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A Quarterly Journal of the Arya Vaidya Sala, Kottakkal

āryavaidyan

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

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सततध्ययनं, वादः परतन्त्रावलोकनम् ।
तद्विद्याचार्यसेवा च बुद्धिमेधाकरो गणः ।।

"Constant study and discussion, a comprehensive understanding of the other sciences together with service to the Acharyas of these sciences are the group of factors that improve intelligence and memory power."

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Editorial.....

The task before us

It seems that crossings and confluences are often taken as auspicious by our elders provided they radiate more light and hopeful perspectives. Here, the transition from the 20th century to 21st century tempts us to widen our horizon of investigation since it represents the passage of time from one millennium to another also. So there is no wonder that for some months now our cultural sky is alive resounding with loud creative thoughts, reviewing the exploits of foregone times and trying to visualise the possible prospects as per the evolving perspective. It is true that the crossing of one century to another is only a change recorded in the almanac and not necessarily a turning point as such. But the occasion affords an opportunity and temptation to re-investigate the favourables and unfavourables as presented in the period of a specific time unit, here of a hundred years. So we can reasonably stretch our imagination to a further period of 100 years again and think of the nature of the flow of the course we can anticipate.

So, what we have here is the balance sheet of the 20th century. Let us leave aside the parameters or norms applied by our ancients to qualify a period as *ulsarpini* or *avasarpini* since it may confuse us with controversial arguments. If we go forward with the present-day judgements, the balance sheet is not bad. In this century we had both dark nights and bright days. The two world wars, the slaughter of crores in subjugated countries even with the dropping of atomic bombs, mass deaths due to starvation created by famines and pestilence, mutual killings in fratricidal wars fanned by racial and religious enmities, despotic tyrannical rules of imperialists and fascists, suppression of patriotic movements and cultural awakening of the down-trodden nations were all there and some still continue as cold wars, often exploding as open wars. This is the dark side, perhaps the darkest of all the epochs. This is the '*asura*' aspect. But we witnessed '*daivic*' aspects also. Holy resurrections of people everywhere awakened by cultural leaders, mass movements for freedom, equality and fraternity, for democracy and socialism and for the establishment of the fundamental rights of the people everywhere to live in peace enjoying health and cultural freedom. This struggle is still on. But it is consoling and even thrilling that at the end of the century it is this latter aspect that has gained the upper hand. And the present trend convincingly proves that the awakened consciousness of the people of the world is more alert than ever before.

But we refer to these aspects not with any intention to present our comments on the general aspects of a bygone century. We are concerned with the reflection of this background on medical science as a whole and particularly on traditional medicine. To remind ourselves how unpromising the conditions were at the beginning and how they have radically changed at the end of the century. We wish to point out that the prospects today are not at all bleary but is quite promising provided we are aware of the radical turn and unitedly try to cater to the conscious of the needs of the times, mending ourselves with necessary modifications of our attitudes and work.

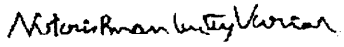
Let us remember that at the start of the last century, everywhere in the world including India and China the attitude of the imperialist rulers, the officials of the government and the western-educated elite were filled with contempt towards traditional cultures including indigenous medicine. We have records of utterances of even some provincial governors decrying attempts to raise a favourable stand towards ayurveda asserting that any pie spent for promotion of such indigenous systems is mere waste and that it will lead the country backward. In China also the same official attitude prevailed even at the period of Chiang Kaisheik.

But now we have a totally contrasting picture. It is unnecessary now to go into the details of this altered picture. We have before us the Alma Ata declaration of the WHO. It even upholds that without the utilisation of the traditional wisdom no substantial solution for the present-day health problems is feasible. "Repossession of our ancient wisdom" is a slogan now accepted by all progressive scientists of the highest calibre. Research programmes, as the Needham project in China, investigating the origin of the ideas and the objective background of Chinese science and culture are already there, started decades earlier. They are continued because it is an accepted idea that planning of science including medical for the future cannot be drawn without tracing the advancements in the past, and their contributions to the present era. The realisation that science is the product of social needs and is to serve humanity and that its merits can be justly disseminated only if the public is made conscious of its beneficial role also has gained more relevance now. We hear reports of mass health protection movements in China and elsewhere where the people take the initiative with the co-operation and help of authorities reaping better results also. So what we witness really is a radical change.

The spirit of science has changed. It no more attends to the patriarchal dictates of projecting personalities. It appeals to the common sense of the people and so strives to meet the aspirations of the man in the street. It seems to have rejuvenated itself shedding off its rigidities having learned from failures of old approaches in dealing with man as isolated in

a mechanical way. So the change is now for looking at the study of man as a whole and the aim of all present researchers is governed with such a vision is a salient feature of the present times, which is worthy of welcome by all. Because what it unfolds is the perspective of a bright opportunity tending to unite efforts for the synthesis of the traditional and modern knowledge, sanctioned both by the needs of the times and the presence of improved facilities.

To recapitulate, what we need is essentially a critical analysis of the actual progress we have gained so far and our ability to utilise these favourable circumstances. We have to fulfil the role expected from us as participants in the great movement for planning and promotion of science, for raising the standard of the health of the people not only in India but on a world scale. We have to understand that our right to welcome the new millenium will be judged by the way we fulfil this mission.



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FROM THE PAGES OF VAGBHATA - XLX

Varier, N.V.K.

Abstract: Discussion on the chapter *vamanavirechanavidhi* continues. The different degrees of purification and techniques employed afterwards for preserving the digestive fire, the consideration of *koshtha, balam, agni* and *dosha* dominance during *vamana* and *virechana* are discussed.

पेयां विलेपीमकृतं कृतं च
यूषं रसं त्रीनुभयं तथैकम् ।
क्रमेण सेवेत नरोऽन्नकालान्
प्रधानमध्यावरशुद्धिशुद्धः ॥ २९ ॥

(Peyam vilepeemakritam kritam cha
yoosham rasam treenubhayam
tadhaikam ।
kramena seveta naro5 nnakalan
pradhanamadhyavara
suddhisuddhah ॥ 29 ॥)

There are three types of purification for *vamana* i.e. *pradhana* (superior), *madhya* (medium) and *avara* (low). Those purified by superior, medium and low cleansings are to be subjected to follow a dietetic order with *peya* (thin gruel), *vilepi* (thick gruel), raw vegetable soup (not seasoned by ghee, oil, salt, sour or fried with spices, etc.), seasoned vegetable soup (taste improved by adding salt, sour and fried with ghee oils, etc.) raw meat soup and seasoned meat soup on 3, 2 and 1 *annakalas** respectively.

The digestive fire of those who have undergone *vamana* of the superior degree is expected to be very weak. In the middle degree the fire may be better and in minimum degree better than the other two types. Their return to usual diet has to be controlled by administering diets graded as per their heaviness as *peya, vilepi*, etc. The suggestion is to take every item of diet at three *annakalas* in the case of one who has undergone superior degree purification, two *annakalas* in medium degree and at one *annakala* in minimum degree purification. When passing from *peya* to *vilepi* and others, digestive capacity, bowel movements, etc. should be taken into care.

यथाऽणुरग्निस्तृणगोमयाद्यैः
सन्धुक्ष्यमाणो भवति क्रमेण ।
महान् स्थिरः सर्वपचस्तथैव
शुद्धस्य पेयादिभिरन्तराग्निः ॥ ३० ॥

* According to Arunadatta there are two *annakalas* on a day - one at midday and the other at night. Three *annakalas* will be spread over one and half days.

(*Yadhaऽ nuragnistrinagomayadyaih*
sandhukshyamano bhavati kramena ।
mahan sthirah sarvapachastathaiva
suddhasya peyadibhirantaragnih ॥ 30 ॥)

A spark of fire, when excited with hay, dry cow-dung, etc., gradually grows very big, firm and fit to burn anything. Similarly the digestive fire becomes strong by following the dietetic order (*peyadikrama*) in the case of one who is purified with purgation or emesis.

जघन्यमध्यप्रवरे तु वेगा-
श्चत्वार इष्टा वमने षडष्टौ ।
दशैव ते द्वित्रिगुणा विरेके
प्रस्थस्तथा स्याद्द्विचतुर्गुणश्च ॥ ३१ ॥

(*Jaghanyamaddhyapravare tu vega-*
schatvara ishta vamane shadashtau ।
dasaiva te dvitriguna vireke
prasthastatha syaddvichatur-
gunascha ॥ 31 ॥)

In the case of *vamana*, the number of desirable bouts for low, medium and superior purification are four, six and eight. In the case of *virechana* they are ten, twenty and thirty respectively. In *vireka*, the quantity to be purged in the case of low, medium and superior are one, two and four *prasthas** respectively.

पित्तावसानं वमनं विरेका-
दर्द्धं, कफान्तं च विरेकमाहुः ।
द्वित्रान् सविट्कानपनीय वेगान्
मेयं विरेके,वमने तु पीतम् ॥ ३२ ॥

(*Pittavasanam vamanam vireka-*
darddham, kaphantam cha virekamahuh ।
dvitran savitkanapaneeya vegan
meyam vireke, vamane tu peetam ॥ 32 ॥)

Vamana is to be stopped when *pitta* is seen and the quantity of vomit is half the quantity of purgation ie; half *prastha* in low degree, one *prastha* in medium and two *prasthas* in superior degree. *Vireka* is to be stopped when *kapha* comes out. In purgation, these measurements are to be done after rejecting two or three early purges containing faeces. The initial bouts in emesis, which contain the medicine taken in for inducing emesis, are also to be omitted.

अथैनं वामितं भूयः स्नेहस्वेदोपपादितम् ।
श्लेष्मकाले गते ज्ञात्वा कोष्ठं
सम्यग्विरेचयेत् ॥ ३३ ॥

(*Athainam vamitam*
bhooyah snehasvedopapaditam ।
sleshmakale gate jnatva
koshtam samyagvirechayet ॥ 33 ॥)

One who has properly undergone emesis therapy can also be made fit to undergo purgation therapy, after subjecting to *snehana* and *svedana* as per the rules. Care is given to assess the nature of bowel and digestive fire. Then administer the drugs to make proper purgation after the elapse of *kaphakala*.

The *koshta* (bowel) is of three types. *Kroora* (hard, due to excess of *vata*) *madhya* (due to equality of doshas or predominance of *kapha*) and *mridu* (due to excess of *pitta*).

Ashtangasamgraha instructs not to proceed purgation without doing *vamana* first, except in cases of very hard bowels. If the medicine for

*In the context of emesis, purgation and venesection, one *prastha* is to be calculated as thirteen and half *palas* not thirty-two *palas* as mentioned in *kalpasthana*. 1 *pala* = 58.3 ml

purgation is given to one who has not undergone *vamana* treatment at first, there is a chance of vomiting the medicine due to excess of *kapha* (the medicine acts upwards). Or, it may remain stuck up at the chest. So the medicine will not act or may not help proper purgation. Even if purgation is created, the *kapha* that gets stucked up at the lower part, having covered *grahani* (*pachaka pitta*) creates heaviness and *pravahika*s (interrupted sensation of motion without enough purges). In very hard bowels, where *vata* is strong this may not be harmful.

The medicine for purgation is to be given only after the lapse of the morning time, in which *kapha* is more active. The first one third of the day is termed as *kaphakala*. If medicine is served at this time, similar troubles described above may be produced. Or it may create troubles like stomach pain, distention of stomach, heaviness and others which make *kapha* weak, so that purges are seen only in the evening or at night. Here it works as in case of covering by food (*annavarana*) and may also create vomiting.

बहुपित्तो मृदुः कोष्ठः क्षीरेणापि विरिच्यते ।
प्रभूतमारुतः क्रूरः कृच्छ्राच्छ्यामादिकैरपि ॥ ३४ ॥

(*Bahupitto mriduh koshtah*
ksheerenapi virichyate ।
prabhootamarutah kroorah
kricchracchyamadikairapi ॥ 34 ॥)

A bowel with excess of *pitta*, being soft, purgation is produced even by milk. In hard bowels, created due to predominance of *vata*, even drastic purgatives as *syama* (*Operculina turpethum*), *sudha* (*Euphorbia tirucalli*), *aragwadha* (*Cassia fistula*), etc., may fail to create purgation.

Ashtangasamgraha adds, purgation is produced in *mridukoshta* (soft bowel) even by juice of sugarcane, sour liquids, buttermilk, whey jaggery, cooked sesamum, ghee, new wine, hot water, fruits of *peelu* (*Salvadora persica*), grapes, arecanut, etc.

कषायमधुरैः पित्ते विरेकः,कटुकैः कफे ।
स्निग्धोष्णलवणैर्वायौ....

(*Kashayamadhuraih pitte virekah,*
katukaih kaphe ।
snigdhoshnalavanairvayau-)

In *pitta*, medicines that are astringent and sweet (like *aragwadha*) in taste are to be given for purgation. In *kapha* it should be acrid in taste [like cardamom, *nikumba* (*Baliospermum montanum*)and *kumba* (*Operculina turpethum*), etc]. In *vata*, unctuous medicines (like castor oil) made hot and salty are to be served.

....अप्रवृत्तौ तु पाययेत् ॥ ३५ ॥
उष्णाम्बु, स्वेदयेदस्य पाणितापेन चोदरम् ।

(*apravrittau tu payayet* ॥ 35 ॥
Ushnambu, svedayedasya
panitapena chodaram ।)

If the purgative is not working, drink hot water, and foment the abdomen with patient's own palm made hot by exposing to heat.

उत्थानेऽल्पे दिने तस्मिन्भुक्त्वाऽन्येद्युः
पुनः पिबेत् ॥ ३६ ॥
अदृढस्नेहकोष्ठस्तु पिबेदूर्ध्वं दशाहतः ।
भूयोऽप्युपस्कृततनुः स्नेहस्वेदैर्विरेचनम् ॥ ३७ ॥
यौगिकं सम्यगालोच्य स्मरन्पूर्वमतिक्रमम् ।

(*utthane'lpe dine tasminbhuktvaanyedyuh*
punah pibet ॥ 36 ॥

Adridhasnehakoshtastu pibed-
oordhvam dasahatah ।
bhooyo'pyupaskritatanuh
snehasvedairvirechanam ॥ 37 ॥)
Yaugikam samyagalochya
smaranpoorvamatikramam)

On that day, if the purgation is poor, take food and administer purgative medicines again next day. In the case of unassured unctuousness of bowels treat the body again with *snehana* and *svedana* for ten days. Select the appropriate medicine after due reflection, considering the cause and nature of previous disorder and administer.

Samgraha says that failure of proper purgation may occur due to various factors. In women it may be due to feeling of shame, fear, etc. Those who work in royal palaces (king's aides) and merchants are prone to blocking of *vegas*. They are *sadathuras*. They are more prone to affliction by *vata* and not easy to induce purgation. But they need periodical cleansing. These people have to be lubricated properly and fomented and then only treated with purgation. Others who commit malpractices as taking untimely food, doing heavy work and having unsuitable behaviour should undergo similar method in whom purgation is very difficult.

हृत्कुक्ष्यशुद्धिररुचिरुत्क्लेशः श्लेष्मपित्तयोः ॥ ३८ ॥
कण्डूर्विदाहः पिटिकाः पीनसो वातविड्ग्रहः ।
अयोगलक्षणं योगो वैपरीत्ये यथोदितात् ॥ ३९ ॥

(hritkukshyasuddhiraruchirutklesah
sleshmapittayoh ॥ 38 ॥)
Kandoorvidahah pitikah peenaso
vatavitgrahah ।
ayogalakshanam yogo vaipareetye
yathoditat ॥ 39 ॥)

Feeling of impurity in chest and in stomach, anorexia provoked by oozing of *kapha* and *pitta*, itching, burning sensation, eruptions, running nose and holding of *vata* and faeces (not moving downwards) are the symptoms of *ayoga* of *virechana* (inadequate purgation). The opposite conditions are gained in *samyakyoga* - proper action.

विट्पित्तकफवातेषु निःसृतेषु क्रमात्स्रवेत् ।
निःश्लेष्मपित्तमुदकं श्वेतं कृष्णं सलोहितम् ॥ ४० ॥
मांसधावनतुल्यं वा मेदःखण्डाभमेव वा ।
गुदनिःसरणं तृष्णा भ्रमो नेत्रप्रवेशनम् ॥ ४१ ॥
भवन्त्यतिविरिक्तस्य तथाऽतिवमनामयाः ।

(Vitpittakaphavateshu
nihsriteshu kramatsravet ।
nihsleshmapittamudakam svetam
krishnam salohitam ॥ 40 ॥
Mamsadhavanatulyam va
medahkhandabhameva va ।
gudanihsaranam trishna bhramo
netrapravesanam ॥ 41 ॥
Bhavantyativiriktasya tatha'
tivamanamayah ।)

In excessive purgation faeces, *pitta*, *kapha* and *vata* are expelled one by one. Watery purgation without *kapha* and *pitta*, coloured white, black or bloody or like the water by which meat is washed, or with pieces of solid fat, are seen. Prolapse of anus (rectum and anus), thirst, dizziness and sunken eyes are seen. Also, symptoms of excessive vomiting are seen.

सम्यग्विरिक्तमेनं च वमनोक्तेन योजयेत् ॥ ४२ ॥
धूमवर्ज्येन विधिना ततो वमितवानिव ।

क्रमेणान्नानि भुञ्जानो भजेत्प्रकृतिभोजनम् ॥ ४३ ॥

(*samyagviriktamenam cha*
vamanoktena yojayet ॥ 42 ॥
dhoomavarjyena vidhina tato
vamitavaniva ।
Kramenannani bhunjano
bhajetprakritibhojanam ॥ 43 ॥)

He who has undergone a proper purgation is to be treated with all therapeutic techniques adopted in proper *vamanakarma* except *dhoomapana*. Then as directed in proper emesis, he has to be served with dietetic courses (*peya* order) and gradually returned to normal diet.

मन्दवह्निमसंशुद्धमक्षामं दोषदुर्बलम् ।
अदृष्टजीर्णलिङ्गं च लङ्घयेत्पीतभेषजम् ॥ ४४ ॥
स्नेहस्वेदौषधोत्क्लेशसङ्गैरिति न बाध्यते ।

(*Mandavahnimasamsuddhamakshamam*
doshadurbalam ।
adrishtajeernalingam cha
langhayetpeetabheshajam ॥ 44 ॥
Snehasvedaushadhotklesasangairiti
na baddhyate ।)

One who has taken medicine being with low digestive fire, is not purged but at the same not exhausted, weak by the power of *doshas* and no symptom of the digestion of medicine is seen, then he has to undergo *langhana* as fasting. Oozing of *doshas* and resultant obstruction to *srotas* due to the administration of *snehana*, *svedana* and the purgatives can be prevented by *langhana*.

According to Charaka *vata* working in proper order, feeling of undisturbed condition, proper hunger and thirst, calmness and happiness of mind, lightness, purity of organs and eructation are the symptoms seen when the medicine is properly digested. Tiredness, burning sensation, exhausted organs, dizziness, swoons, headache, restlessness and weakness are the symptoms of undigested condition of ingested medicine.

संशोधनास्रविस्रावस्नेहयोजनलङ्घनैः ॥ ४५ ॥
यात्यग्निर्मन्दतां तस्मात् क्रमं पेयादिमाचरेत् ।

(*samsodhanasravisravasneha*
yojanalanghanaih ॥ 45 ॥
Yatyagnirmandatam tasmat
kramam peyadimacharet ।)

Procedures of *vamana*, *virechana*, blood letting, *snehana* and *langhana* will weaken the digestive fire. Hence dietetic order of *peya* is to be followed in this condition.

स्रुताल्पपित्तश्लेष्माणं मद्यपं वातपैत्तिकम् ॥ ४६ ॥
पेयां न पाययेत्तेषां तर्पणादिक्रमो हितः ।

(*srutalpapittasleshmanam*
madyapam vatapaittikam ॥ 46 ॥
Peyam na payayettesham
tarpanadikramo hitah ।)

The dietetic order is not advised to one who has discharged a little of *pitta* and *kapha*, those who are addicted to alcohol and in those whom *vata* and *pitta* are dominant. Here *tarpanakrama* is to be given. *Tarpana* is ball shaped recipe prepared with popped rice (*laja*). It is also called *mantha*. This is to be given at the first mealtime, and rice with meat soup at the second mealtime and so on.

अपक्वं वमनं दोषान् पच्यमानं विरेचनम् ॥ ४७ ॥
निहरेद्वमनस्यातः पाकं न प्रतिपालयेत् ।

(*apakvam vamanam doshan*

pachyamanam virechanam ॥ 47 ॥)
Nirharedvamanasyatah
pakam na pratipalayet ।)

In *vamana* the medicine without undergoing digestion expels *doshas*. In *virechana*, it acts after digestion. So in the case of *vamana* do not wait for the medicine to be digested.

Here the difference of action in *vamana* and *virechana* is pointed out. *Vamana* is induced by the emetics without getting digested. But in *virechana*, the medicine undergoes digestion and then purges are produced.

दुर्बलो बहुदोषश्च दोषपाकेन यः स्वयम् ॥ ४८ ॥
विरिच्यते भेदनीयैर्भोज्यैस्तमुपपादयेत् ।

(*durbalo bahudoshascha*
doshapakena yah svayam ॥ 48 ॥)
Virichyate bhedaneeyairbhojyai-
stamupapadayet ।)

A person who is weak and with excess of *doshas*, develops purgation due to *paka* of *doshas*. Such men are to be treated with foods that are aperients like *yavakshara*, etc.

दुर्बलः शोधितः पूर्वमल्पदोषः कृशो नरः ॥ ४९ ॥
अपरिज्ञातकोष्ठश्च पिबेन्मृद्वल्पमौषधम् ।
वरं तदसकृत्पीतमन्यथा संशयावहम् ॥ ५० ॥

(*durbalah sodhitah poorva-*
malpadoshah kriso narah ॥ 49 ॥
Aparijnatakoshthascha
pibenmridvalpamaushadham ।
varam tadasakritpeeta-
manyadha samsayavaham ॥ 50 ॥)

Persons who are weak, who were not subjected to purificatory treatments earlier, who have only a little quantity of *dosha*, who are emaciated and whose nature of the bowels is unknown, are to be given mild medicines in small doses. Here it is better to give the medicine repeatedly. Otherwise (if high dose of medicine or cathartic medicines are given all on a sudden) it creates uncertain effects (doubts regarding the safety of life).

हरेद्बहूंश्चलान् दोषानल्पानल्पान् पुनः पुनः ।
दुर्बलस्य मृदुद्रव्यैरल्पान् संशमयेत्तु तान् ॥ ५१ ॥
क्लेशयन्ति चिरं ते हि हन्युर्वैनमनिर्हृताः ।

(*Haredbahoomschalan doshan-*
alpanalpan punah punah ।
durbalasya mridudravyairalpan
samsamayettu tan ॥ 51 ॥
Klesayanti chiram te hi
hanyurvainamanirhritah ।)

In weak persons with excess of *doshas* in moving conditions, eliminate the *doshas* repeatedly little by little. If the *doshas* are only a little, pacify them with mild medicines. If the excess *doshas* are not expelled properly, it may go on creating sufferings to him for a long time or may even kill him.

मन्दाग्निं क्रूरकोष्ठं च सक्षारलवणैर्घृतैः ॥ ५२ ॥
सन्धुक्षिताग्निं विजितकफवातं च शोधयेत् ।

(*mandagnim kroorakoshtham cha*
saksharalavanairghritaih ॥ 52 ॥
Sandhukshitagnim vijitakaphavatam
cha sodhayet ।)

One who is with weak digestive fire and with hard bowels, ghee is given added with *kshara* (alkalies) and *lavana* (salt) for flaring up the digestive fire. Then purification procedures are administered after conquering *kapha* and *vata*.

रूक्षबद्धनिलक्रूरकोष्ठव्यायामशीलिनाम् ॥ ५३ ॥
दीप्ताग्नीनां च भैषज्यमविरेच्यैव जीर्यति ।
तेभ्यो वस्तिं पुरा दद्यात्ततः स्निग्धं विरेचनम् ॥ ५४ ॥
शकृन्निर्हृत्य वा किञ्चित्तीक्ष्णाभिः फलवर्तिभिः ।
प्रवृत्तं हि मलं स्निग्धो विरेको निर्हरेत्सुखम् ॥ ५५ ॥

(rookshabahvanilakroorakoshta-
vyayamaseelinam ॥ 53 ॥
Deeptagneenam cha
bhaishajyamavirichyeva jeeryati ।
tebhyo vastim pura dadyattatah
snigdham virechanam ॥ 54 ॥
Sakrinnirhritya va kinchitteekshnabhih
phalavartibhih ।
pravrittam hi malam snigdho vireko
nirharetsukham ॥ 55 ॥)

In those who are with dry, excessively *vata* dominated, hard bowels and those who are practising exercises daily and having enogh digestive fire, the medicine (purgative) may get digested without creating purgation. To such people, first give *vasti* or put pungent suppositories (prepared with *madana* fruits) to remove some faeces and then give unctuous purgatives. When the discharge of faeces is seen it is very safe to administer unctuous purgatives.

विषाभिघातपिटिकाकुष्ठशोफविसर्पिणः ।
कामलापाण्डुमेहार्तान्नातिस्निग्धान्
विशोधयेत् ॥ ५६ ॥
सर्वान् स्नेहविरेकैश्च, रूक्षैस्तु स्नेहभावितान् ।

(Vishabhighatapitikakushtha-
sophavisarpinah ।
kamalapandumehartannati-
snigdhan visodhayet ॥ 56 ॥
Sarvan snehavirekaischa,
rookshaistu snehabhavitan ॥)

People who are affected with poisons, traumas (injuries), abscesses, skin troubles, swellings, *visarpa* (ersypelas), jaundice, anaemia and diabetes are subjected to mild oleation when undergoing purgation. They all are to be purified by administering unctuous purgatives. But those who are more acquainted with unctuousness are to be treated with dry purgatives.

कर्मणां वमनादीनां पुनरप्यन्तरेऽन्तरे ॥ ५७ ॥
स्नेहस्वेदौ प्रयुञ्जीत, स्नेहमन्ते बलाय च ।

(karmanam vamanadeenam
punarapyantare'ntare ॥ 57 ॥
Snehasvedau prayunjeeta,
snehamante balaya cha ।)

Oleation and sudation are to be repeatedly employed between the therapeutic measures as *vamana*, *virechana*, etc., and in the end *snehana* (oleation) is to be done for increasing the strength.

मलो हि देहादुत्क्लेश्य ह्रियते वाससो यथा ॥ ५८ ॥
स्नेहस्वेदैस्तथोत्क्लिष्टः शोध्यते शोधनैर्मलः ।

(malo hi dehadutklesya hriyate
vasaso yatha ॥ 58 ॥
Snehasvedaistathotklishtah
soddhyate sodhanairmalah ।)

By *snehana* and *svedana*, *mala* gets percolated and move from the body – as the dirt in clothes are moved by pressing, washing, etc. – and get purified by *sodhana*.

स्नेहस्वेदावनभ्यस्य कुर्यात्संशोधनं तु यः ॥ ५९ ॥
दारु शुष्कमिवऽऽनामे शरीरं तस्य दीर्यते ।

(snehasvedavanabhyasya
kuryatsamsodhanam tu yah ॥ 59 ॥
Daru sushkamiva'name sareeram
tasya deeryate ।)

He who does purification without practising *snehana* and *svedana* destroys his body as a dry stick. The dry stick can be easily bent, without breaking, if properly oiled and exposed to sufficient heat.

बुद्धिप्रसादं बलमिन्द्रियाणां
धातुस्थिरत्वं ज्वलनस्य दीप्तिम् ।
चिराच्च पाकं वयसः करोति
संशोधनं सम्यगुपास्यमानम् ॥ ६० ॥

(*Buddhiprasadam*
balamindriyanam
dhatusthiratvam
jvalanasya deeptim ।
chiraccha pakam
vayasah karoti
samsodhanam samya-
gupasyamanam ॥ 60 ॥)

If purification is done properly, it creates clarity and efficiency of intelligence, strength (or vitality) of the sense organs, firmness of the tissues (protection from upsetting), proper function of digestive fire and delays aging process.

इति श्रीवैद्यपतिसिंहगुप्तसूनुश्रीमद्वाग्भटविरचितायामष्टाङ्गहृदयसंहितायां सूत्रस्थाने वमनविरेचनविधिर्नामाष्टादशोऽध्यायः ।

(*Iti srisimhaguptasoonusreemadvagbhatavirachitayamashtangahridayasamhitayam sootrasthane vamanavirechanavidhirnamashtadasoऽddhyayah* ।)

So the eighteenth chapter titled *Vamanavirechanavidhi* (procedures for emesis and purgation) of the suthrasthana of the Ashtangahridayasamhita composed by Sri Vagbhata, the son of Vaidyapathy Simhagupta.

Then we proceed to the chapter titled procedure of *Vasti*.

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APOPTOSIS: CELLULAR AND OTHERWISE*

Madhavankutty, K.**

It is with a heavily mixed feeling of nostalgia, happiness and sorrow that I stand before you today and I am extremely thankful to my old students, friends and colleagues who have persuaded me to attend this function. For our relationship was the ideal *guru-sishya* relationship, so magnificently illustrated by Mahakavi Vallathol in his famous poem about Shivaji –

"പോയിദ്ദക്ഷിണയായ് സ്വരാജ്യമഖിലം
നൽകുന്നവൻ ശിഷ്യൻ; തനി-
ക്കായിട്ടിങ്ങൊരു പാഴ്മണൽത്തരിയുമേ
വേണ്ടാത്തവൻ ദേശികൻ"

and it is my hope and prayer that this tradition will be maintained by the medical profession in the years to come.

I said nostalgia for the twenty years that I have spent in this campus, the most productive and pleasant part of my life, happiness for the innumerable association and friendships and camaraderie that I have had the privilege to enjoy. And sorrow for the departure of senior colleagues and even young friends with endless potential like Prof. Malathi Amma in whose honour this lecture is being delivered today. An erudite scholar, a dedicated research worker, an enthusiastic teacher and a gifted organizational worker, she was a shining example of an ideal profile of a medical teacher. It is said that whom the Gods love die young. And so it must be with Prof. Malathi Amma. Bhagwat Geetha exhorts us that we should not grieve about the loss of anybody.

न जायते म्रियते वा कदाचि-
न्नायं भूत्वा भविता वा न भूयः ।
अजो नित्यः शाश्वतोऽयं पुराणो
न हन्यते हन्यमाने शरीरे ॥

The *atman* is never born and never dies. It does not occur once nor does it disappear. Because *atman* is without birth, is eternal and permanent. When the body dies, the *atman* is not killed.

Apoptosis – A modern Cinderella

I think that you have chosen the topic of Apoptosis for this C.M.E. also rather symbolically. This subject which was mentioned in a

* *Prof. Malathi Amma Memorial oration delivered at the Thiruvananthapuram Medical College. Prof. Malathi Amma was the Professor of Biophysics and was the wife of Dr. C.P. Ravindran, Director of the Dhanwantari Madom Vaidyasala of Thiruvananthapuram.*

** *Retd. Principal, Medical College, Thiruvananthapuram, Kerala.*

mute manner in only one or two sentences even as late as the nineties has assumed such significance at the turn of the millennium. This type of development is not new either to physiology or medicine. Endocrinology was not known before 1903 and the very word hormone was coined by Starling only in 1905. We did not study about antibiotics or penicillin in our bacteriology (not microbiology) classes and we did not teach anything about AIDS when we were teachers. Such has been the explosive expansion in all branches of medicine so that unless one keeps all our senses attuned at all times, we are liable to get into a situation of "Future Shock" as described by Alvin Toffler, in the ever-expanding horizon of medical advances and will be left not as footprints but as trash in the sands of time.

Apoptosis is a Greek word (as 23.5% of all words in the medical terminology are). Ptosis means falling and apo means off. This is analogous to leaves falling off from a tree. It has also been termed as programmed cell death (PCD) or as cell suicide. We now realise that it is a common process as for example during cell formation in the Central Nervous System or destruction of cells whether in inappropriate clones of immunity or for the regression of unwanted ducts or webs in foetal life or in the sloughing off of the endometrium in menstruation or of the intestine all the time. It is of significance that when this suicide is insufficient or inappropriate that we get auto-immune disease, neuro-degenerative diseases and cancer. All these kaleidoscopic aspects of apoptosis is to be presented here by an array of distinguished speakers, so that it will be sacrilegious on my part to delve into the details of these phenomena. "Fools rush in where angels fear to tread" is an old proverb. While I would encourage and applaud all the angels who are ready to give their discourse on the various aspects of apoptosis, I don't want to be a fool to rush into the unchartered sea of molecular biology, strewn as it is with the confused hypothesis of many an astute researcher in the vast field of genetics. Please remember that it is fear of the word "Fool" which denied us a vitamin F. After the discoveries of vitamins A, B, C, D and E, the sixth vitamin discovered should have been called F. But the German scientist who discovered it wanted to avoid 'F' and called it vitamin K, after the German spelling for coagulation.

Apoptosis need not be confined to the narrow sphere of cell physiology, its development, control and destruction. I believe it is a universal phenomenon which affects our entire society and is the basis of our socio-economic and political existence as it were. It is only when individuals representing the cells join together and form a conglomeration, that a society takes shape. The society gains strength and becomes powerful only when the younger members i.e. the young cells have dynamism and adaptability to mould themselves into a pre-determined pattern of innate strength and cohesion. When this discipline is upset and the individuals go into egoistic excursions and the codes and signals of proper development are misunderstood or misinterpreted as happens in errors of translation leading to aging or even cancer, there are only two alternatives before the cells or individuals. Either they out of their free will and in deference to the common good of the society commit *hara-kiri* or go into a situation of programmed

cell death or they have to be destroyed or murdered by an outside agent like an antibiotic drug or a chemotherapeutic agent as in malignancy.

The latter is not always successful and that is why we often fail in the treatment of cancer or autoimmune diseases or neuro-degenerative diseases. On the other hand if the individuals are disciplined and decide to commit suicide for the common cause of the health and life of the social fabric, the degenerative process can often be controlled or checked. Therefore apoptosis is a universal phenomenon met with in all socio-political events. If the individuals become selfish and is unwilling to sacrifice themselves and do apoptosis for the common good of the society at large, the entire society becomes malignant and only a highly traumatic procedure can save the situation. And it is always the old, adamant individuals who have lost their elasticity and youth; who refuse to sacrifice themselves for the common good of the society and for whom cell murder becomes inevitable.

This reminds me of the famous observations of Sir William Osler, the father of modern medical education, in his speech, on the eve of his retirement as the Professor of Medicine from John Hopkins of Baltimore and before going as Regius Professor in the university of Oxford. This speech has been given in full in his delectable book "Aquanimitas and other essays" which ought to be compulsory reading for every medical student. In this speech he says that human beings can be divided into 2 groups, the anabolic group of people below 40 and the katabolic group of above 40. He says that all the good things of life have been done by people under 40. Gray wrote his text book of anatomy when he was 24, Byron, Shelley and Keats composed all their best poems before they were 30, Paul Gaguin and Michael Angelo painted their best portraits likewise and William Pitt, the younger was the Prime Minister of great Britain in his twenties. To which I may add – Adisankara, Vivekananda, Toru Dutt, Changampuzha, V.C. Balakrishna Panicker and Sanjayan. He also said that all the bad things in this would have been done by people above 40, all the bad poems, rotten sermons, boring books, unrequired advice and all the bad speeches like the one I am doing right now, has been by people in the katabolic phase of life. Therefore taking a tip from the famous novel by Anthony Trollope, he says that people above the age of 60 should be taken to an island, given all the pleasures that they would like to have for 2 years and then chloroformed to death, for I believe that is the pleasantest way to die. I used to admire this advice for a long period after I read this book, but for some years now I have been singularly silent for reasons that you can judge for yourself. Be that as it may, the truth of the matter is that cell suicide or apoptosis is a singularly strange but fully understable and exceptionally efficient method of preserving the mileau interior and homeostasis of the system, which in the long run is the ultimate goal of all living organisms. Hence this phenomenon requires as much in-depth study as possible. Let me state that it is the same idea which Mahakavi Kalidasa had when he stated –

"पूराणमित्येव न साधु सर्वं
न चापि काव्यं नवमित्यवद्यम् ।
सन्तः परीक्षान्यतरेत् भजन्ते
मूढः परप्रत्ययनेय बुद्धिः ॥"

We should not believe in antiquated ideas simply because it is old and ancient. We should not condemn a poem because it is new. (We should welcome innovative knowledge). The learned chooses the best. It is the fool who is led by others. We should mix the old and new to achieve our mental and intellectual homeostasis. Let noble thoughts come to us from all sides.

आ नो भद्राः कृतवो यन्तु विश्वतः ॥

ALL INDIA AYURVEDIC ESSAY COMPETITION - 2000 FOR VAIDYARATNAM P.S. VARIER PRIZES

Kottakkal Arya Vaidya Sala invites essays for the award of "**Vaidyaratnam P.S.Varier Prizes",** for promoting research in Ayurveda. Cash award of Rs. 25,000/- and Rs. 15,000/- will be given to the entries adjudged 1st and 2nd respectively. Topic for this year's competition is "**Myopathy – Ayurvedic perspective**". The last date for receipt of the entries is 30th September, 2000. Rules and regulations for the competition can be had from the Managing Trustee, Arya Vaidya Sala, Kottakkal, Malappuram Dist., Kerala - 676 503, Fax: 0493-742572; 0493-742210.

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DEVELOPMENT OF HERBAL DRUGS AND THE AYURVEDIC MEDICINAL SYSTEM

Murali T.S. and Warrier P.K.*

Abstract: Development of new herbal drugs is a field of intense activity. The research back up for this activity is based on the available knowledge base of modern science as well as of traditional health care systems. Ayurveda holds a great potential to offer practical and philosophical inputs to this burgeoning area. At the same time, it should also be recognised that the ayurvedic pharmaceutical principles and practices have a lot of unique and characteristic intricacies which may not permit a point-to-point correlation between the tradition and its modern adaptations. An attempt has been made here to take a general view of certain characteristic aspects of ayurvedic approaches with particular reference to their compatibility to the modern needs.

Introduction

An attempt is being made here to examine certain aspects of the ancient Indian health care system of ayurveda, in relation to their role in the development of the so-called "herbal medicines". It is generally recognised that the changing global scenario holds forth quite encouraging scope and potential for the development of herbal drugs. But there are several doubts and apprehensions in the minds of professionals. These doubts are emanating from the basic notions about the principles and practices of ayurveda as well as from a general lack of details about the generalities and specificities of herbal drugs. Thus this will be an effort restricted within the axiomatic framework of ayurveda rather than venturing into the uncertain domain of herbal drugs. The intention is to present a general picture of the ayurvedic approaches. These aspects will be readily accepted by an ayurvedic professional; but an expert with the background of modern science may be unfamiliar with most of them.

Philosophical background

It is well recognised that ayurveda is not just a system of medicine. It is not even just a system of health care. It is something more than that. Ayurveda is basically a philosophy of life. It perceives human being as an integral part of nature. It has evolved a philosophical approach to deal with the predicaments of human existence. Exploitation is never a methodology practised by ayurveda while searching for remedies. It envisages a condition of cohabitation and

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mutual co-existence. Devoid of this philosophical frame-work, its therapies and medicaments become less efficacious. A certain amount of subjective and functional approach and a preconceived notion about the socio-economic structure do a lot to render the therapy more effective. That is not to say that the ayurvedic practice is possible only in the ancient social background. It is possible to modulate it to suit to modern times. But what is important is that even while dealing with the contemporary realities of life, the ayurvedic practitioner needs to philosophise a little on the human condition. That is why sage Charaka has very aptly stated that "पुरुषं पुरुषं वीक्ष्य स ज्ञेयो भिषगुत्तमः "[1]. The important point to be noted here is the fact that medicines are only one of the armaments of ayurveda. To say so is not to sideline or diminish the importance of medicaments. In the unique relationship between a physician and a patient, medicines, indeed, play a very significant role. But the physician will also have to resort to certain other techniques and approaches. It is well known that every disorder or ailment is perceived by ayurveda essentially as a psychosomatic manifestation. There is a very interesting simily used by Vagbhata. The inter-relationship between the mind and the body is described as " तप्ताज्यघटयोरिव "[2]. The mind is very aptly equated to ghee being held in a warm earthen pot, which is the body. The state of warmth or chill of either necessarily affects the state of the other. That is why the classical approach was always to use tailor-made medicaments uniquely designed to suit to the requirements of a patient. Because, the treatment, as is often mentioned, is not for the ailment; but it is exclusively for the patient.

Ayurvedic medicines

Having said that much about the philosophical background, one has to definitely recognise the ground realities. It is the fact that the ayurvedic system is sustaining and growing in the present times primarily because of the growth of the ayurvedic industry. In the absence of the industry, any number of expert ayurvedic practitioners would have found it practically impossible to practise their special knowledge and skill. Because, the modern man has neither the inclination nor the information for preparing dosage forms at home as prescribed by a physician. And the contemporary physicians are not well versed in the art of preparing dosage formulations. But, as mentioned earlier, the system has learnt to adapt to the modern times and the ayurvedic drug industry has come to stay. And it may be added that the future growth of ayurveda in a global manner will depend to a great extent on the growth potential of the industry. That is where the issue of herbal drugs becomes relevant. And that is exactly where the drug devising approaches of ayurveda will receive particular attention.

Before confronting the question of adaptability of ayurvedic pharmaceutical principles for developing modern herbal drugs, the general methodology of drug development in ayurveda should be considered. First of all, the point should be stressed that as a living system of health care, ayurveda presently employs a large variety of compound formulations. The use of single drugs for routine treatment is a rare specialty rather than a common practice. It is natural that in the initial stages of its development, ayurveda might have used single drugs quite ex-

tensively. It is also possible that there are individual practitioners still resorting to single drug therapy as isolated examples. But, as a matter of common practice, compound formulations are the main stay of ayurvedic drugs. This is an important fact which should be taken into account when herbal scientists draw examples and inferences from ayurvedic system.

The material component

An ayurvedic medicine has three basic components. The input materials, the dosage form and the processing method are the three major components. The component of input materials may be considered first. The contemporary ayurvedic drug industry makes use of about 600 major ingredient materials. In fact, ayurveda believes that there is nothing in the living world which does not serve as a useful drug component[3]. "जगत्येवं अनौषधं न" is a well known saying in ayurvedic parlance. The ingredients fall in three categories. The first consists of those coming from the vegetable kingdom. By a rough estimate, it may be said that about 80% of the total input materials belong to this category. The remaining ones hail from either animal kingdom or from mineral kingdom. One common aspect of all the three categories is that they all come from natural resources. That is to say, synthesising has little to do with ayurvedic pharmaceutical world.

There are two points to be highlighted here. The first one is that ayurvedic medicines are not exclusively herbal in character. Metals, minerals and animal products contribute substantially to ayurvedic formulations. An increasing tendency is seen in general perception to confuse between herbal and ayurvedic drugs. One is equated and often substituted for the other by lay-men. Strictly speaking, that is not appropriate. Ayurveda has no exclusive right over herbs. Medicinal plants or their derivatives are used by other systems of medicine like Siddha, Unani and even Allopathy. It is the diagnostic, therapeutic and pharmaceutical principles of application that decide whether a particular herbal preparation is ayurvedic or not. The presence of a herb in a formulation, in itself, does not mean much. In short, it can generally be stated that a herbal medicine need not necessarily be ayurvedic in its application and manifestation. Moreover, an ayurvedic medicine, very often, is some thing more than a herbal medicine.

The second point to be highlighted is about the use of synthetic molecules. Ayurveda, in the past and up to the present point of time, believes that every single ingredient material should be used as such. That is to say that an ingredient cannot be substituted by its chemical derivative. Ayurveda believes that "रसादीनां द्रव्यमेव श्रेष्ठं "[4]. It is interesting to note here that the World Health Organization has said almost the same thing in its Guidelines for herbal product importers[5]. It says that a herbal product can contain a plant or its specific part after appropriate processing. But it should not contain a chemically isolated component of that herb. The point is that even after identifying, isolating and finally synthesising the active principle of an ingredient material, one is not very sure whether that will suffice the needs of a drug. It may serve a limited purpose of acting in a focussed manner like a laser beam. But ayurveda believes in a broader spectrum approach where the minor and unidentified

principles present in the whole drug are expected to play their respective roles.

The reason for highlighting these aspects is only to underline the fact that any effort to develop herbal products may need to pay particular attention to various complex issues. Highlighting the possible points of mismatch between the methodologies of two drug systems is only to throw light in a particular angle. At the same time, it should be recognised that there are several areas of mutual agreement and they are all known to the experts. Throwing light from a different angle is only to strengthen the adaptive approaches.

One more point about the way ayurveda perceives the role of an ingredient material needs to be cited. It attributes five basic traits to an ingredient. They are "रसगुणवीर्यविपाकप्रभावानि". There is no need to go into the literal translations of these five attributes. It does not really help for our present purpose. The point to be made is the fact that all these five important attributes are extremely notional and functional in nature. It may be a futile attempt to try to establish these functional attributes by doing tests in the chemical laboratory. But the sages have collated an elaborate compendium of raw materials based on these parameters. The whole gamut of raw herbs are classified on the basis of their attributes. Even the Official Herbal Pharmacopoeia[6] quotes these factors for the 80 items of herbs standardised under governmental auspices. The question, "what is a material" is very objectively approached in ayurveda. An ingredient material is termed as a "द्रव्य". It may have its own specific values for all the five attributes. But what is a द्रव्य ? It is not one or the other of its attributes. It is not even the material matrix. But it is actually the manifestation of its properties. In fact, the functions and characteristics are termed as समवायीकारणं by Nagarjuna[7]. Devoid of its functions and properties, a material has no existence. This elaboration is extremely poetic and pregnant with philosophical connotations. At the same time, it is also the most objective explanation for its efficaciousness.

But, the present need is for obtaining clearly defined, precisely quantified and statistically reproducible objective standards in order to develop herbal products to satisfy global specifications. How far an exclusive ayurvedic expertise, on its own, will be able to help in this regard is a moot point. Perhaps, a hybrid scholar having expertise both in the traditional knowledge as well as in the modern scientific methods may be able to act as an effective interface in this area. Here again, the point to be noted is that the drug developers may have to take account of this unique feature of the ayurvedic methodology.

The dosage form

The second basic component of ayurvedic medicinal system is the dosage form. There are several dosage forms which are mentioned in ayurvedic texts. The Official Formulary[8] lists 20 different categories. Some of them have only regional importance. There could be different factors which might have contributed to the development of these dosage forms as compound formulations. One factor may be the need to preserve the drug. Compared to a raw herb, processed drug will have better keeping quality. Another factor may be patient compliance. A

processed drug will be easier to administer than several raw herbs. But more than that, it is also possible that over the period of several thousand years when ayurvedic practice evolved, the enhanced and faster efficacy of compound formulations was got established. A product having multiple components having the same effect is likely to have an enhanced combined effect. Yet another advantage is the possible bio-enhancing action of some of the components. Such action will result in better assimilation and target delivery. Similarly there is the additional facility to design a combination formulation in such a manner that the possible negative effect of a component can be effectively contained and masked by some other component. It is quite likely that all these factors might have played equal roles in establishing the compound formulations as the standard practice.

In the case of ayurvedic therapy, it is the dosage form rather than the dose itself which is more critical. It means that a physician decides a particular dosage form, say *kwatha, ghrita, gulika, avaleha,* etc. depending upon the specific need of the patient. This is generally known as *"kalpana"*. This choice depends on the strength of the constitutional system of the patient, the degree of severity of the ailment and also the patient's life style. Same or similar formulations are presented in different forms. *"Eladigana"* as in example. It is presented as a *choorna* or *taila* or an *avaleha.* Compared to this, the dose for administration is less critical. That is not to say that ayurvedic medicines can be taken without any concern for the administered dose. What is meant to say is that dose value in ayurveda is not as critical as in Allopathy. This is a general rule having several exceptions.

Another aspect of the ayurvedic formulations is their broad spectrum application. It is rather difficult to pin point a specific and singular indication for an ayurvedic medicine. It may be quite baffling to a modern practitioner when he is told that a medicine can be utilised as a diuretic or as an anti-diabetic and also as an anti-inflammatory drug. But that is the case with the very famous *"Chandraprabha Vatika"*. This broad spectrum efficaciousness arises from a fundamental principle of ayurvedic therapy. The ailment is the result of certain upsetting that might have occurred in the basic constitutional status, that is the inherent *tridosha* status, of the patient. Every ailment is connected to this constitutional tilting and the therapy is always targeted at this constitutional aspect. Thus, a medicine may deal with this condition and may show results in the outward ailment. Thus it appears that the importance of the dosage presentation (*kalpana*), the patient specific approach and the broad spectrum nature of its activity are the three important factors which herbal drug developers might need to take into account.

Apart from medicines administered orally, there is a large number of externally administered medicines as well in Ayurveda. They are not ointments or balms. They fall in a general group called *tailas* or oils. There are hundreds of them. They play a very significant role in the reputed Kerala special therapies which are essentially a group of preparatory steps administered prior to the *panchakarma* therapy. These *tailas* are externally applied on the different parts of the body, from head to toe. And there are

numerous modalities of application. An incidental reference is made to this important area, even though its utility to herbal drugs may be quite minimal.

One more aspect of the formulations needs to be mentioned here. As mentioned at the beginning, almost all of the ayurvedic medicines currently in use are multi-component in nature. A medicine like *Seetajwarari kashayam,* which comprises only two ingredients is a rare exception. There are examples of the other extreme like *Maharajaprasarini tailam* or *Sahasraputi* which contain 115 and 93 ingredients respectively. On an average, an ayurvedic medicine may consist of anything between 25 to 35 ingredients. The famous *Chyavanaprasam* contains 36 items. That being the case, how can one pin point with any degree of certainty that the observed efficaciousness of a medicine is arising out of this or the other particular ingredient? It is often seen that the different ingredients contained in the product do not necessarily have identical characteristics and properties. A further complication is added by the fact that in most of the cases these different drugs are all cooked in water medium as a preliminary step of processing. The solid residue is discarded and the aqueous extract is used for further processing to prepare a *taila, ghrita, avaleha* or *arishta.* This aspect is mentioned here in order to highlight the difficulty in attempting point-to-point correlation between ayurvedic medicines and herbal drugs. But, one must also consider what can be done in such a situation. One possible approach is to search for the presence of bio-active molecules in these compound formulations.

The processes

The third component of ayurvedic medicines is the processes by which they are prepared. The 20 different dosage forms are prepared by following different processes. But one basic preliminary step that is common to many of these different dosage forms is the preparation of aqueous extracts. This is done by boiling the combination of drugs in water at normal pressure. There are exceptions like *bhasmas* and *choornas* where this preliminary step of boiling is absent. But in several other cases like *arishtas, avalehas, tailas, ghritas, kashayas,* etc. the processing starts with extracting in water medium. The standard procedure for this step is to boil the required quantity of the drugs in 16 times its quantity of water and to bring it down to one fourth of its volume. In this connection, the classical texts use an expression "मृद्वग्निसाधितम्"[9]. It means to say that the processing should be done at a moderate temperature. It is not exactly known what the sages had in their minds when they specified moderate heating. But they were also boiling the drugs in water. And it is certain that the boiling point of water under normal pressure was 100°C then, as it is today. So it should be ascertained that the processing temperature does not go beyond that limit. By taking such a stand, it becomes imperative that the process should not be hastened by increasing the temperature by the use of thermic fluids. Nor is it advisable to resort to pressure cooking where the boiling point of water is likely to go much beyond 100°C. But evaporation under vacuum is permissible since the boiling point falls under vacuum.

Apart from the aqueous extract, there are

other components like the fat component, sugar component, paste component and powder component for each dosage form. These components are incorporated in different manner appropriate to each type of the product. These are details which do not really help much the herbal formulators. Because, the physical characteristics, the dosage factor and the presentation form are all different in both cases. The basic process itself is likely to be very dissimilar. One may, of course, consider the possibility of carrying out the basic processes as per ayurvedic stipulations and then adapting modern ways of dosage presentation. A possible approach in this direction is the presentation of the classical *kashayam* in the form of a machine aided tablet. *Kashayam* is a bitter tasting liquid. It can be prepared exactly as per traditional stipulations. Instead of bottling it at the final stage, the liquid can be dehydrated, granulated, punched and blister packed. The purpose of this exercise is to convert the bitter tasting liquid *kashayam* into more user-friendly tablets. It is doubtful whether this can be termed as a herbal drug. But it illustrates an instance of taking the help of modern methods to render the classical medicines more patient-compliant.

Conclusion

An attempt has been made here to present a brief picture of certain salient aspects of ayurvedic medicine preparation. It might not have provided any clue to those engaged in developing herbal drugs. More references have been made to the limiting factors. But it might prove advantageous to the new drug developers if they have an occasion to take into account the intrinsic character of classical systems of medicine. A knowledge of the limiting factors will go a long way in enabling the drug researchers to discover versatile drugs. It is well realised that there is an urgent need for evolving new herbal drugs. It is also appreciated that tremendous work is going on in this field. It goes without saying that everything possible should be done to strengthen the research base of herbal medicines. It is pertinent to raise the question whether there is a single molecule contributed by our country to the ailing humanity in the form of a universally accepted drug? And it must be remembered that India is a country which has a proud heritage of time-tested health care knowledge. There is no doubt about the significance of the concerted efforts going on in the field of herbal drug development. The limiting factors mentioned here are expected to be viewed in that light.

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STUDIES ON *ASPARAGUS RACEMOSUS* WILLD.

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Abstract: The present paper on *Asparagus racemosus* Willd., which is an important ingredient in various ayurvedic formulations, deals with pharmacognostic, chemical and propagation studies. Palisade ratio is also determined.

Introduction

Asparagus racemosus belonging to the family 'Liliaceae' is well known for its rejuvenating capacity and is in use from several decades. It is known as *satavari* or *satavali* in Malayalam; 'Wild asparagus' in English; *satavar* or *satamuli* in Hindi and *satavari* or *abhiru* in Sanskrit. It is distributed throughout India in areas upto 1400m elevation and also occasionally cultivated. In Kerala it thrives well naturally in Moozhiyar of Pathanamthitta district, Kulamavu of Idukki district, Padagiri, Neliampathi and Panthanthode of Palakkad district, Otappallum, Oonchavayal and Tholpetty of Wayanad district and Kozhikode of Kozhikode district (Fig.I). The officinal parts are the tuberous roots used in large quantities in more than 67 ayurvedic formulations like Saraswatharishtam, Jeevanthyadi tailam, Vidaryadi kashayam, Sathavari chinnaruhadi kashayam, Sukumara leham, Sathavari gulam, etc. (S.R. Iyer, 1983).

Roots are bitter, sweet, emollient, cooling, nervine tonic, diuretic, aphrodisiac, rejuvenating (Warrier et al, 1993; Khanna et al, 1991; Narayana Aiyer & Kolammal, 1963; Kurup et al, 1979), ophthalmic, appetiser and useful in diarrhoea and rheumatic complaints (Warrier et al, 1993; Narayana Aiyer & Kolammal, 1963; Kurup et al, 1979). It is useful in dyspepsia, colic pain, inflammations, nephropathy, hepatopathy, tumours (Warrier et al, 1993; Narayana Aiyer & Kolammal, 1963), burning sensation, hyperdipsia, strangury, throat infections, tuberculosis, cough, gleet, gonorrhoea, leucorrhoea, leprosy, cardiac debility, haemorrhoids and abortion (Warrier et al, 1993). Tubers promote lactation and appetite (Narayana Aiyer & Kolammal, 1963; WHO, 1990) and provide nourishment to children. It is also used in the treatment of acidity (WHO, 1990). Tubers are also recommended for sexual vigour and for treating diabetes, uterine complaints and excessive bleeding (Narayana Aiyer & Kolammal, 1963). Roots are used against menstruation

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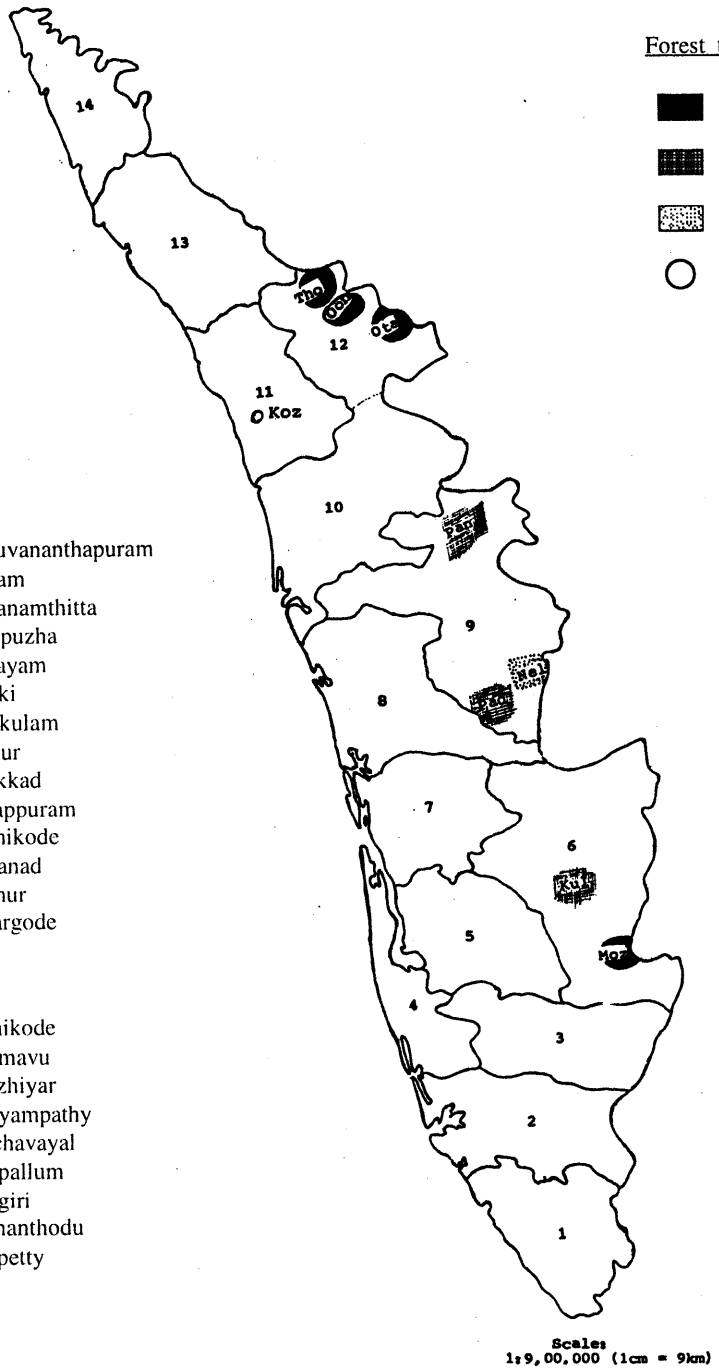
Fig.I *Asparagus racemosus* Willd. - Location Map



Districts

1. Thiruvananthapuram
2. Kollam
3. Pathanamthitta
4. Alappuzha
5. Kottayam
6. Idukki
7. Ernakulam
8. Trissur
9. Palakkad
10. Malappuram
11. Kozhikode
12. Wayanad
13. Kannur
14. Kasargode

Localities

Koz. Kozhikode
Kul. Kulamavu
Moz. Moozhiyar
Nel. Nelliyampathy
Oon. Oonchavayal
Ota. Otappallum
Pad. Padagiri
Pan. Panthanthodu
Tho. Tholpetty

disorders among tribals of Koonjhar forest (Singh & Uppendradhar, 1993). It is used in the drug formulations prescribed for diarrhoea, epilepsy, haemophilic disorders, seminal weakness and threatened abortion. The root is used as rubifacient in nervous and rheumatic complaints (Sarin,Y.K. 1996).

Sometimes roots of *A. sarmentosus* Linn. are used as substitute and of *A. adscendens* as adulterant. But, these two can be distinguished from roots of *A. racemosus* Willd. by the anatomical features (Sarin,Y.K. 1996).

Morphological description

An armed climbing undershrub with profuse pretty spiny branches bearing sickle shaped one-segmented cladodes and clusters of fusiform succulent tuberous roots. Tender stems very delicate, brittle and smooth. Old ones hard with straight or recurved spines associated with brown scales, which are modified leaves and in whose axils branches and branchlets arise. Ultimate branchlets being flat green cladodes in clusters of 2-6, flowers white, fragrant, in simple or branched racemes produced at the nodes of main branches or in the axils of thorni, bracteate, pedicellate, perianth 6 lobed, easily deciduous in two whorls of 3 in each; stamens 6, filaments free, linear, incurved arising from the base of the perianth lobes; ovary superior, tricarpellary, syncarpous, style short ending in three stigmatic lobes, ovules 4-6 on axile placentation; fruits three lobed pulpy berries, purplish black when ripe, seeds spherical with a hard black testa (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 were found out using samples treated in 5% KOH solution. For determining stomatal index, ten epidermal pealing from both surfaces of a fresh leaf were taken and ten countings were recorded from ten different areas of each piece (ie. number of stomata as well as epidermal cells per 1 sq.mm area). Stomatal index value is then calculated by using the formula $\frac{E}{E+S} \times 100$ where E and S stand for the number of epidermal cells and number of stomata of unit area respectively (Salisbery, 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 glycerine. 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 (Zornig & Weiss, 1925) holds true in this species also. The vein-islet number is calculated by counting the minute areas of photosynthetic tissue encircled by the ultimate division of the conducting strands per 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.

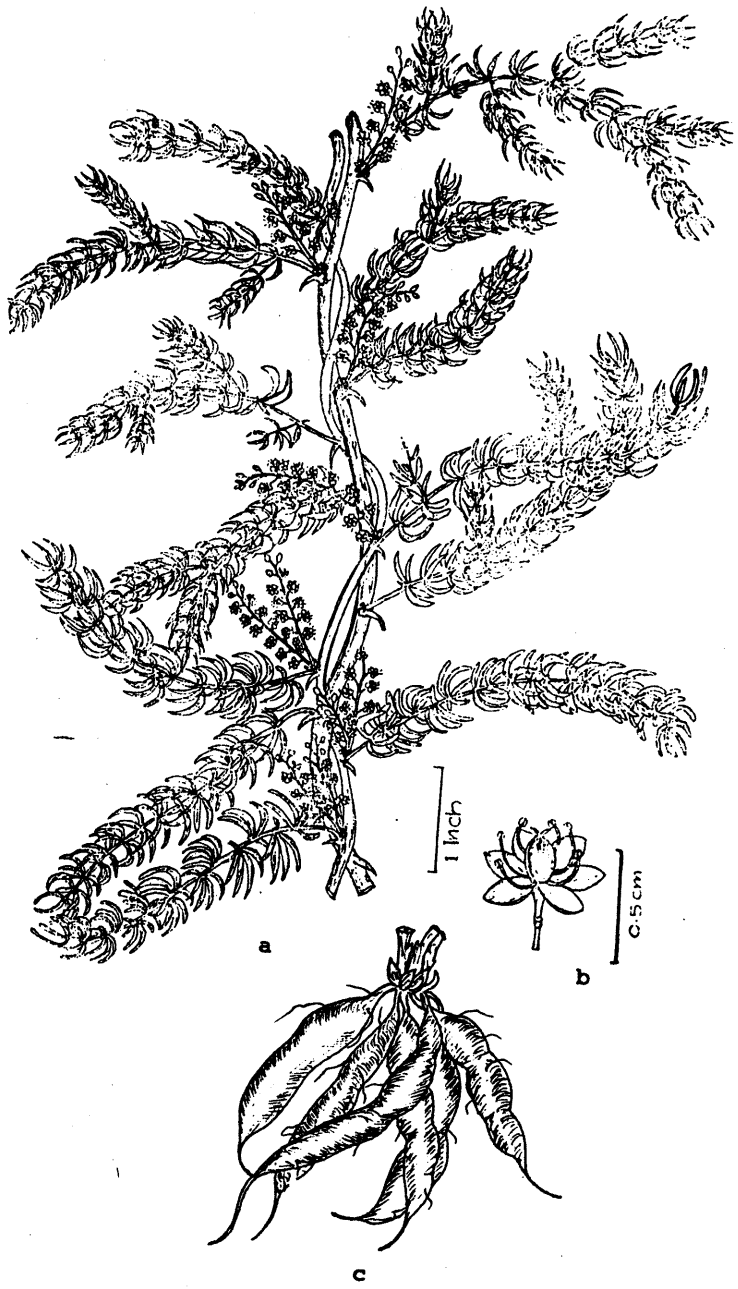


Fig. II **a - c** *Asparagus racemosus* Willd. **a)** Flowering twig **b)** Single flower **c)** Tuberous roots

Floral vasculature

Perianth consists of six lobes arranged in two whorls of three in each. Each lobe is supplied with a single unbranched vascular strand extending up to ¾th of the lobe (Fig.IVa).

Androecium conists of six stamens. Each stamen is supplied with a feebly developed vascular strand (Fig.IVb).

Gynoecium consists of three carpels. Each carpel is supplied with a single unbranched vascular strand which extends up to the stigma. Solitary ventral vascular strand supplies the ovules (Fig.IVc).

Anatomy

Stem

The stem is more or less circular in outline in cross section. The vascular bundles are closed, many and irregularly scattered in the ground tissue. Epidermis is single layered with a thick deposit of cuticle. 3-4 layers of ground tissue interior to the epidermis are chlorenchymatous followed by 4-5 layers of schlerenchyma. The rest of the ground tissue is parenchymatous. Peripheral vascular bundles are smaller as compared to the inner ones. Phloem is conspicuously developed in between the two large metaxylem vessels (Fig.Vb&c).

Root

In T.S., the root is somewhat circular in outline. Piliferous layer consists of rectangular cells. Many of these are extended as root hairs. Interior to this is the 6-8 layered exodermis consisting of slightly radially elongated and comparatively thick walled cells. The cells of the outer region are smaller than those in the inner region. Bundles of calcium oxalate (raphides) are seen in cells scattered throughout the cortex. The innermost two to three layers of the cortical cells just above the endodermis are modified into elongate thick walled lignified cells with numerous circular or oval pits on their walls. The endodermis consists of a single row of narrow rectangular thin walled cells. Just below the endodermis is the pericycle which is single layered, composed of thin walled rectangular cells. The xylem and phloem are arranged alternately on different radii around a central pith. Pith is composed of rounded, thin walled cells with large intercellular spaces, with their peripheral cells getting thickened (Fig.VIa&b).

Cladode

In T.S., the cladode appears somewhat lens shaped with a middle bulged portion gradually taperng on both sides. Epidermis is single layered overlined with a thick cuticle. Palisade is single layered devoid of intercellular spaces. Interior to this are seen several layers of parenchymatous cells transversely arranged. A solitary vascular bundle is seen in the centre. Two to three layers of polygonal parenchymatous cells devoid of chloroplasts are seen around the vascular bundles. Stomata are of ranunculaceous type (Fig. Va&d). The palisade ratio of the species is 41.35 (Fig.VI-A & Table I). Stomatal index and vein-islet number are not applicable to this species.

Propagation

Our field observations and propagation trials reveal that seeds are the best source for multiplication of the plant. The hard and endospermic seeds after pre-treatment by soaking for

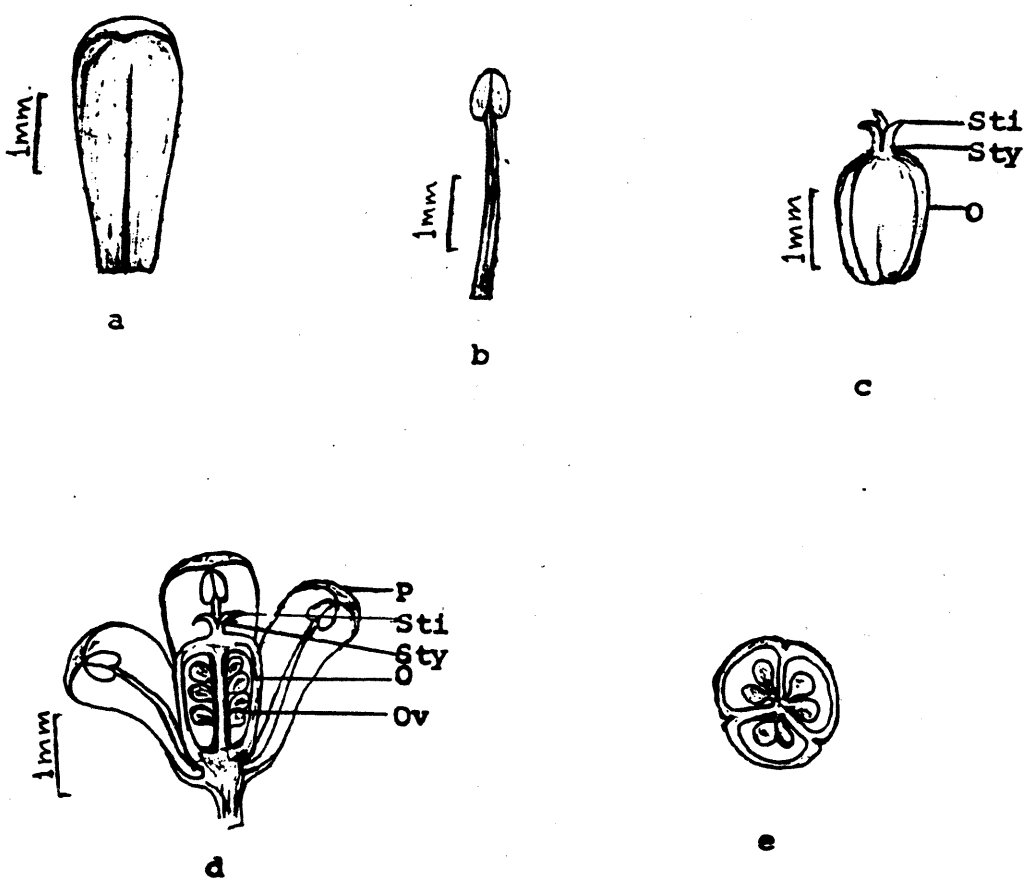


Fig. III **a** - **e** *Asparagus racemosus* Willd. Floral biology **a**) Perianth lobe **b**) Stamen **c**) Gynoecium **d**) Flower L.S. **e**) Ovary C.S.

O. Ovary **Ov**. Ovule **P**. Perianth lobe **Sti**. Stigma **Sty**. Style

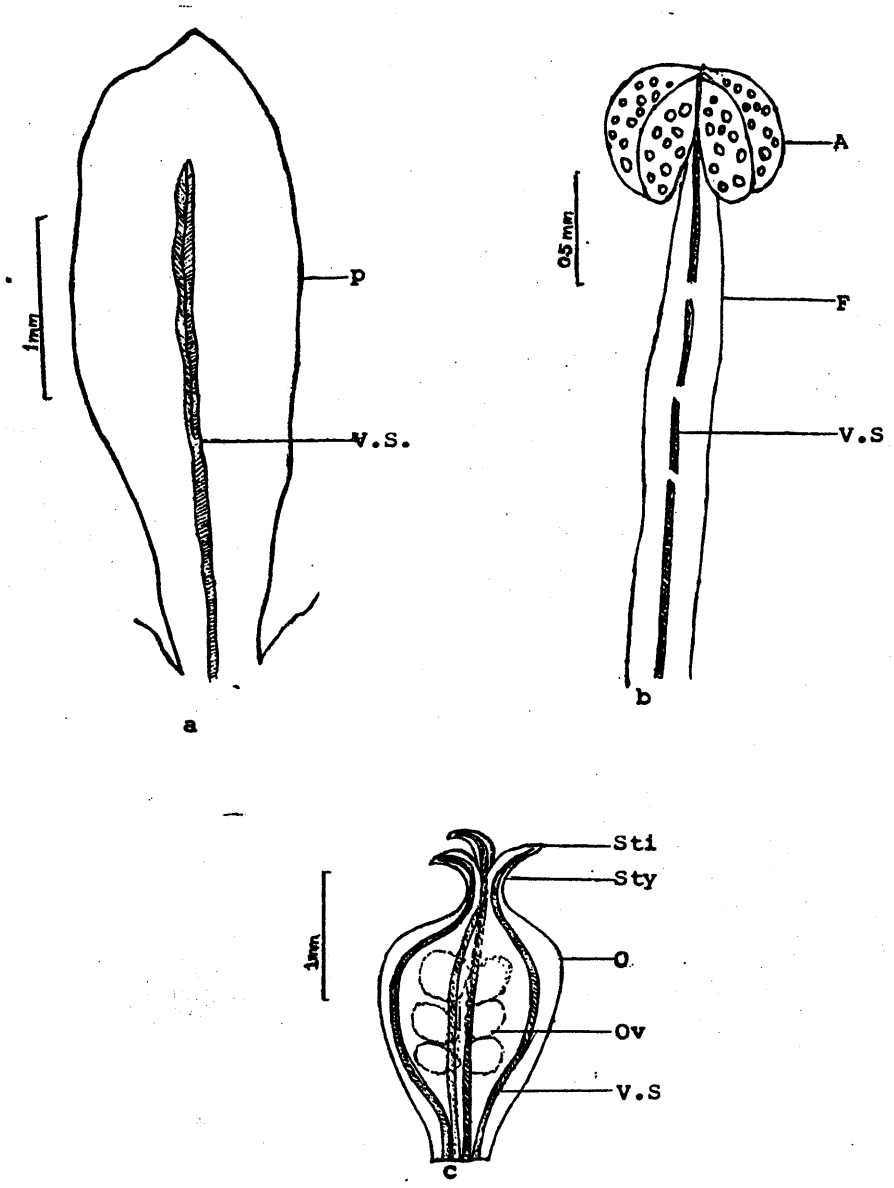


Fig. IV **a** - **c** *Asparagus racemosus* Willd. Floral vasculature **a**) Perianth lobe **b**) Stamen **c**) Gynoecium

A. Anther lobe **F**. Filament **O**. Ovary **Ov**. Ovule **P**. Perianth lobe **Sti**. Stigma **Sty**. Style **V.S**. Vascular supply

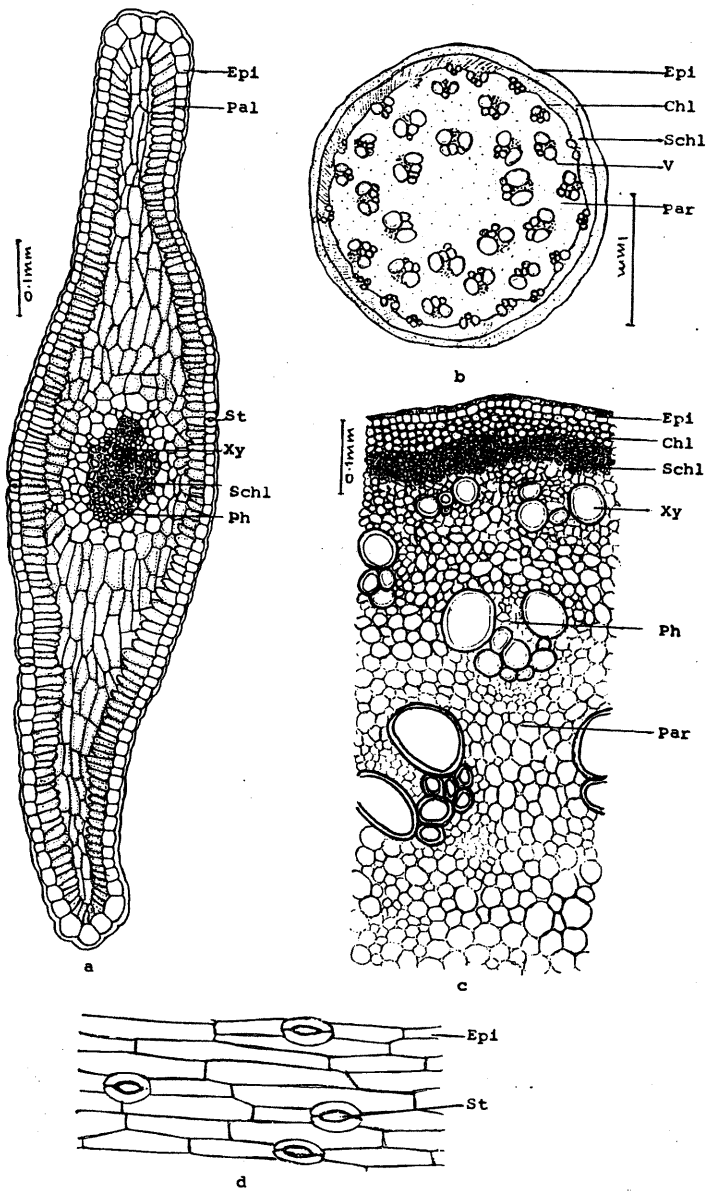


Fig. V **a** - **d** *Asparagus racemosus* Willd. **a**) Detailed T.S. of cladode **b**) T.S. of stem - Diagrammatic **c**) A portion of stem enlarged **d**) Epidermis with stomata

Chl. Chlorenchyma **Epi**. Epidermis **Ph**. Phloem **Pal**. Palisade **Par**. Parenchyma
Schl. Schlerenchyma **St**. Stomata **V**. Vascular bundle **Xy**. Xylem

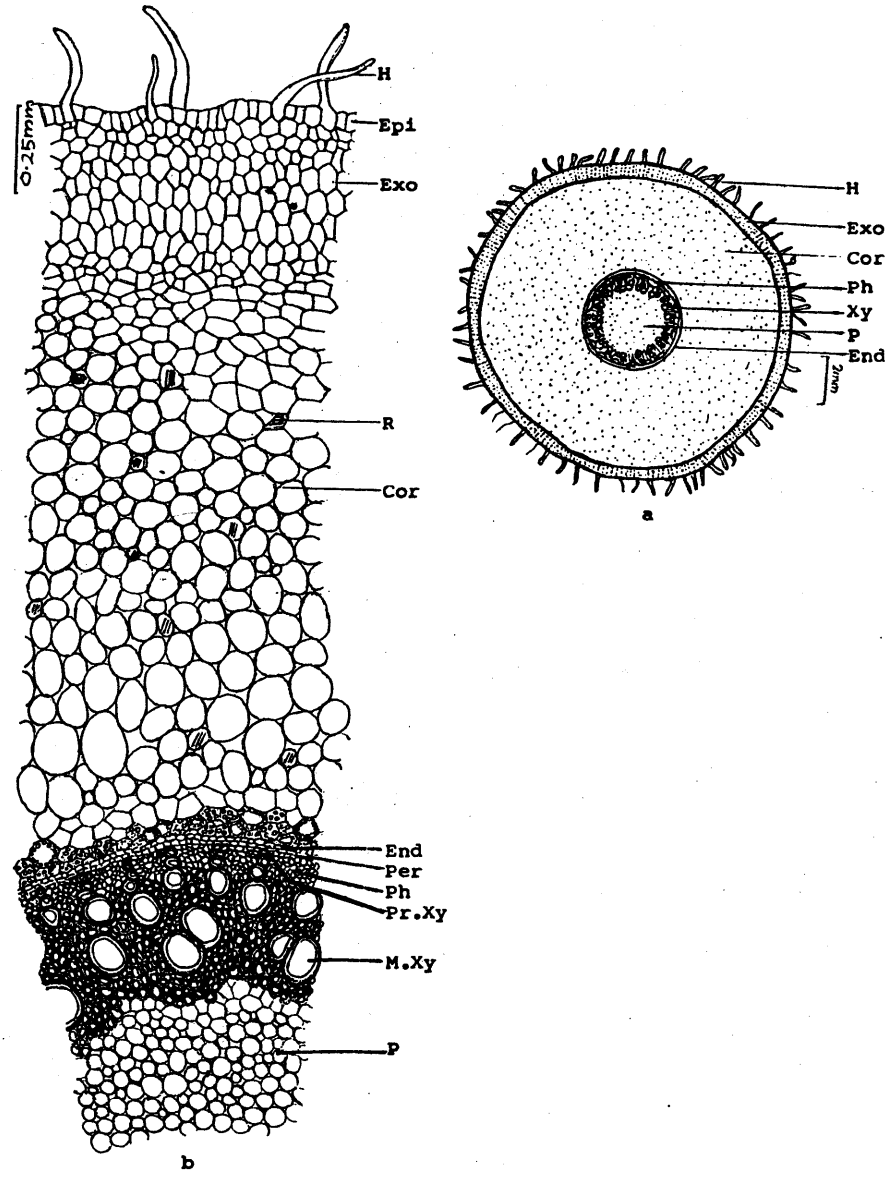
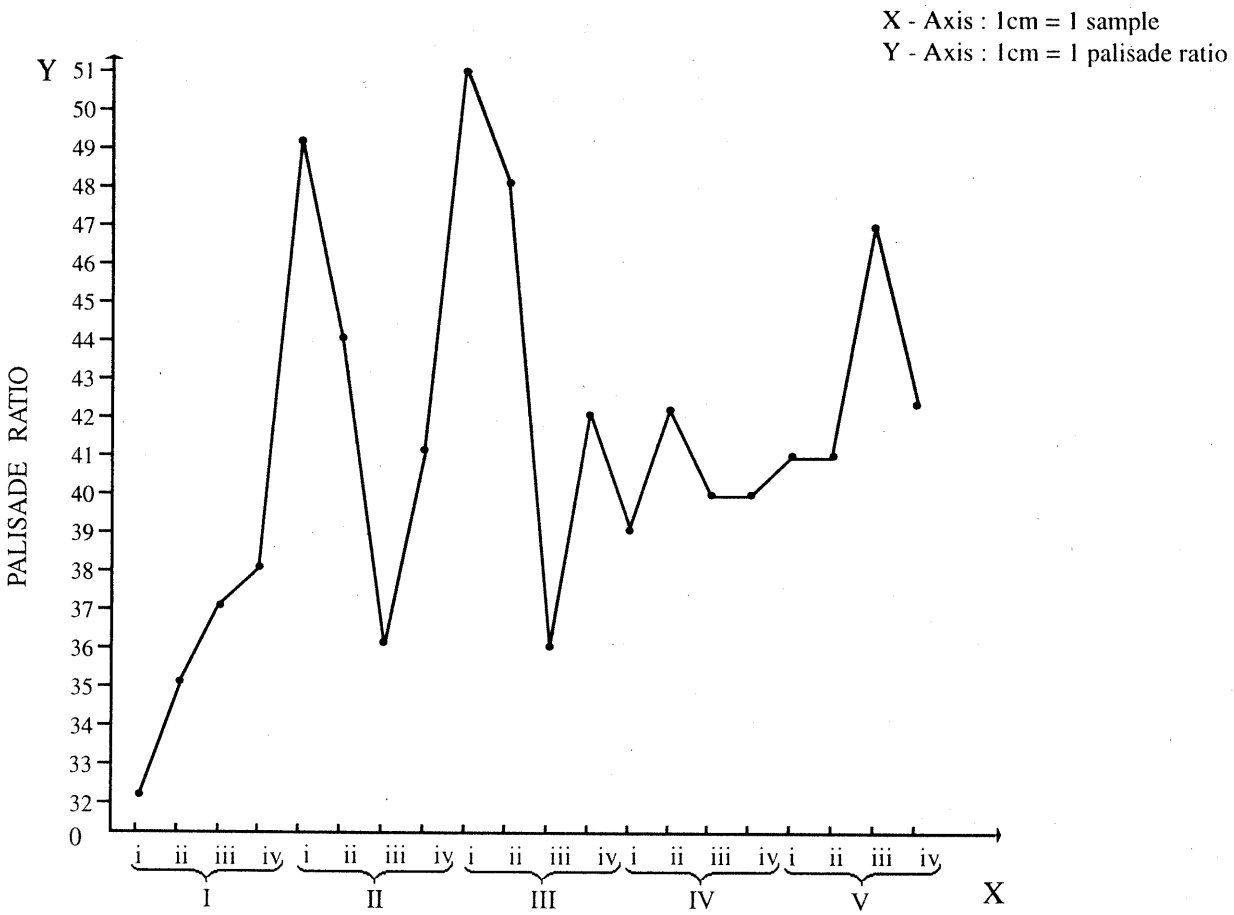


Fig. VI **a** & **b** *Asparagus racemosus* Willd. **a**) T.S. of tuberous root - Diagrammatic
b) A portion enlarged

Cor. Cortex **End**. Endodermis **Epi**. Epidermis **Exo**. Exodermis **H**. Hair **M.Xy**. Metaxylem
P. Pith **Per**. Pericycle **Ph**. Phloem **Pr.Xy**. Protoxylem **R**. Raphide **Xy**. Xylem

Fig. VI-A *Asparagus racemosus* Willd. - Palisade ratio



20 SAMPLES FROM 5 DIFFERENT LEAVES

Table I : *Asparagus racemosus* Willd. - Palisade ratio

Leaf No	I				II				III				IV				V			
No. of Pieces	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv	i	ii	iii	iv
Readings	37	33	37	49	28	57	36	42	36	48	50	47	50	50	22	51	61	43	44	37
	34	46	41	39	57	45	39	40	51	34	44	46	46	24	37	25	54	37	32	21
	30	29	40	32	40	35	43	37	32	44	48	53	48	48	36	36	35	28	56	59
	24	36	43	38	49	33	31	41	55	61	21	25	23	52	53	48	32	51	54	42
	38	32	27	33	73	51	35	49	81	54	20	39	31	37	45	40	23	46	49	54
Average	32.6	35.2	37.6	38.2	49.4	44.2	36.8	41.8	51	48.2	36.6	42	39.6	42.2	40	40	41	41	47	42.6
Leaf average	35.9				43.05				44.45				40.45				42.9			

Range : 35.9 - 44.45 Mean : 41.35 Standard deviation 11.19

24 hours in cold water when sown on beds start germination after two weeks. Germination is hypogeal. The radicle penetrates first, followed by emergence of plumule after 2 or 3 days. When the radicle is 2 to 3cm long a tuft of lateral roots develop from its base. The first scale leaf appears on the stem when it attains a length of about 2cm. Cladodes and branch initials develop from the axils of the scale leaves towards the upper portion of the stem. The axillary buds of some scale leaves towards the lower portion of the stem remain undeveloped. Usually two cladodes and a single branch initial are seen developing from the axils of each scale leaf. About 80% of the seeds germinate (Fig.VII).

After two weeks the seedlings can be transplanted into polythene bags. 2-3 months old seedlings are ready to transplant into the field. If soil is hard planting should be done on mounds or pits of size 2x2x2 ft. Pit may be filled with green manure, cow dung and covered with top soil. Pit may be taken at an espacement of 3x2 ft. 3,500 seedlings can be planted in one acre. Harvesting can be done after 2 years. But maximum yield will get only after 3 years. About 400 kg. dried tubers can be got from one acre.

Efficient plant regeneration of Asparagus by inducing development of normal roots from in vitro multiplied shoot explants using gellan gum and glucose was attempted (Shigeta.J et al, 1999).

Chemical studies

Review

The plant contains 4 saponins, viz., shatavarin I to IV. Shatavarin IV is a glycoside of sarasapoenin having 2 molecules of rhamnase

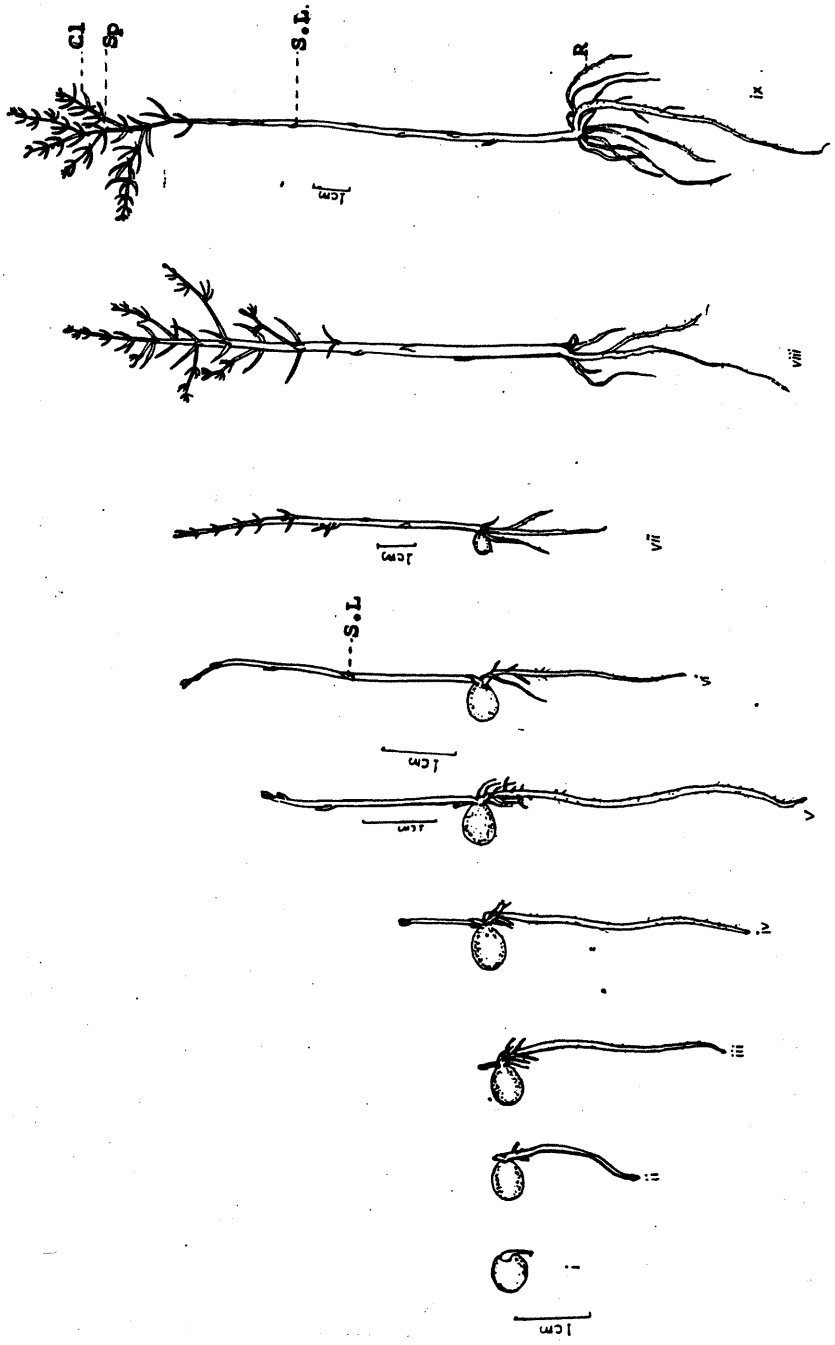


Fig. VII **i - ix** *Asparagus racemosus* Willd. Stages in seed germination
Cl. Cladode **R**. Root **S.L**. Scale leaf **Sp**. Spine

and one molecule of glucose. The saponin, in doses of 20 µg to 500 µglml, produces a significant blockade of syntocinon (oxylocin) induced contraction of rat, guinea pig and rabbit under in-vitro and in-situ. It also blocks the uterine spontaneous mobility. The bark exhibited anti-bacterial and anti-fungal activities, whereas the aerial parts produced carcinoma of the pharynx in animal trials. Flower contain quercetin, rutin (2.5% dry basis) and hyperoside. The mature fruit contains glycoides of quercetin, rectin and hyperoside, also cyanidin-3-galactoside and cyanidin-3-glucorhamnoside. The leaves contain diosgenin and quercetin-3-glucoronide. The dried, debarked tuberous roots yield a yellowish white powder which contains: moisture, 11.4; fat, 0.87; protiens, 5.44; saponins, 5.02; carbohydrates (including uronic acid & free sugars) 46.84; crude fibre, 23.42; inorganic matter, 7.02; & ash, 6.28%. The carbohydrate fraction is made up of: free sugars, 35.0; mucilage, 2.3; hemicellulose, 6.1 and inol polysaccharides, 3.4%. The hemicellulose is composed of xylose, glucose and glucosonic acid. Besides these sugars, the mucilage also contains mannose. The presence of essential oil is reported from the bark of the tubers. The seeds yield protein (6.0%) and an oil (5.9%). The plant contains a sapogenin, sarsasapogenin (Wealth of India, 1985).

Result and discussion

The non-availability of sufficient quantity of this raw drug is a serious problem facing Ayurvedic industries. This can be solved by raising mass scale cultivation of this species as pure as well as inter crops. Though a few percentage can be raised through roots, it is always advisable to resort to propagation through seeds. After harvesting the old basal stock can also be replanted.

Acknowledgements

The authors are extremely grateful to Dr. P.K. Warrier, The Managing Trustee & Chief Physician (Project Leader) for giving us encouragements 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, Asst. Factory Manager, A.V.S, Kottakkal, Dr. Indira Balachandran, Research Officer, A.V.S. Herbal Garden, Kottakkal and Dr. G.P. Mukundan, Manager, A.V.S. Herbal Garden, Kanjirapuzha are greatfully acknowledged. We are thankful to Mr. V.K. Uthaman, Computer Assistant who did the typing work.

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SAMANYA AND *VISESHA* IN AYURVEDA*

Murali, K.**

Abstract: *Samanya* and *visesha,* usually expressed as generality and particularity, are considered among the *padarthas* by most of the schools of Indian philosophies. *Samanya* is formed out of the common features which relate the plurality of existents. Though residing in many (*anekanugata*), it is one (*eka*) and eternal (*nitya*). *Visesha* is countless and eternal. It serves the purpose of distinguishing the eternal substances. *Samanya* and *visesha* reside in *dravya*, *guna* and *karma* (*dravya guna karma vrittitvam*). Ayurveda too consider these two *padarthas*. In fact, while enumerating *padarthas*, Charaka deliberately placed them in first position. In the *dravya guna karma vrittitvam, dravya vrittitvam* is relevant in the *dhatu* level; and *guna karma vrittitvam* in *dosha* level. The drug effect and food effect of *dravyas* or *viharas* are interpreted in the light of *samanya* and *visesha.* This article is a brief review of the concept of *samanya* and *visesha* in ayurveda.

Ayurveda, as a science of life aims maintaining the health in the healthy and alleviating illness in the diseased. *Svasthavritta* and *aturavritta* are two major divisions of ayurveda concerned with these two practical aspects. *Svasthya* (health) and *roga* (disease) are two distinct bodily states.

Health is the normal functioning of the body[1] when the basic constituents (viz. *doshas*, *dhatus* and *malas*) are maintained in their respective *guna* and *karma*. This can be achieved by proper food and other activities (*ahara* and *vihara*). Disease is not just the absence of health, but an aberration from it.

On observing the various diseased states of the body it can be safely assumed that illness is manifested either as an aggravation or decrease of bodily functions. These may be related to an organ like heart or certain features of the body like temperature. These variations, of course, are the reflections of morbid changes of the basic constituents of body *dosha, dhatu* and *mala*. Among these, *doshas* are more significant since they govern *dhatus* (*rasa, rakta, mamsa*, etc.)

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and *malas* (*sveda, mutra,* etc.). Hence disease is an aggravation (*vriddhi*) or decrease (*kshaya*) of *doshas*, jointly termed as *doshavaishamya*. Health is *doshasamya*[2]. *Doshas* are *dravyas*. In health, their *guna* and *karma* are manifested as physiological functions. Signs and symptoms of diseases are the vitiated *gunakarmas* of *doshas*.

Treatment in principle, is reducing (*kshapana* or *langhana*) the aggravated *doshas* or increasing (*vardhana* or *brimhana*) the decreased *doshas* as required. Health can be maintained by protecting the *doshas* within the normalcy (*rakshana*)[3]. Treatment modalities may differ variously in accordance with the diseased states, but all these converge in these major divisions of treatment, *langhana* and *brimhana*, because *upakramya* - to be treated *doshas* – are two[4], *vriddha* and *ksheena*.

Treatment is applied three fold – *aushadha* (medicine) *ahara* (food) and *vihara* (physical activities). Identifying the *samanya* and *visesha* of *dosha* in the above three forms of treatment and administering them will increase and decrease the *doshas* respectively. *Samanya* causes increase and *visesha* decrease[5]. Acharya Charaka introduces these two *padarthas* in their therapeutic perspective. While enumerating the *padarthas* he gives first positions to *samanya* and *visesha*. This is because the whole subject matter of ayurveda is based up on the knowledge of *samanya*[6].

Precisely, it is not *samanya* or *visesha* that cause increase or decrease, but the use of *samanadravya* or *visishtadravya* does. This is because *samanya visesha* and *samavaya* cannot be a *karya or karana*[7]. The *karma* (increase or decrease) residing in *dravya* is an identifying feature of *samanya* or *visesha*. So by attribution, *samanya* and *visesha* are mentioned as causes of *vriddhi* and *kshaya*[8].

Samanya is defined as *ekatvakara*[9]. It is one which causes the perception of sameness among *dravya, guna* and *karma*. *Visesha* is *pridhaktvakrit*, the cause of perception of distinguishing. Among the three, *dravya* is the seat of *guna* and *karma*. *Gunas* are twenty in ayurveda such as *guru, manda, sita,* etc. *Karma* is the effect of *dravya* (*ahara* or *aushadha*) on the body. *Samanya* and *visesha* of *doshas* can be identified in *ahara* or *aushadha* on the basis of *guna* and *karma*. Since *doshas* are *sookshma*, they cannot be used as such, even though they exist in other animals. So in the *dravya guna karma-vrittitvam, guna karma vrittitvam* is of more practical use.

As *samanya* resides in *dravya guna* and *karma* it is natural to classify it accordingly – *dravyagochara, gunagochara* and *karmagochara*. Administering *mamsa* [in the form of *mamsarasa* (soup) or added in *sashtikapindasveda*] in *mamsasosha* (muscular atrophy) is an example for the use *dravyagochara samanya* in treatment. *Tailas* (oils) and ghees are generally prescribed in *vatarogas*. *Vata* is *rooksha* in *guna* and *snigdhadravya* will cure it. This exemplifies the use of *visishtadravyas* of *gunagochara* type. *Vyayama* (exercise) will illustrate *karmagochara* type. *Vyayama* is *chalana* (mobility) and is associated with *laghuguna* (lightness). So in normal limits it will decrease *kapha* which is *sthira* and *guru*. In excess it will increase *vata*, as this *dosha* is *laghu* and *chala*. Hence the same *ahara, vihara* and *aushadha* can be used

for different purposes if their *samanya – visesha* relationship with *doshas* is well understood. *Dravyagochara* type can be applied only in the case of *vriddhi* or *kshaya* of *dhatus*.

Another practical definition of *samanya* is *tulyarthata* - being equal in therapeutic use or bodily effect[10]. This applies to *aushadha, ahara* and *vihara*. This evident aspect of *samanya* is well utilised in ayurveda. In the non-availability of breast milk, milk of goat is advised. Both have many similar *gunas* like *madhura rasa* and *laghutva* and more over their bodily effects are more or less the same. *Abhavavarga* (group of substitutes) is formulated based on the *tulyarthata* aspect of *samanya*. *Visesha* is *atulyarthata*.

As *samanya* is conceived by the common factors in *dravya, guna* and *karma*, the degree of commonness can be a basis for classification. If a lot of factors are common in a given group, it is *atyantasamanya*. In *ekadesasamanya* the common factors are very few or only one. The intermediate is *madhyamasamanya*. This is clinically very significant. If one consumes any food of *atyantasamana* to any *dosha*, the increase of *dosha* leading to disease will be immediate. Wide use of *tailas* internally and externally in *vatarogas* is due to *atyantavisesha*. *Seeta, rooksha* and *laghu gunas* of *vata* are contradictory to the *ushna, snigdha* and *guru gunas* of *taila*. Diseases caused by *ekadesasamana* food may not be much severe in nature.

Human body is composed of many mutually opposing factors. The synonyms, *sareera* and *kaya* represent these facts. The former indicates anabolism and latter catabolism. So to maintain the balance, our *aharaviharas* should be equal in *samanya* and *visesha* to *doshas* [10]. Intake of either in excess may cause *vriddhi* or *kshaya* of *doshas*.

As a style of exposition, ayurveda uses *samanya* and *visesha* in many contexts. Even the *tridosha* theory is form of *samanya*. Diseases are innumerable and all cannot be explained in textbooks. But each and every disease is *doshavaishamya* in its several forms. It will be easier to give details of *doshavaishamya* so that a learned physician can diagnose the *doshic* nature of the disease and treat it. *Doshavaishamya* is the *samanya* of *roga* and each *roga* differs, as each cow is different from another.

Rasas have *samanya* of *asvadatva*. Yet many *viseshas* are observed and they are grouped into six to have *shadrasa – madhura, amla, lavana, katu, tikta* and *kashaya*.

Thus the concept of *samanya* and *visesha* acquires a practical significance in ayurveda. It forms a very wide, simple, general rule with which the bodily effect of *aushadha, ahara* and *vihara* are explained. There are more complicated pharmacodynamic principles (viz. *rasa, guna, veerya, vipaka,* etc.) which do not violate the *samanyavisesha* theory.

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क्षपयेत् बृंहयेच्चापि दोषधातुमलान् भिषक्
तावद्यावदरोगः स्यान्नरो रोगसमन्वितः
- (सु.सं.सू. 15/40)

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- (अ.हृ. सू. 14/1)

5. सर्वदा सर्वभावानां सामान्यं वृद्धिकारणम्
ह्रासहेतु विशेषश्च .....
- (च.सं.सू. 1/44)

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- (चक्रपाणि - च.सं.सू. 1/44)

7. त्रयाणामकार्यत्वमकारणत्वं च ॥
- (चक्रपाणि - च.सं.सू. 1/44)

8. वृद्धिकारणलक्षणत्वेन सामान्यं वृद्धिकारणमित्युक्तम्
- (चक्रपाणि - च.सं.सू. 1/44)

9. सामान्यमेकत्वकरं, विशेषस्तु पृथक्त्वकृत्
- (च.सं. सू 1/45)

10. तुलयार्थता हि सामान्यं विशेषस्तु विपर्ययः
- (च.सं. सू 1/45)

11. .....
..... प्रवृत्तिरुभयस्य तु ॥ - (च.सं. सू 1/44)

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ABANA, A CARDIOPROTECTIVE DRUG

Sheela Sasikumar, C. and Shyamala Devi, C.S.*

Abstract: Cardioprotective effect of ayurvedic formulation Abana on isoproterenol induced myocardial infarction was studied in rats. Rats were pre-treated with Abana (75mg /100g body wt, orally by intubation) for a period of 60 days. Cardioprotective effect of Abana was studied in rats by assaying the activities of marker enzymes creatine kinase, lactate dehydrogenase, aspartate transaminase and alanine transaminase in serum and heart. Lipid peroxides measured in terms of 'TBA reactants' was also determined in serum and heart. Isoproterenol treated animals showed a significant increase in the activities of marker enzymes in serum with a concomitant decrease in heart. Lipid peroxides increased significantly in serum and heart of animals administered with isoproterenol. Abana pre-treated and isoproterenol administered rats maintained the level of lipid peroxide and activities of diagnostic enzymes to near normal. Results of this investigation revealed that Abana, an ayurvedic formulation, could exert a significant protection to heart through its cardiotonic activity.

Introduction

Cardiovascular diseases has become the number one killer disease in many parts of the world. Even though modern drugs are effective in the control of cardiovascular disorders their use is often limited because of their side effects. The search for an effective medicine to treat cardiovascular disorders without any side effect lead to the usage of ayurvedic medicine. Ayurvedic remedy has advantages in that it is (i) better accepted by the patient (ii) cheaper when compared to modern medicine.

Ayurvedic texts state that the common cause of heart problems are over-eating of food rich in *ushna* (heat-producing), *guru* (difficult to digest), *kashaya* (astringent) and *tikta* (bitter) properties, trauma, physical and mental strain[1]. Abana is an ayurvedic formulation of selected ingredients[2] which provides significant protection against ischaemia[3] and hypertension[4]. The most important plant ingredients present in this compound preparation are *Terminalia arjuna, Terminalia chebula, Withania somnifera, Phyllanthus emblica, Daccus carota, Nardostachys jatamansi, Glycyrrhiza glabra* and *Tinospora*

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cordifolia known for its beneficial effects in the Indian system of Medicine[5]. This cardiotonic formulation has been reported to possess antithrombotic, antihypercholesterolaemic and antiarrhythmatic properties[6].

Isoproterenol, a β-adrenergic agonist, has been found to cause severe stress in the myocardium resulting in infarct like necrosis of heart muscle[7] accompanied with the formation of free radicals. Administration of isoproterenol is known to cause histological and enzymatic changes suggestive of myocardial ischaemia in experimental animals[8]. The pathophysiological changes following isoproterenol administration are comparable to those taking place in human myocardial infarction[9].

Since lipid peroxidation has been reported to be associated with various deleterious effects including tissue damage and necrosis, histopathology of the particular organ may throw direct evidence on the effect of Abana on isoproterenol induced MI.

The present study was conducted to determine whether Abana pre-treatment could enhance myocardial tolerance towards isoproterenol induced myocardial infarction in rats.

Materials and methods

Male Wistar albino rats weighing 120 -150g obtained from FIPPAT, Madras, were used for study. The animals were maintained in a clean sterile polypropylene cages and fed with commercial pelletted rat chow (M/s. Hindustan Lever Ltd., Bombay, India) and water *ad libitum.* The animals were divided into 4 groups of 6 animals each. Group 1 served as normal control, Group 2 rats were administered with isoproterenol (20 mg/100 g body weight, subcutaneously, twice at an interval of 24 hr.). Group 3 rats were treated with Abana, (75 mg/100 g body weight) orally by intubation for 60 days. Group 4 rats were orally administered with Abana at the above mentioned dosage for 60 days and were administered with isoproterenol, (20 mg/100 g body weight subcutaneously twice at an interval of 24 hr.) till the end of experimental period.

After the experimental period the animals were sacrificed by cervical decapitation. Blood was collected and serum separated were used for the assay of marker enzymes. Heart was dissected out and washed immediately with chilled physiological saline. A portion of the tissue was fixed in 10% formalin saline and stained with haemtatoxylin and eosin for histological examination. Another portion of the tissue was homogenized in 0.1M Tris-HCl buffer (pH 7.4) and used for the estimation of aspartate amino transferase (AST) [10], alanine amino transferase (ALT)[10] lactate dehydrogenase (LDH)[10], creatine kinase (CK)[11], and lipid-eroxides[12]. Protein was determined by the method of Lowry et al.[13]

Students 't' test was used for the analysis.

Results

Table I represents the activities of diagnostic enzymes like CK, LDH, AST and ALT in serum of control and experimental rats. Activities of these enzymes are elevated in isoproterenol administered rats. But the elevation is significantly minimum in rats pre-treated with ayurvedic formulation Abana.

Table I. Activities of LDH, CK, AST and ALT in serum of control and experimental animals

Rats treated with	LDH	CK	AST	ALT
Control	75.6 ± 5.4	287.8 ± 9.3	26.9 ± 2.2	12.5 ± 1.0
Isoproterenol	123.6 ± 7.6 *	389.5 ± 11.7 *	46.2 ± 3.4 *	21.6 ± 1.6*
Abana	72.5 ± 5.2	282.4 ± 8.9	27.8 ± 2.3	12.1 ± 0.8
Abana + Isoproterenol	82.5 ± 6.4 #	299.3 ± 8.4 #	30.8 ± 2.6 #	14.1 ± 1.2 #

The activities of enzymes LDH, CK, AST and ALT are expressed at IU/litre.

* Significantly different from control group P<0.001

\# Significantly different from isoproterenol control group P<0.001

Table II. Activities of LDH, CK, AST and ALT in heart of control and experimental animals (Values are expressed as mean SD for 6 animals in each group)

Rats treated with	LDH	CK	AST	ALT
Control	114.2 ± 7.2	10.3 ± 0.5	43.8 ± 1.4	18.2 ± 1.5
Isoproterenol	82.9 ± 5.3 *	6.3 ± 0.08 *	28.8 ± 2 *	12.1 ±0.83 *
Abana	119.7 ± 7.4	9.8 ± 4.08	42.1 ± 1.2	17.4 ± 1.3
Abana + Isoproterenol	109.08 ± 6.9 #	9.2 ± 0.5 #	40.5 ± 1.9 #	16.4 ± 0.6 #

The activities of enzymes LDH, CK, AST and ALT are expressed as nanomoles of pyruvate liberated / min / mg protein. Activity of CK is expressed as micromoles of phosphorous liberated / min / mg protein.

* Significantly different from control group P<0.001

\# Significantly different from isoproterenol control group P<0.001

Activities of CK, LDH, AST and ALT in heart of control and experimental rats are presented in Table II. There was a significant decrease in the activities of marker enzymes in Group 2 rats when compared to control. Group 4 rats restored the activities of diagnostic enzymes at near normal values.

Levels of TBA reactants in serum and heart are given in Table II. Rats administered with isoproterenol alone showed a significant increase in lipidperoxides in serum and heart. The alterations were minimum in rats pre-treated with Abana.

Discussion

Isoproterenol is known to generate free radicals[14]. Increased levels of "TBA reactants"

Table III. Level of Lipidperoxides in serum and heart of control and experimental animals

(Values are expressed as mean ± SD for 6 animals in each group)

Rats treated with	Lipidperoxides	
	Serum	Heart
Control	2.4 ± 0.14	3.6 ± 0.23
Isoproterenol	4.2 ± 0.22*	5.4 ± 0.42*
Abana	2.2 ± 0.13	3.2 ± 0.20
Abana + Isoproterenol	2.8 ± 0.15#	4.2 ± 0.29#

The levels of lipidperoxides in serum is represented as nanomoles of TBA reactants / ml and in heart is expressed as nanomoles of TBA reactants / mg protein.

* Significantly different from control group P<0.001

\# Significantly different from isoproterenol control group P<0.001

results in structural changes and myocardial necrosis[15]. The necrotic changes observed could have been attributed to the lipid peroxidative nature of isoproterenol.

The diagnostic marker enzymes of myocardial infarction are creatine kinase, lactate dehydrogenase, and transaminases[16]. Rats administered with isoproterenol showed a decrease in the activity of enzymes like CK, LDH, AST and ALT with a concomitant increase in their activities in serum when compared normal. An increase in the activities of marker enzymes could be due to the leakage of enzymes from heart as a result of isoproterenol induced necrosis and the amount of enzymes that appear in the serum is in proportion to the number of necrotic cells[17]. Ayurvedic formulation Abana pre-treatment maintained the activities of marker enzymes in serum and heart to near normal.

Terminalia arjuna, Nardostachys jatamansi, Withania somnifera and *Glycyrrhiza glabra* present in the formulation has been reported to prevent cardiovascular disorders[18]. The bark powder of *Terminalia arjuna,* the major ingredient in the formulation, is used to treat *hridroga* (heart diseases) in ayurveda from ancient times and is described as cardiotonic[19].

Free radical induced lipid peroxidation has been suggested as a causative factor in heart disease and excess free radicals damage cell membrane[20].

A significant increase in the level of lipidperoxides in serum and heart on

isoproterenol administration indicates enhanced lipid peroxidation by free radicals[21]. *Phyllanthus emblica* and *Daccus carota* present in Abana are rich in vitamin C and Vitamin A respectively[22]. Vitamin C can directly react with superoxide, hydroxylradicals and singlet Oxygen[23] β- Carotene, a pigment present in plant can efficiently quench singlet oxygen and function as an antioxidant Glycyrrhizin, a terpenoid present in *Glycyrrhiza glabra* also acts as an antioxidant [24].

These antioxidants present in the multiherbal formulation react with free radicals and terminate lipid peroxidation, the major process involved in tissue damage.

Histopathological reports (Plate I to IV) reveal that on isoproterenol administration fragmentation of muscle fibres, appearance of mononuclear and necrotic lesions occur[25]. Myocytolysis could have resulted in leakage of enzymes from heart to general circulation and

Histology of heart of rats (Hematoxyline - Eosin X 125)

Plate I. Heart from control rat showing normal architecture.

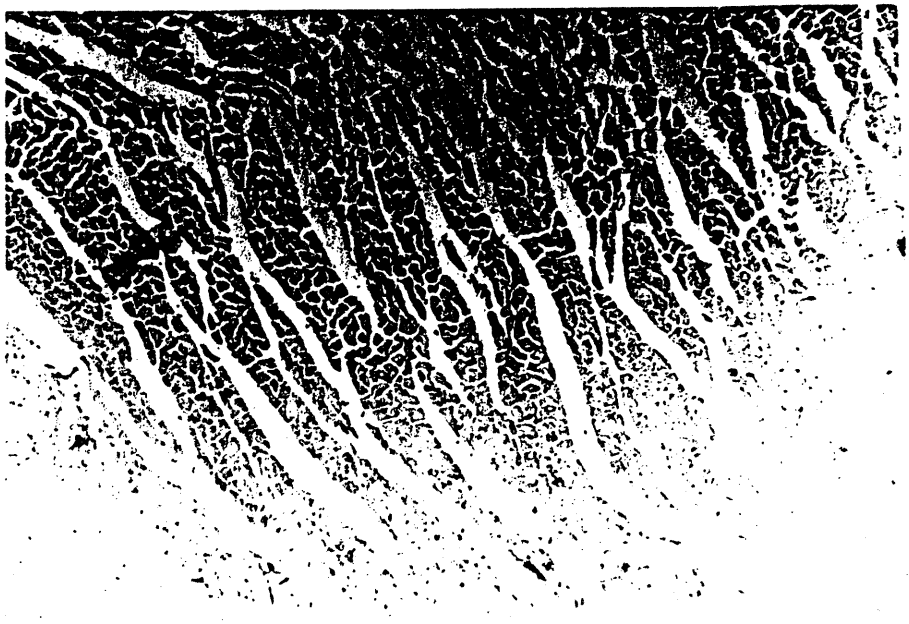

Plate II. Heart from an Abana treated rat showing no significant changes.

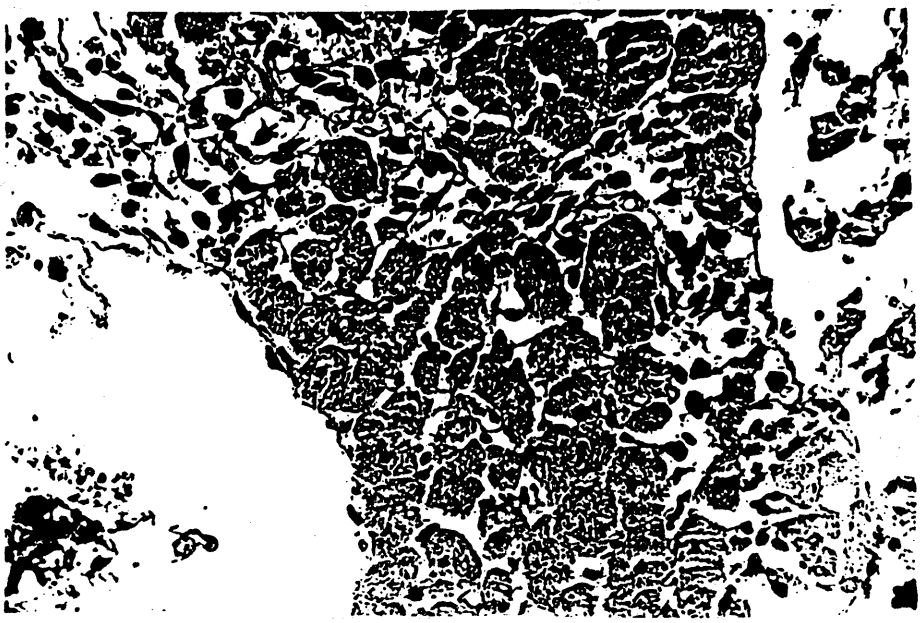

Plate III. (a) Heart from an isoproterenol treated rat showing mild necrosis and dense filtration of few lymphocytes.

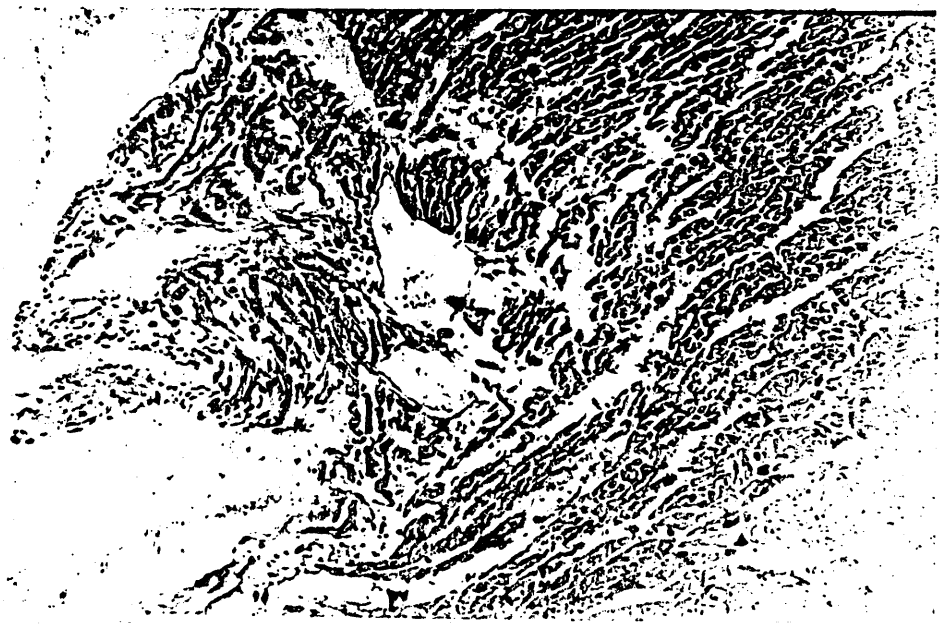

Plate III. (b) Heart from an isoproterenol treated rat showing dense infiltration of lymphocytes.

Plate IV. Heart from Abana + isoproterenol treated rat showing minimal changes with minute foci of necrosis.

the amount of enzyme released from the damaged myocardium is a measure of size of infarction[26]. Rats pre-treated with Abana, showed a near normal tissue architecture, which demonstrate the ability of Abana to reduce lipid peroxidation and myocardial necrosis.

The results obtained from the above investigation confirm that Abana pre-treatment offers significant protection to myocardium from the damage caused by isoproterenol.

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EFFECT OF INDIGENOUS DRUG *BERBERIS ARISTATA* ON CORNEAL WOUND HEALING - AN EXPERIMENTAL STUDY

Sanjay Kumar*, Shri Kant, Manoranjan Sahu*** and Kumar Niranjan.******

Abstract: Tensile strength is an objective method for measurement of tissue repair. It is based on the simple principle of amount of force required to break the union. *Berberis aristata*, an indigenous herbal drug was chosen for this study. Multiple references for *Berberis aristata* in ayurvedic texts indicate wound healing property and specificity to ocular disorders. This particular study was conducted on eighteen albino rabbits. Full thickness 10 mm clear corneal incisions were made. The wound was then closed with 9/0 monofilament nylon interrupted sutures. Assessment of wound healing was done subjectively on various days by post-operative observations. Tensile strength measurement was done on the 25th day of operation. The result obtained from this study indicates a good potential for the drug as a promoter of corneal wound healing.

Introduction

Cornea is a unique part of the eye. Its anatomical, physiological and biochemical properties are related to its function of the transmission and refraction of light rays. This function is affected by a wound and its healing process. Most of the ocular surgeries involve cornea as the site of incision. Increasing expectations of the society for early mobilisation and return to daily routine and clear vision without any added visual aids post-operatively have made the scientists develop new therapeutic modalities. Tensile strength measurement is a useful method to measure tissue repairs quantitatively. After the introduction of tensile strength measurement as a corneal wound-healing parameter by Ciliedman et. al in 1955, several studies have been done with different drugs.

The present study was done to know the behaviour of the corneal tissue under the influence of an indigenous drug, *Berberis aristata*. References are present in texts of the Indian System of Medicine, which indicate its wound-healing property on the cornea.

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Materials and methods

This study was conducted on 18 albino rabbits distributed in three groups A, B and C. All rabbits were in the age group of one and half to two years. The surgical procedures was done under general anaesthesia with freshly prepared Thiopental sodium solution I/V. Under aseptic precautions 10 mm full thickness clear corneal incisions were made at the 12 O' clock position. The incisions were immediately closed with 9/0 interrupted sutures. Anterior chambers were formed with air. Group A rabbits were treated with artificial tear solution topically q.i.d. Group B rabbits were treated with experimental drug mixed with artificial tear solution topically q.i.d. Group C rabbits were treated with ciprofloxacin and dexamethasone topically q.i.d.

Observations were made at fixed intervals, which included conjunctival congestion, fluid discharge, examination of cornea, anterior chamber, iris and fundus glow. Congestion and discharge were graded subjectively. Tensile strength measurement of corneal wound was done 25 days after operation with a standard instrument (tensiometer).

Observation and results

Post-operative observation showed definite lowered congestion in the eye of group B than in group A. On the 5^{th} day mean grades of congestion were 1.83 sd $\pm$ 0.4 in group A and 1.33 SD $\pm$ 0.5 in group B and C. No case was found to have section leakage, iris prolapse, synechia and other signs of corneal toxicity. After 25 days mean tensile strength per 10 mm were as follows: Group A 575.83 gm, Group B 613.33 gm Group C 636.16 gm. Statistical analysis for the difference in tensile strength between group A and B showed P value < 0.02.

Discussion

Like other parts of the body, wound healing in cornea is a natural process depending on many factors. Wound-healing promoters act in different ways. Some of them counter the retarding factors (anti-bacterial drugs) and few directly promote healing. Palmerton (1995), Flink and Bars (1996) have observed tensile strength in rabbit corenal wound under influence of steroids.

Results obtained from this study has indicated the efficiency of drug in promoting corneal-wound healing. Signs of inflammation disappeared faster in group B than in group A. Group B and C were having same mean grade of congestion post-operatively.

The study done by Antonio R Grasset (1968) showed a maximum gain in tensile strength of rabbit corneal wound after 3 weeks of surgery. Keeping this fact in mind, tensile strength measurement was done 25 days post operatively. Data shows mean tensile strength to be : Group A : 575.83 gm/10 mm, Group B: 613.33 gm/ 10 mm and Group C: 636.16 gm/ 10 mm. The difference in tensile strength between group A and B is statistically significant. P value is less than 0.02. Marked gain in tensile strength in group B than in group A indicates the healing promoting effect of *Berberis aristata.*

The data collected from this study is a clear-cut evidence about the property of *Berberis aristata* as a wound-healing drug. Also, it showed marked decrease in conjunctival

TENSILE STRENGTH

Table 1: Tensile strength of corneal wounds in different groups.

Rabbits	Tensile strength gm / 10 mm		
	Group A	Group B	Group C
1	615	630	654
2	565	650	620
3	625	590	639
4	610	550	623
5	530	640	611
6	510	620	670
Mean	575.83	613.33	636.16
± SD	48.31	37.23	22.53

Table 2: Statistical analysis of grades of discharge on various days.

Groups		Days					
		1	3	5	8	10	13
A	Mean	2.00	1.68	1.50	1.16	0.33	0
	± SD	0	0.51	0.54	0.40	0.51	0
B	Mean	1.83	1.33	0.83	0.33	0.16	0
	± SD	0.40	0.50	0.75	0.51	0.40	0
C	Mean	2.00	1.50	0.83	0.16	0	0
	± SD	0.63	0.54	0.40	0.40	0	0

Table 3: Corneal section status in different groups on various days.

Days	Group A		Group B		Group C	
	1*	2**	1*	2**	1**	2**
1	6	0	6	0	6	0
3	6	0	6	0	5	1
5	6	0	4	2	3	3
8	4	2	2	4	1	5
10	1	5	0	6	0	6
13	0	6	0	6	0	6

* Oedematous ** Normal

congestion. This property may be utilised for other ocular disorders also. This drug was found to be quite safe.

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THE ROLE OF *PIZHICHIL* IN NOCTURNAL LEG CRAMPS (NLC) VIS-A-VIS *MAMSAGATAVATA* – A CLINICAL STUDY

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Abstract: The growing incidence of Nocturnal Leg Cramps (NLC) is rather alarming to the physicians. Many hypotheses about the etiology of NLC have been proposed. But no satisfactory explanation has been accepted. NLC can be correlated with *mamsagatavata* described in Charakasamhita. A clinical study was conducted on 16 patients of NLC to assess the therapeutic efficacy of *pizhichil* with *Pindatailam*. The treatment was given for 21 days and the clinical follow up was done at two weeks interval for a period of 8 months. The results were assessed by using a set of special parameters developed for the patients of NLC. The study has shown the therapeutic validity of the traditional procedure.

Introduction

At present, life has become so busy that it makes people to neglect their health. Cramps, of course, are a common problem. In NLC, the sufferer exhibits the symptoms of sudden painful involuntary contraction of calf muscles and some times of the foot muscles that jolt him from sleep. The growing incidence of this problem in India is alarming to the physician. Contemporary modern medicine has no effective treatment for this problem. Hence it was decided to treat this disease considered it as the *mamsagatavata* described in ayurveda.

The symptoms expressed by the patient are severe pain, bulging of calf muscles and small intrinsic muscles of the feet. The muscles become tender and hot. There is sleeplessness, etc. which are similar to the symptoms of *mamsagatavata* mentioned in different classics of ayurveda like *angaguruta* (heaviness of the limbs), *dandamusti hatah* (sensation of beating with sticks and fist), *atiruk* (severe pain in the muscles), *sthabdhata* (stiffness in the muscles), *grandhini* (hard mass-like feeling of muscles), *pipeelikani sancharam* (paraesthesia), etc. An obvious cause for the above problem has not been mentioned in modern medicine. But ayurvedic science has mentioned various dietetic and behavioural causes for the development of the disease *mamsagatavata*.

16 patients having this disorder were selected to assess the therapeutic effect of Keraleeya ayurvedic treatment called *pizhichil*

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with *Pindatailam* of Arya Vaidya Sala, Kottakkal. This treatment was given for 21 days and clinical assessments were done at two weeks interval for a period of 8 months.

Results

After 21 days of the *pizhichil* treatment the following changes were observed in patients as shown in the table.

Sl. No	Symptoms	Partial Reduction	Significant Reduction	No Reduction
1.	Frequency of attacks of cramps	25% of cases	50% of cases	25% of cases
2.	Duration of cramps	31.25% of cases	37.5% of cases	31.25% of cases
3.	Intensity of symptoms	37.5% of cases	37.5% of cases	25% of cases

Materials and methods

16 patients with the above symptoms were selected after excluding conditions like peripheral artery disease, spinal stenosis, uraemia, electrolyte imbalance and hormonal disorders like hypothyroidism and hypocalcemia. Only non-specific nocturnal leg cramps were considered for assessment. Patients of the age group between 35 – 60 were selected with the chronicity of the disease between 1 – 24 months. Apart from the above frequency and duration of the attack was also taken into consideration. Intensity of cramps in the form of severe, moderate and mild were also considered for assessment.

The drug used for this treatment is *Pindatailam* of Arya Vaidya Sala, Kottakkal. It contains *tailam, ghritam* and *erandatailam* apart from drugs like *sahacharam, sariba, madhuchhistam, manjishta, sarjarasa* and *dhanyamlam. Pizhichil* is a specialised ayurvedic treatment of Kerala where the *sneha* and *sveda* are performed simultaneously. In this procedure the body is massaged with hot oil for a period of 1 hour and 10 minutes in 7 postures by massaging 10 minutes in every posture by 4 persons; 2 at the upper end of the body and 2 at the lower end.

Discussion and summary

The *pizhichil* is proved to be very effective in the treatment of nocturnal leg cramps. The possible effects of the *pizhichil* in relieving the symptoms of NLC are 1) this procedure acts as a trans cutaneous electrical nerve stimulator (TENS) thereby relieving the pain, 2) this treatment is a very effective measure in relieving the muscle spasm and tension in the muscle, 3) it produces physical and mental relaxation which has an added effect in relieving the pain and 4) because of the continuous massage with lukewarm oil for a period of 70 minutes it produces a sedative effect, which helps in relieving some of the important symptoms of the disease like pain and sleeplessness.

Conclusion

Pizhichil is a traditional therapeutic procedure. When it is used in the case of NLC it is found to be effective. This technique may be adopted as the treatment of choice in the leg cramps.

The study conducted is, of course, preliminary. We have an object of studying more than 50 patients with long follow-ups. Then the

efficiency can be well established.

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शमन के औषध

ई. शंकुण्णि वारियर

Abstract: Cause of all diseases is usually attributed to *vata*, *pitta* and *kapha*. Practising *sodhana* therapy is not possible always as even a small blemish may lead to complications. Hence *samana* therapy is the first choice for any physician. The properties of oil, ghee and honey, the commonest choice for combating *vata*, *pitta* and *kapha* respectively are discussed here. An article contained in Dhanwantary (Vol. 14, No. 10) is reproduced here in translation.

औषध दो प्रकार के होते है । पहला शोधन और दूसरा शमन । इन में शोधन औषधों का प्रयोग करके रोग-शान्ति प्राप्त करना मुश्किल है । इतना ही नहीं अगर किसी कारणवश कुछ छोटी गलती हो जाय तो रोग-शान्ति के स्थान पर आदमी दूसरे रोगों का शिकार हो जायेगा । इससे रोगी के मरने की भी संभावना है । इसलिए शमन औषधों पर निर्भर रहना बेहतर होगा । शमन औषध कई प्रकार के होते हैं । वात के लिए तैल, पित्त के लिए घी और कफ के लिए मधु आचार्यों द्वारा निर्धारित औषध हैं ।

तैल:- तैल शब्द से स्पष्ट होता है कि वह तिल जैसी वस्तु का स्नेह है । अक्सर तेलों के गुण उनकी मूलवस्तु याने बीजों के गुणों पर निर्भर रहेंगे । तिल के तेल में तीक्ष्ण गुण विद्यमान होता है । इसलिए जल्दी ही रोग को शांति मिलेगी । शरीर के छोटे छोटे स्रोतों से यह जा सकेगा । कृशता (शरीर दुबला - पतला होना) की बीमारी को यह जल्दी शमन दे सकेगा । तीक्ष्ण गुणवाली वायु के कोप के कारण शरीर के स्रोतों का संकोच होता है । तब रस जैसे तत्वों को आगे बढ़ने के लिए सुविधा नहीं मिलती है । कृशता रोग का मूल कारण यही है । यों संकुचित होते स्रोतों से तैल प्रवेश करता है । वह स्निग्ध और मुलायम होता है । इन गुणों के कारण कृशता को शांत करके स्रोतों को वह बड़ा बनायेगा । यों शरीर पुष्ट बन जायेगा ।

स्थूलता (मोटापा) को मिटाने के लिए भी यह एक अच्छा औषध है । आवश्यक कसरत नियमित रूप से न करने के कारण मोटापा होता है । किन्तु तीक्ष्णता, उष्णता आदि वीर्यों से तैल चर्बी के दोषों को मिटाता है । तैल पीने पर चर्मरोग होगा । यह आँखों के लिए भी हानिकारक है, बाह्य प्रयोग से ऐसा कोई खतरा नहीं होगी । इससे शरीर को शक्ति मिलेगी । चर्म के दोषों का शमन होगा । आँखों को प्रसाद मिलेगा । अभ्यंग, सेक, पिचु, वस्ति, नस्य जैसी आयुर्वेद चिकित्सा प्रक्रियाएँ भी इससे संभव होती हैं । भले ही इसके कारण मलबंध होता है तथापि मलाशय से हिलकर बाहर न जानेवाले मल को यह बाहर कर देगा । यों हम समझ सकते हैं कि वात को शमन देनेवाले

अनुवाद: डॉ.आरसु, कालिकट विश्वविद्यालय, केरल ६७३ ६३५.

औषधों में तैल का बड़ा स्थान होता है ।

घृत:- हमारे देश के अधिकांश लोगों द्वारा इस्तेमाल किये जानेवाला एक स्नेह है घी । रोगी न होने की स्थिति में भी आम तौर पर लोग घी का उपयोग करें तो शरीर की शक्ति बढ़ेगी । घी अनेक प्रकार के होते हैं । गाय का घी उनमें श्रेष्ठ है । यह रसायन में आता है और इसका रस मधुर होता है । यह जठराग्नि को बढ़ायेगा । शीतवीर्य का गुण इसमें निहित है । शोभा, तेज, ओज, आयु, कोमलता, शक्ति और स्वर को यह बढ़ाता है । घी आँख को शीतलता प्रदान करेगा । विष, अलक्ष्मी, उदावर्त, ज्वर, उन्माद, शूला, आनाह, क्षय, विसर्प, कोढ़, मूर्च्छा, अपस्मार आदि रोगों का शमन भी इससे संभव होता है । वात, पित्त, कफ इन तीनों को संचालित कर रखने की शक्ति भी इसमें निहित है ।

मधु:- कफ को मिटानेवाले औषधों में इसका श्रेष्ठ स्थान होता है । मधु कई प्रकार के होते है । माक्षिक, भ्रामर जैसे नाम उनकी उत्पत्ति पर निर्भर है । अलग-अलग प्रकार के रोगों के लिए अलग-अलग प्रकार के मधु का उपयोग करते हैं ।

मधु का रस मीठा होता है । कटुवाहट इसका अनुरस है । इसका गुण तीक्ष्ण होता है । आँख की बीमारी मिटाने के लिए यह सहायक है । इसके कारण मलबंध होगा । यह जठराग्नि को बढ़ायेगा । चोट को साफ करके सुखायेगा । कोढ़, बवासीर, खासी, रक्तपित्त, मधुमेह, छोटे कीटों द्वारा फैलाये रोग, तृष्णा, उलटी जम्हाई जैसी बीमारियों को इससे शमन मिलेगा । वात को यह बढ़ायेगा ।

शमन औषधों के बारे में कहूँ तो कई बातों का प्रतिपादन करना होगा । किन्तु उनके बारे में कुछ सामान्य बातें कहना ही इधर लेखक का उद्देश्य रहा है ।

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वातरोग

ई. शंकुण्णि वारियर

Abstract: Here, author gives a brief description on the importance of *vata* and the treatment methodology of *Keraleeya vaidya*s towards *vataroga.* An article by E. Sankunni Varier published in Dhanwantary (Vol. 17 No. 11) is reproduced here in translation.

प्राचीन और नवीन लोग एकमत से मानते हैं कि इस धरती पर जीवन-निर्वाह केलिए सबसे ज़रूरी चीज़ वायु है। अष्टाङ्गहृदय की -

सर्वार्थानर्थकरणे विश्वस्यास्यैककारणम्।
अदुष्टदुष्टः पवनश्शरीरस्य विशेषतः ॥

इन पंक्तियों का भी यही अर्थ निकलता है। प्राचीन लोगों के द्वारा निर्धारित, वायु के पर्यायवाची शब्दों से यह बात स्पष्ट हो जाति है कि, नवीन वैज्ञानिकों ने वायु के जो गुण ढूँढ निकाले हैं उनसे वे अपरिचित नहीं थे।

सारे संसार में हर जगह हर दम वायु विद्यमान है। यद्यपि हम उसको देख नहीं सकते हैं, चर्म से उसे महसूस कर सकते हैं। वैज्ञानिकों का मानना है कि धरती से लगभग दो सौ मील की दूरी तक वायु का फैलाव है। वैज्ञानिकों ने प्रयोगों के द्वारा सिद्ध कर दिया है और हम खुद भी महसूस कर सकते हैं कि धरती के पास वायु का घनत्व ज्यादा है; और ऊपर की ओर क्रमशः इसकी सघनता कम होती जाती है।

वायु एक मूल पदार्थ नहीं है; वह एक संयुक्त पदार्थ है। वैज्ञानिकों ने इसके संयोजकों का पता लगाया है। वे यह भी प्रमाणित कर देते हैं कि अनेक कारणों से संयोजक पदार्थों की आनुपातिकता में परिवर्तन होते रहते हैं और इस कारण से वायु के गुण-धर्म बदलते रहते हैं।

वायुमंडल के हिलने से हवा पैदा होती है। यही हवा प्रबलता से बह कर आँधी का रूप ले लेता है। ये सब वायु के बाहरी परिवर्तन हैं।

बाहरी जगत में हर तरफ व्याप्त यह 'देव' अंतर्यामी भी हैं। कोई भी प्राणि एक पल केलिए भी इसे अपने अंदर से बाहर नहीं निकाल सकता। जब यह प्राणियों के अंदर रहता है तब इसका नाम वायु अथवा वात है। नाम कुछ भी हो, जीवों के प्राण भी यही है। इस तथ्य को पहचानने पर वायु की सर्वोत्कृष्टता साबित हो जाती है।

जीवन-निर्वाह केलिए वात, पित्त, कफ आदि तीन मूल तत्व ज़रूरी हैं। शरीर केलिए ज़रूरी होने के कारण ये धातु माने गए हैं, लेकिन दूसरी ओर शरीर को दूषित करने की शक्ति रखने के कारण चिकित्साविज्ञान में ये दोष भी माने गए है। धातु या दोष के रूप में शरीर से संबन्धित

अनुवादः डॉ. पी. के. राधामणि, मलबार कृस्त्यन कोलेज, कालिकेट.

इन तीनों तत्वों में वायु का स्थान सबसे महत्वपूर्ण है। क्योंकि पित्त या कफ अपने आप शरीर को कोई नुकसान नहीं पहूँचा सकता। उनके गुण या दोष वायु पर निर्भर रहते हैं। लेकिन वात स्वतंत्र रूप से शरीर में विकार पैदा कर सकता है।

शरीर में सही अवस्था में विद्यमान रहने पर वायु से शारीरिक गतिविधियों में सहायता मिलती है। शरीर के अंदर अलग-अलग स्थानों में इसके अलग-अलग कार्य और नाम है। उन सबका विस्तृत विवरण यहाँ ज़रूरी नहीं। जो वायु अनुकूल अवस्था में हमारा हित करती है, वही विपरीत हालत में कई तरह की शरीरिक पीडाओं का कारण बनती है। ऐसी ही पीडाओं का नाम वातरोग है। गलत आहार-विहार की आदत डालने से शरीर में स्नेहांश और धातु-पदार्थों की कमी हो जाति है और मनुष्य वातरोग का शिकार हो जाता है। अतः रोग निवारक औषधियों से संशुद्ध स्नेह को पाचन शक्ति के अनुसार पान, अभ्यंग, अवगाह, वस्ती आदि किसी भी तरीके से रोगी के शरीर में पहूँचाना ही वातरोग में सबसे महत्वपूर्ण इलाज है। प्राचीन ऋषियों और चिकित्सकों की उक्तियों से हम समझ सकते हैं कि इस तत्व को वे भली-भाँति समझ पाए थे। अचेतन और शुष्क धातु-पदार्थ भी स्नेह, स्वेद आदि उपादानों से कर्मण्य बन जाते हैं तो चेतन जीवों के मामले में शक की कोई गुंजाइश ही नहीं। लेकिन कई चिकित्सक इस सत्य को समझने में असमर्थ होकर अनेक प्रकार के द्रव और अन्य औषधियाँ रोगी को पिलाते हैं, और कोई फायदा न होने से रोगी आयुर्वेद वैद्यों के शरण में जाता हैं, जिनके इलाज से बीमारी कम होने लगती है तो लोग इस चिकित्सा का महत्व समझने लगे हैं। आयुर्वेद के आचार्यों ने इस सत्य को बहुत पहले ही पहचान लिया था और अपने अनुभवों के आधार पर उन्होंने वातरोग में स्नेह के उपयोग के बारे में खूब बातें लिख रखी है। ऐसी किताबों के आधार पर इलाज करनेवाले लोग भी 'वैद्य' के रूप में नाम कमा लेते हैं।

आक्षेपकं, अपतंत्रकं, आयामं, अर्दितं, पक्षवधं आदि वातरोगों में शरीर धनुष की तरह टेढा होना, कपोत-कूजन की तरह आवाज़ निकलना, दम धुटना, आँखों का बाहर निकल आना आदि से परेशान होते रोगी की दुस्सह पीडा का दृश्य अत्यंत करुणापूर्ण है। इस प्रकार की कठिन बीमारियों में भी आयुर्वेद के धन्वंतरम जैसे कषायों, विदार्यादि जैसे घृतों, क्षीरबला जैसे तैलों और स्वेद, नस्य, वस्ती आदि चिकित्साओं से रोग मुक्ति मिल जाती है। ताज्जुब की बात है कि अब भी अन्य शाखाओं के विशेषज्ञ इस बात को समझने से इनकार करते हैं।

यौन रोगों में भी मुख्य रूप से वात का ही प्रकोप होता है। इसलिए प्राचीन आचार्यों ने कहा है कि ऐसी बीमारियों में वातहर स्नेह, स्वेद आदि से पहले उन प्रकोपों को दूर करने के बाद ही अन्य दोषों का इलाज संभव है। क्यों कि शारीरिक स्थिति सबसे ज्यादा वात पर निर्भर रहति है और अगर वात संबन्धी विकृतियाँ पैदा होती है तो उससे शरीर को सबसे अधिक नुकसान पहूँचाता है। स्पष्ट होता है कि शारीरिक स्थिति में वातजन्य विकृत अवस्था का इलाज आयुर्वेद के सिवा और कोई चिकित्साविज्ञान में नहीं है।

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