते”, महती गर्भावक्रान्तीय अध्याय में चेतना पर भी धातुत्व का आरोप किया गया है। “पञ्चभूतविकारसमुदायात्मको गर्भश्चेतनधात्वधिष्ठानभूतः सद्यस्य षष्ठो धातुरुक्तः” त्रिदोषों का भी धातुत्व माना गया है। रसरक्तादि सप्तधातु प्रसिद्ध हैं। जो भी तत्व

सचेतन भूतसंघात से उत्पन्न होकर शरीर का समवायिकारण बनकर रहता है वही धातु है - संक्षेप में उसकी परिभाषा यही है। इस दृष्टि से तो इस प्रकार के सभी तत्वों को धातु मानना पड़ेगा। इस प्रकार सब कहीं धातु का प्रयोग हो जाने पर वस्तु के विवेचन में कठिनाई होगी। उसको सामने रखकर विभिन्न लक्षणवाले देहांशों को अलग अलग नामों में मोटे तौर पर छः भागों में विभक्त किया है। ये हैं धाता, धातु, दोष, दूष्य, धातुमल और मल।

### त्रिधातु

पुरुष का बीज और स्त्री का बीज आपस में मिलकर गर्भबीज में बदल जाता है। यह गर्भबीज भी सूक्ष्म रूपवाले वात-पित्त-कफों के मेल से बना ही है। इन्हें ही त्रिधाता की विशेष संज्ञा दी गयी है। ये गर्भबीज को धारण करते हैं। इनको क्रम से वायु, मायु, वलास जैसे विशेष नाम भी दिये गये हैं। गर्भबीज के रूप में रहनेवाले ये शरीर के आरंभिक कर्ता होते हैं। जब इनमें से हर एक, अपने समान रहनेवाले अंशों को स्वीकार कर क्रम से बढ़कर स्थूल धातु बन जाते हैं तभी ये त्रिधातु बन जाते हैं। इस तथ्य को सामने रखकर बृहच्छारीरम् के रचयिता (वैद्यरत्नं पि.एस. वारियर) ने त्रिधातुओं का धाता शीर्षक एक भेद भी माना है। त्रिधातुओं के अंशांश मिलन से भिन्न लक्षणरूपी रसादि धातु एवं दूष्य आदि बनते हैं। अर्थात् धातुरूपी वायु आदि के स्थूल रूप ही दोष-धातु-मल आदि का रूप ले लेते हैं। त्रिधातुओं में से वायु में रज एवं सत्व गुण की अधिकता है, मायु में सत्व एवं रजोगुण अधिक है और वलास में तम एवं सत्वगुण अधिक पाया जाता है। पर, जब गर्भबीज क्रम से बढ़कर अंगप्रत्यंग आदि रूपों के साथ पुष्ट हो जाता है, तब शरीर के गठन में, इनके आपसी मेल से वात में तम की अधिकता पित्त में रज की ओर कफ में सत्व की अधिकता आ जाती है। इस कारण से ही कफ-प्रकृतिवाले में बहुगुणत्व एवं वात के स्वभाववाले में दोषात्मकता मानी गयी है।



वलास गर्भबीज का मूर्त पदार्थ है। वह व्यक्त दिखाई पड़ता है। मायु पाचकपित्त का अव्यक्त अंश है। वायु, गति का कारण है। उलझन के कारण इन अंशों को अलग देखना असंभव है। अगर हम वायु और मायु पर शक्तिरूपता का आरोप करेंगे तो वायु को प्रकृतिजा शक्ति (Physical force), और मायु को रसायनी शक्ति (Chemical force), मान सकते हैं। इन शक्तियों के आधार सभी बीजांश वलास है। जितने दोष-धातु-मल मूर्तरूप में है, वे सब वलास से वायु और मायु की सहायता से रूपांतरित होकर बने हैं।

वलास, जो बीज का आधार एवं मूर्तिमान है, कफ की मूर्तिमत्ता के कारण बननेवाला है। उस में भोजन के अंश को पचाने की क्षमता रखनेवाला सूक्ष्म अंश है मायु। गति, विभाजन आदि को बनाने की क्षमता रखनेवाला सूक्ष्म अंश तो वायु है।

पुरुष का बीज और स्त्रीबीज के मिलने पर गोलाकार गर्भबीज बनता है। इसे कलल (Fertilized ovum) कहते हैं। इसके मध्य में बलिष्ठा (Blastophor) नाम का एक सूक्ष्मतर गोल भी है। गर्भबीज के अन्दर बलिष्ठा के चारों ओर पीले रंग की एक चीज है। इसे यल्क (yolk) कहते हैं। कललीभाव के बाद गर्भबीज (बलिष्ठा और यल्क के साथ) वायु द्वारा दो भागों में विभक्त किया जाता है। उसके बाद हर एक अर्धांश दूसरे भूतों के सहयोग से फिर पुष्ट होता है और पहले गर्भबीज के समान बन जाता है। हर एक बीज फिर विभक्त और पुष्ट होकर अपने मातृबीज के समान बन जाता है। यहाँ तीन धर्म निमाये जाते हैं - गति की क्षमता, पचन की क्षमता एवं अपने विभाजन से अपने जैसे बीजों का उत्पादन करने की क्षमता। इन तीनों शक्तियों के सहारे गर्भबीज धीरे धीरे अपने समान कई शरीर-परमाणुओं का उत्पादन करता है। तब तक, इसके कारणभूत त्रिधाता, धात्वात्मक वात-पित्त-कफों में (त्रिधातुओं में) बदल जाते हैं। ये धात्वात्मक वात आदि ही ऋग्वेद में त्रिधातुधर्मवहन बताये गये हैं।

नये वैज्ञानिकों का कहना है कि शरीर में बननेवाले सभी धातुओं के अंशों से भरी कलारूपी एक चीज गर्भ की जिन्दगी में सबसे पहले रूपायित होता है। इस प्रारंभिक कला को बलिष्ठधर्म (Blastoderm) कहते हैं। यह विभक्त होकर बहिर्धर्मा (Ectoderm) अंतर्धर्मा (Endoderm) मध्यधर्मा (Mesoderm) जैसे तीन कलायें बन जाती है। ये सब त्रिधातु से जन्म होते हुए भी बहिर्धर्मा में वायु, अंतर्धर्मा में मायु और मध्यधर्मा में वलास के गुण प्रमुख रूप से पाये जाते हैं।

धातुओं के इन सभी विभागों में से धाता सबसे प्रमुख हैं। क्योंकि ये ही प्रारंभिक धातुओं के मूल हैं। सूक्ष्म, स्थूल एवं उभय रूपवाले धातुओं के कर्मों की विचित्रता से ही शरीर की सृष्टि, स्थिति आदि होती हैं। इनके कर्मों के लगभग अंत होने पर मृत्यु भी हो जाती है। “समयोगवाहिनो यथा ह्यस्मिन् शरीरे धातवो वैषम्यमापाद्यन्ते। तदायं क्लेशं विनाशं वा प्राप्नोति” (चरक - शरीरसंख्याध्याय)

### शरीर के परमाणु में

संसार के सभी द्रव्य स्वजातीय परमाणुओं के (molecules) से यथातथ आपसी मेल से बने हैं। शरीर भी अनगिनत परमाणुओं से जुड़ा है। “शरीरावयवास्तु परमाणुभेदनापरिसंख्येया भवन्ति; अतिसौक्ष्म्यादतीन्द्रियत्वादतिबहुत्वाच्च; तेषां संयोगविभागे परमाणूनां कारणं वायुः कर्मस्वभावश्च” (चरक - शरीरसंख्याध्याय)

हर पल इन परमाणुओं के संयोग एवं विभाजन होते रहते हैं। “शीर्यते प्रतिक्षणमपचीयते इति शरीरं” (हर पल विनाश होता जानेवाला), यही शरीर शब्द की उत्पत्ति है। शरीर के सभी अंश हमेशा अपनेलिए उचित भोजनसार को स्वीकारते पुष्ट होते तथा जीर्ण अंशों को छोड़कर नष्ट भी होते जा रहे हैं। धात्वाग्निपाक से ही ऐसा होता है। इसे संघटकविघटक जीव्युपाक (constructive and destructive metabolism) भी कह सकते हैं। इसे



लक्ष्य करके ही चरक ने 'संयोगविभाग' शब्द का प्रयोग किया है। यह भी बताया गया है कि इसकी प्रेरक मौलिक शक्ति वायु की है।

इस शरीर-परमाणु को ही नये वैज्ञानिक शरीर का प्रारंभ करनेवाला 'सेल' या शलक मानते हैं। इनकी मूल परमाणु 'कलल' के (गर्भबीज) है। "देहारंभकमूलत्वं कललस्यांगीकृतं" कलल के विभाजन से जन्म लेकर क्रम से पुष्ट होकर शरीर के सभी प्रकृतिधर्मों से भरा तत्व है शरीरारंभक परमाणु। इसे 'धात्वारंभकपरमाणु' भी कह सकते हैं। नये मत के अनुसार हर सेल प्रोथवलास से भरा है। अर्थात् प्रोथवलास (Protoplasm) नामक एक गाढी चीज से जुड़ा है। अंगों के गठन के अनुसार शरीर विभिन्न भागों में सेल के प्रोथवलास के विभिन्न भेद हैं। तो भी, रासायनिक जाँच में, आम तौर पर, ये सब प्रीतिदांश (Protein) से भरी, धवलक (Albumen) जैसी वस्तु के रूप में दिखाई पड़ते हैं। हर सेल में प्रोथवलास में रहनेवाला एक 'नवक्रिया' (Nucleus) भी है।

वात, पित्त और कफ शरीर में सब कहीं व्याप्त रहते हैं। फिर भी उनके काम करने के ढंग को संक्षेप में जानने के लिए शरीर के हर एक परमाणु की और ध्यान देना काफी है। प्रोथवलास में प्राणों के पहले प्रस्फुटन के लिए आर्द्रता (कफ?), प्राणवायु (वायु?) और सूरज की किरण (पित्त?) एक निश्चित मात्रा में आवश्यक है। लेकिन प्रोटोप्लासम का रासायनिक गठन अव्यक्त है। क्योंकि उसके रासायनिक गठन का विश्लेषण करके उसे जानने का प्रयास करते समय तक वह निर्जीव हो जायेगा। "The chemical structure of the molecule of living protoplasm is hidden from us, for the moment, protoplasm is subjected to analysis, it ceases to live, crumbling into simpler substances." उसका गठन उतना ही जटिल और सूक्ष्म है। अचेतन प्रोथवलास में केवल प्रीतिदा पाया जाता है। पर, एक सेल के धर्मों पर ध्यान देने पर इस बात की भी अलग पहचान हो जायेगी कि त्रिधातु उनमें कैसे काम करते हैं।

## प्रोथवलास के धर्म

एक सचेतन प्रोथवलास के कई धर्म होते हैं। उनमें से प्रमुख तीन गर्भबीज के धर्म ही हैं - १) चलने की क्षमता, २) पचनशक्ति अथवा भोजन को स्वीकारने की क्षमता और ३) आत्मविभाजन से स्वयं खंडों का उत्पादन करने की क्षमता अथवा प्रजनन की क्षमता। इनमें चलने की क्षमता तीन प्रकार की होती है - परिक्रमण, प्रवहण, अंतराधान। परिक्रमण क्या है? प्रोथवलास से मिथ्यापद नाम के (Pseudopodia) कई विषम प्ररोह बाहर की ओर खिंच जाते हैं। इन्हें एक स्थान पर टेककर सेल अपने शरीर को स्वयं उस ओर खींचकर आगे बढ़ता है। यही परिक्रमण है। इसका असली नाम amoeboid movement है। इस चाल से सेल एक स्थान से दूसरी जगह तक बढ़ सकते हैं। सूक्ष्मदर्शी से देखने पर रूप में हर पल दिखाई पड़नेवाले परिवर्तन का कारण भी यही है। प्रवहण: गतिशील या स्थीर रूप में रहनेवाले एक वलासपिंड में (परिक्रमण की दशा में उसके मिथ्यापद कणों में भी) हमेशा प्रवाह के रूप में एक गति होती है। इसे प्रवाहगति (Streaming movement) भी कहते हैं। अंतराधान: (Intussusception) अपने अंदर प्रविष्ट करके उसे विमुक्त करने की प्रकृति इस काम में पायी जाती है।

पचनशक्ति भी दो तरह से विभक्त है। पहला सेल के बाहर रहनेवाले पदार्थ से विभिन्न भागों के लिए उचित भोजन पदार्थ को स्वीकारना। दूसरा - स्वीकृत वस्तु को अपने अंश के रूप में परिणत करना। सभी प्राणियों एवं पेड़-पौधों के परिणाम एवं वृद्धि इन वृत्तियों के आधार पर चलती है। वाग्भट का कथन है - "वृद्धिसमानैः सर्वेषां"।

इस प्रकार वलासरूप में रहनेवाले सेल में इन तीनों शक्तियों का काम पाया जाता है। पहले कहा था कि इनमें चाल की क्षमता वायु से तथा पचन की क्षमता मायु से बनती है, ऐसा हम मान सकते हैं। प्रजनन की क्षमता संयोग से पैदा होनेवाली है। आयुर्वेद विज्ञान के आधार

पर चेतन प्रोथवलास के प्रीतिदांश को कफात्मक मानना चाहिए। पित्त को, उसमें परिणाम लानेवाले विभिन्न प्रकार के एन्झाइमों (Enzymes) का निर्माण करनेवाली वस्तु भी मान सकते हैं। सेल की नवाक्रिया (Nucleus) में जो वायु है, वही सेल के संयोग एवं विभाजन तथा दूसरे धर्मों का संचालन करती है। “संयोगविभागे परमाणुनां कारणं वायुः” - यह स्मरण करने योग्य है।

“Every cell in this marvellous cellular agglomeration is the seat of complicated chemical reactions; its substance, semi liquid and colloid in nature, is constantly breaking down being built up again, probably by process and according to law purely physico-chemical and with these reactions the general processes of reproduction and special adaptive movements are in some way correlated” और “the cell is the theatre of activities, of physical (*slaishmika*), chemical (*paitika*;) and vital (*vatika*) nature and all the essential phenomena of life may be manifested by a cell. These activities are more or less controlled and regulated by the nucleus. It can be divided artificially so that one portion of the protoplasm contains the nucleus, while the other portion has no nucleus, the latter portion soon dies, but the other portion remains alive, and may grow and perform its functions as before. (Principle of Tridosa in Ayurveda – Dhirendranath Rai के

ग्रन्थ में उद्धृत) नये विज्ञान के आधार पर दिया गया प्रस्तुत विवरण उल्लेखनीय है।

इस प्रकार सारे शरीर में व्याप्त त्रिधातुओं के धर्म हाथ-पैर जैसे स्थूल आंगों में तथा शरीर के हर परमाणु में पाये जाते हैं।

अधिक क्षमता रखनेवाले ‘मैक्रोस्कोप’ की सहायता से चेतन सेलों को ध्यानपूर्वक देखने परखने की क्षमता आज बढ़ती जा रही है। सैटोलजी की शीघ्र प्रगति सेल के उपांगों के अंदरतम की वृत्तियों की अभिव्यक्ति करती रहती भी है। ज्ञान का यह विकास त्रिधातुओं की यथार्थ प्रकृति की ओर ज़्यादा रोशनी डालती रहेगी, ऐसी आशा हम कर सकते हैं।

लेकिन विज्ञान की क्षमता सीमित है। Sri Oliver Lodge ने सही कहा है - When we come to ultimate origins, science is dumb, we are confronted with the problems of existence, and if there is to be any solution of that, it is to philosophy and religion all must look and not to science”. आयुर्वेद के आचार्यों ने भी यह मान लिया है कि जीवन के सभी अद्भुत रहस्यों की व्याख्या केवल भौतिक दृष्टि से संभव नहीं है। इसी कारण से ही चरकसंहिता आदि में जिन्दगी के (आयु के) विभिन्न स्तरों की व्याख्या के साथ ही उसके आधार भूत दार्शनिक तत्वों के बारे में भी बताया गया है। जिन्दगी की कल्पना ही सत्व, आत्मा, शरीर आदि के समुदाय के रूप में की गयी है।

ESTD. 1902



PIONEERS  
IN THE WORLD OF  
AYURVEDA

VAIDYARATNAM P.S. VARIER'S  
**ARYA VAIDYA SALA**  
KOTTAKKAL

HEAD OFFICE: KOTTAKKAL - 676 503  
MALAPPURAM DIST.  
KERALA, INDIA.  
TELEPHONE: 742210-19, 742561-04  
742571, 74506-08

Fax : (0493)742210 & 742572  
Web Site : [www.aryavaidyasala.com](http://www.aryavaidyasala.com)  
E-mail : [kottakkal@vsnl.com](mailto:kottakkal@vsnl.com)  
[kottakkal@md3.vsnl.net.in](mailto:kottakkal@md3.vsnl.net.in)

November 1, 2001

Dear Sir,

You might perhaps be aware that Arya Vaidya Sala, Kottakkal was founded in 1902 by the great visionary Vaidyaratnam P.S. Varier. It was his mission to revive, rejuvenate and propagate Ayurveda and gain universal recognition as an authentic and scientific system of health care. He realized that bulk production of Ayurvedic formulations with quality standards is essential to reach Ayurveda to the people. Today, Arya Vaidya Sala, Kottakkal has facilities to manufacture over 500 Ayurvedic formulations. It provides classical *panchakarma therapies* and reputed Kerala special treatments to the suffering humanity.

The institution founded by the illustrious P.S. Varier will be celebrating its Centenary in the year 2002. We have planned yearlong celebrations at Kottakkal and metros. The inaugural function and the Centenary Ayurveda Seminar is scheduled to be held in the first fortnight of February, 2002.

As part of the Centenary Celebrations, we are planning to have three days function. On the first day will be the inaugural function of our Centenary Celebrations and the 56<sup>th</sup> plenary session of the All India Ayurvedic Congress. The second and the third day will be seminar on various topics relevant to Ayurveda. Scholars from different parts of India are expected to participate in the seminar. On the third day evening there will be a public meeting. On all the three days, there will be cultural programmes in the evening. We are also planning to have an exhibition of Ayurvedic medicine manufacturers, machinery manufacturers, medicinal plants and book sellers and publishers, etc. We are bringing out a souvenir on that occasion.

This is an advance intimation and the exact dates will be communicated in due course. In the meanwhile, we seek your good wishes and co-operation for making these endeavours a great success.

We extend to you a hearty welcome to associate with our Centenary Celebration.

Yours truly,

(P.K. Warriar)

Managing Trustee & Chief Physician

Dear Readers,

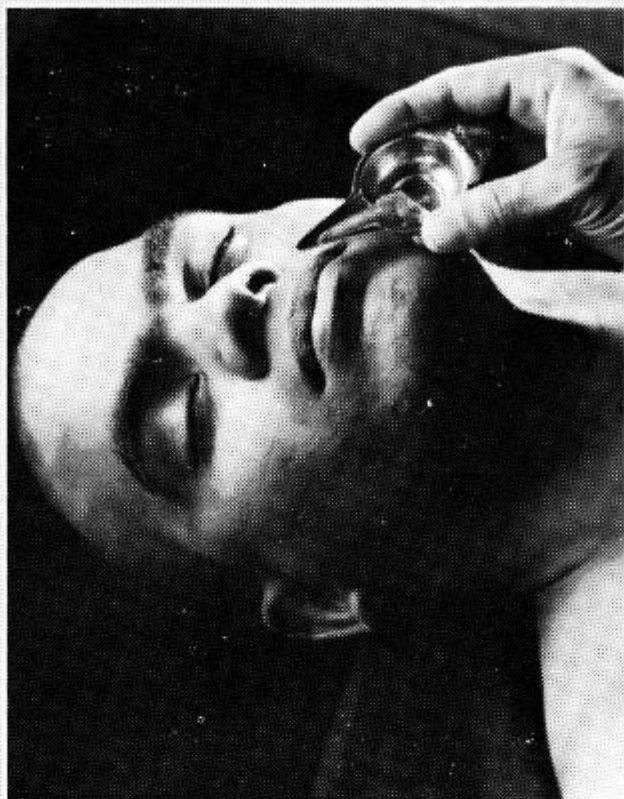
Due to ill health it has become practically impossible for me to continue as the Chief Editor. On my request, Arya Vaidya Sala authorities have agreed to relieve me of that responsibility.

I am glad that Dr. K.G. Paulose, reputed Sanskrit scholar, formerly Principal of Govt. Sanskrit College, Registrar of Sree Sankaracharya University and author of many masterly works have consented to take up the charge of the Publication Department.

I thank one and all for the patronage you have extended to me. I will continue to associate myself, as consultant to the Editorial Board, for the promotion of the Publications so as to fulfill the dreams of the founder.

*Nitinishmanlal Vaidya*

**Probably  
the first  
waste  
disposal  
system  
ever  
invented  
for the  
human  
body.**



**W**e wouldn't really blame you if you received the above statement with an air of disbelief. Because the things we do at Arya Vaidya Sala, Kottakkal, are unique, to say the least.

Above is a fitting example. It is called 'Nasyam', a part of Panchakarma, an Ayurvedic method of treatment where medicinal drops are administered through the nasal passage. The resultant effect is the drainage of waste from the nose and throat, and a pronounced relief of heaviness of the head.

There's more to Arya Vaidya Sala, Kottakkal than some unique modes of treatment.

Founded in 1902 by the visionary, Vaidyaratnam P.S. Varier, the Arya Vaidya Sala, Kottakkal, a charitable institution, is a virtual repository of Ayurvedic wisdom. With an unparalleled knowledge of medicines and treatments. Which is why thousands of Indians and foreigners visit us every year.

Arya Vaidya Sala, Kottakkal. Here, Ayurveda is a way of life.



Vaidyaratnam P.S. Varier's  
**ARYA VAIDYA SALA**

Kottakkal - 676 503 Kerala  
Tel: (0493) 742216 - 19, 742561 - 64 & 742571  
Fax: 0493 - 742572, 742210, Web Site: www.aryavaidyasala.com  
E-mail: kottakal@vsnl.com; kottakal@mid3.vsnl.net.in



Vaidyaratnam  
P.S. Varier

**Ayurveda. The Authentic Way.**

Mudra:AV:844

Printed at the Mathrubhumi M.M. Press and published by Aryavaidyan P.K. Warriar, Managing Trustee  
Arya Vaidya Sala, Kottakkal for and on behalf of Arya Vaidya Sala, Kottakkal.

Chief Editor : Dr. K.G. Paulose

Type Setting : Publication Department, Arya Vaidya Sala

# āryavaidyan

A Quarterly Journal of  
the Arya Vaidya Sala, Kottakkal.

Vol. XV. No. 1

Regn. No. 55127/87

August - October 2001

Aryavaidyan is intended to encourage scientific writing and intellectual interactions among scholars, academicians, practitioners and students of Ayurveda and allied subjects like Siddha, Unani, modern medicine, etc.

## Editorial

From the pages of Vagbhata - LVI

Varier, N.V.K.

Pharmacognostical studies on *kutakappala*  
[*Holarrhena pubescens* (Buch.-Ham.)  
Wall. ex Don]

Krishnan Nambiar, V.P.,  
Jayanthi, A. and  
Sabu, T.K.

Preliminary investigations on morphological  
variations in *njavara* (*Oryza sativa*) ecotypes

Meera V. Menon and  
Potty, N.N.

Preliminary studies on the leaves and seeds  
of three *Cassia* species

Saraswathy Pasupathy,  
Vasanthakumar, K.G. and  
Bikshapathi, T.

A comparative clinical evaluation of *kutaja*  
(*Holarrhena pubescens*) in the management  
of *kitibha* (psoriasis)

Singh, O.P., Rai, N.P.  
and Pathak, N.N.

Chronic fatigue syndrome or *balavisramsa* -  
A comparative study

Champa Pant

Book review - Ayurvedic massage for health  
and healing

Madhavikutty, P.

Rasavaishika - XXV

Raghavan Thirumulpad, K.

त्रिदोष और शरीर के परमाणु (भाग २)

वारियर, पी. आर.