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सतताध्ययनं, वादः परतन्त्रावलोकनम्।
तद्विद्याचार्यसेवा च बुद्धिमेधाकरो गणः ॥

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Save ayurveda - Save bio-diversity

The Call for Alert

It cannot be denied that the stirring issue that upsets the minds of ayurvedic or other traditional practitioners and upholders of the wealth of bio-diversity in India is the prospect ensuing the enactment of the new Patent Law with its amendments. In spite of the official explanations and guarantees to console us that at present, as law stands, there is no immediate danger of infringement on our freedom to manage our affairs as going on now, the scope for fear and anticipation as to the sub-ordination of our field also to the iron grip of the clauses of the laws is not totally annulled. We agree that the clauses prohibiting patentability to materials or processes that cannot claim novelty, non-obviousness, lack of commercial usage and the mention of permissible exceptions to the basic rule on patentability namely inventions contrary to order public or morality (article 27-2) diagnostic, therapeutic and surgical treatment of human and animal (article 27-3A) and plants and animals other than micro organism and essentially biological processes for production of plants and animals other than non-biological and micro-biological processes (article 27- 31A) may perhaps serve to dispel the fear of immediate enslavement to the clauses of the law at present. But at the same time, we are also reminded that the present framework of the law is not without liability to alterations but with the passage of every four-year period, as per the experience and conditions, more inclusions also can be anticipated.

We, here, wish to touch on these problems not with any intention to raise an outcry against these new steps. Because, if properly implemented without any profit motivated self-interests or rather without giving chances for the privileged class to exploit the sections of this law for their monopolistic interests but to promote the common welfare as per the needs of the time, we cannot have any inhibition to welcome these as moves fit for the times. So we agree with the good intention of these moves. But we cannot keep our eyes shut or ears deaf to the sense evoking noises or voices and the stir around us. The questions of the common men are there. Is not the very idea of patentability a product of the calculations of the commercially minded businessmen and tending towards monopolisation? Is it because of our own independent desire and plans to promote our own self-help programmes, we are prompted to introduce these laws? Is it not due to the coercion of an international trade organisation, called the "WTO" which is dominated by the powerful advanced affluent countries which can exercise mandatory authorities both covertly and overtly on backward countries. Where is the guarantee of impunity, since it is said that after four years of experiment, the question of including items exempted at present are also liable for reconsideration? Can we forget our history of how we were beguiled often in the past, by foreigners with baits seeming innocent and sweet at first but then trapping us to bear bitterest consequences?

We wish to face this problem not of course with motives of negation but with ideas of co-operation and caution not to let the reins drop off from our hands; because the very idea of patentability is against the vision of our early preceptors. Charaka warned that it is not for *artha* but for *dharma* the sages have given us the science of Ayurveda. It should be more inclined to helping the helpless.

Still at present conditions, we cannot question the relevancy of such laws. But how to divert its aim for creating order and rules that help for the promotion of the prosperity of the community as a whole instead of serving profit motivated private individuals and companies. For instance, steps for introduction of conditions and rules which offers authority for or at least priority to patentability only to associations which stand solely for service is recommendable. So our call to physicians, scientists and cultural workers is not to get panicky over the impending bad luck, not to go along programmes of blind agitation without due discrimination, but to join this movement to exercise the will power of physicians and public to force the authorities, the law makers, to change the nature of the clauses to make it more effective in giving protection from monopolies and so beneficial to promote the public cause.

There is also one good repercussion for these ongoing discussions and explanations coming from controversial angles. The awareness it has raised regarding the worth of our traditional wealth and the sense of the irreparable loss we have sustained so far by our ignorance and lack of vigilance is a good omen. Remember, that the alarm created in us by the unjust and autocratic pleas of the covetous magnates of multinational medical companies to consider the indigenous plants and medicines of third countries as common properties of the world and so for free access to lay hands upon them without paying any compensation to the country, is still there. Of course, it was given a rebut immediately by the enlightened scientists and public ascertaining the rights of the community and locality of their habitats for sanctioning permission and claiming due compensation. Of course, these timely defenses may, perhaps, do some help to check their aggressive inroads and force to retreat for a time; but how far? The fable of wolf and goat still carries relevance.

Atorishman Bhatia Varan

FROM THE PAGES OF VAGBHATA – XLVIII

Varier, N.V.K.

Abstract: In pre-operative procedures (*poorvakarmas*) of *panchakarmas*, the role of sudation (*svedana*) is equally significant as that of oleation (*snehana*). The objective of *svedana* is to liquefy and guide the *doshas* (wetted by *snehana*) to the *koshtha* to facilitate expulsion. Various techniques employed to attain this objective, their indications and contraindications and instructions for the safe administration are elaborately described here.

अथातः स्वेदविधिमाध्यायं व्याख्यास्यामः ।
इति ह स्माहुरात्रेयादयो महर्षयः ॥

(*Adhatah svedavidhimadhyayam
vyakhyasyamah
iti ha smahuratreyadayo
maharshayah*)

Now we explain the procedure of *sveda* (sudation). So said the sages Atreya and others.

The *poorvakarmas* for purification are *snehana* and then *svedana*. In the previous chapter, we described the procedure of *snehana*.

स्वेदस्तापोपनाहोष्मद्रवभेदाच्चतुर्विधः ।

(*Svedastapopanahoshma
dravabhedacchaturvidhah*)

There are four types of *svedanas*. These are *tapa* (by conduction of heat), *upanaha* (by warm poultice), *ooshma* (by warm steam) and *drava* (by warm liquids).

There are many varieties of *sveda* described

in other texts. For example, Charaka has mentioned thirteen types. They are *samkara*, *prastara*, *nadee*, *parisheka*, *avagaha*, *jentaka*, *asma-ghana*, *karshoo*, *kutee*, *bhoo*, *kumbhi*, *koop* and *holaka*. All these can be grouped under the above mentioned four types.

Tapasveda is done by using heated cloth, metal-plates, palm, etc. Here these objects are exposed to fire and applied on the body to induce fomentation. Materials like wood, sand, husk, etc. also can be used.

उपनाहो वचाकिण्वशताह्वादेवदारुभिः ।

धान्यैः समस्तैर्गन्धैश्च रास्नैरण्डजटामिषैः ॥ २ ॥

उद्रिक्तलवणैः स्नेहशुक्ततक्रपयः प्लुतैः ।

केवले पवने, श्लेष्मसंसृष्टे सुरसादिभिः ॥ ३ ॥

पित्तेन पद्मकाद्यैस्तु साल्वणाख्यैः पुनः पुनः ।

स्निग्धोष्णवीर्यैर्मृदुभिश्चर्मपट्टैरपूतिभिः ॥ ४ ॥

अलाभे वातजित्पत्रकौशेयाविकशाटकैः ।

बद्धं रात्रौ दिवा मुञ्चेन्मुञ्चेद्रात्रौ दिवाकृतम् ॥ ५ ॥

(*Upanaha vachakinva-*
satahvadevadarubhih |
dhanyaih samastairgandhaischa
rasnairandajatamishaih || 2 ||
Udriktalavanaih sneha-
suktatakrapayah plutaih |
kevale pavane, sleshma-
samsrishte surasadibhih || 3 ||
Pittena padmakadyaistu
salvanakhyaih punah punah |
snigdoshnaveeryairmridubhi-
scharmapattairapootibhih || 4 ||
Alabhe vatajitpatra-
kauseyaavikasatakaih |
baddham ratrau diva munchen-
munchedratrau divakritam || 5 ||)

Upanaha is covering the affected part with hot and unctuous medicines. In *vata* diseases unmixed with other *doshas*, the poultice with *vacha* (*Acorus calamus*), *kinva* (the precipitate of *sura*), *satahva* (*Anethum graveolens*), *deva-daru* (*Cedrus deodara*), all types of grains, all substances having a pleasant smell, roots of *rasna* (*Alpinia galanga*) and *eranda* (*Ricinus communis*) and meat are used. Where *vata* is mixed with *kapha*, poultice is prepared with the medicines of *surasadigana*. Where *vata* is mixed with *pitta*, *padmakadigana*, etc. or *salvana* are used for *upanaha*. These are used added with an increased quantity of salt, *snehas*, *chukra* (vinegar), *takra* (butter-milk) and *paya* (milk). They have to be applied repeatedly. According to Dhanwantari, *salvana* is the medicines of *kakolyadi* group, medicines that particularly act against *vata*, all sour tasting substances, meat of *anoopa* and *audaka* animals and the four *snehas* together which is predominantly salty and agreeably hot. The *upanaha* applied is to be bandaged

with soft and unctuous leather strap of hot potency devoid of any bad smell. If leather strap is not available leaves which have *vata*-curing properties, as the leaves of castor plant can be used; or soft silk, woolen fabrics etc., also can be made use of. The *upanaha* done during night should be removed in the next morning and that done during the day should be removed at night.

In the case of *pitta* combinations, it has to be noted that these *svedas* are done only when *pitta* is in a lesser degree. In cases when *pitta* is equal or in an excess state to *vata*, no fomentation is indicated. In the combination of *vata* and *pitta*, the treatments should not be too hot. Experts hold that in cases of *pitta* combinations, the covering has to be loosened frequently to reduce the suffocation.

ऊष्मा तूत्कारिकालोष्टकपालोपलपांसुभिः ।
 पत्रभञ्जेन धान्येन करीषसिकतातुषैः ॥ ६ ॥
 अनेकोपायसन्तप्तैः प्रयोज्यो देशकालतः ।

(*Ooshma tootkarikaloshta-*
kapalopalapamsubhih |
patrabhangena dhanyena
kareeshasikatatushaih || 6 ||
Anekopayasantaptaih
prayogyo desakalatah |)

Ooshmasveda is performed by using heated *ulkarika* or bolus (of grains, pulses and/or seeds etc.), pieces of earthen pot, stone, dust, chopped leaves, grains, cow-dung powder, sand, grain chaffs, etc. These are heated by various techniques and used for fomentation suitable to the place and time/season.

In *Ashtangasamgraha* eight types of *ooshmasvedas* are described. They are *pinda*, *samstara*, *nadee*, *ghanasma*, *kumbhi*, *koopa*, *kutee* and *jentaka*.

Pindasveda

Here, pieces of earthen pot, stone, lumps of mud or iron balls are made red hot, dipped in water or *dhanyamla*, covered with wet flannel and gently rubbed over the *kapha* and *meda* dominated, painful or tumorous part to induce *svedana*.

Boluses prepared with dust, sand, dung of cattle, chaff, grains, boiled rice or meat boiled in *dhanyamla* (sour liquids), fresh dung, drugs used for *upanahasveda*, cooked sesame or rice boiled with milk covered in wet flannels are used in *vata* diseases. *Samstarasveda* is its synonym.

Samstarasveda

In *samstarasveda*, the *svedanadravyas* suitable for the *dosha* and disease are boiled in a closed vessel and spread on a mat in a room with no ventilation. Then the mat is covered with woolen cloth, silk, or with leaves of *vata* conquering properties like *eranda*. The patient is made to lie on the mat covered with the skin of deer, horse, etc.

Nadeesveda

Svedana drugs are boiled in water or any suitable liquid in a cooking vessel. Its mouth is then covered with a similar inverted vessel, which has an opening on its side. A tight fitting pipe, made of reeds, grasses or bamboo leaves, resembling the trunk of an elephant is introduced into the opening and the steam coming out is directed towards the unctuous affected part. This pipe should have three or four coils so that the steam coming from the vessel could be directed to the body at a reduced and comfortable temperature to induce pleasant sweating.

Ghanasmasveda

A heavy, even and pleasant rock or open ground equal to the size of the patient is selected. On this surface *vata* conquering logs are burned well. After removing the fire sprinkle water or *dhanyamla* or similar liquids mixed with sour liquids. Further procedures like covering the surface and body etc. are similar to that of *samstarasveda*.

Kumbhisveda

In *kumbhisveda*, *svedana* drugs are boiled in a *kumbhi* (jar) and by hugging this jar, *svedana* is induced. In another method, the patient sits/lies on a seat/cot placed over a *kumbha* containing *svedana* drugs (mentioned earlier) buried on the floor. Heated iron balls are dropped into the jar to produce steam. To prevent loss of steam the patient is wrapped with a thick blanket that touches the floor.

Koopasveda

Vatahara logs or cow-dung-cake is burned in a pit. A cot is placed above the pit. (The depth of the pit is double the width of the cot). When the smoke disappears, a cloth is spread on cot and the patient lies on it to induce sweating.

Kuteesveda

A round hut that is neither too high nor too wide without any outlet is made. A cot is placed in the middle. *Upanahadravya* are thickly pasted on the walls. The patient lies on the cot surrounded by the smokeless ember of *khadira* (*Acacia catechu*) to induce *svedana*.

Jentakasveda

Jentaka means a heated chamber for inducing *svedana* or a dry hot bath. In Charaka,

it is described as follows. Construct a round hut at a suitable place (with black or golden coloured mud) on the west or the south bank of a water reservoir facing it. It should have many windows made of mud. The height and width of the hut is about sixteen *aratni* (one *aratni* is equal to the length of the forearm). Parapets, having width and height of one *aratni* each is built joined to the wall. In the middle of the hut a hollow column, having a height of about twelve feet and circumference of about the length of an arm with multiple perforations, is built. Logs of *khadira* or *aswakarna* (*Terminalia paniculata*) is burned in this column. When the smoke disappears, the hut is considered fit for sweating. The patient, anointed with *vatahara* oils, wrapped in a cloth lies on the parapet. He is warned against any movements other than instructed. When proper symptoms of sweating are seen he is advised to come out, along the parapet, and then after resting for a while to allow the body to cool down, he may take bath in warm water. Then he may take food.

शिगुवारणकैरण्डकरञ्जसुरसार्जकात् ॥ ७ ॥
 शिरीषवासावंशार्कमालतीदीर्घवृन्ततः ।
 पत्रभङ्गैर्वचाद्यैश्च मांसैश्चानूपवारिजैः ॥ ८ ॥
 दशमूलेन च पृथक् सहितैर्वा यथामलम् ।
 स्नेहवद्भिः सुराशुक्तवारिक्षीरादिसाधितैः ॥ ९ ॥
 कुम्भीर्गळन्तीर्नाडीर्वा पूरयित्वा रुजार्दितम् ।
 वाससाऽऽच्छादितं गात्रं स्निग्धं
 सिञ्चेद्यथासुखम् ॥ १० ॥

(*sigruvaranakairanda-*
karanjasurasarjakat ॥ 7 ॥
Sireeshavasavamsarka-
malateedeerghavrintatah ।
patrabhamgairvachadyaischa

mamsaischanoopavarijaih ॥ 8 ॥
Dasamoolena cha prithak
sahitairva yadhamalam ।
snehavadbhih surasukta-
variksheeradisadhitaih ॥ 9 ॥
Kumbheergalanteernadeerva
poorayitva rujarditam ।
vasasaऽऽchaditam gatram
snigdham sinchedyadhasukham ॥ 10 ॥)

Liquid prepared by boiling leaves of *sigru* (*Moringa oleifera*), *varanaka* (*Crataeva magna*), *eranda* (*Ricinus communis*), *karanja* (*Pongamia pinnata*), *surasa* (*Ocimum sanctum*), *arjaka* (*Ocimum basilicum*), *sireesha* (*Albizia lebbek*), *vasa* (*Justicia beddomei*), *vamsa* (*Bambusa arundinacea*), *arka* (*Calotropis gigantea*), *malati* (*Jasminum gradiflorum*), *deerghavrinta* (*Oroxylum indicum*) and the drugs recommended for *upanaha* (vide chapter fifteen), meat of *anoopa* and water animals and *dasamoola*, singly or collectively as per the conditions of *doshas* along with *snehas*, *sura* (alcohol prepared from rice) or *sukta* (vinegar) or water or milk filled in a kettle with a spout is poured on the body covered with a cloth to the comfort and pleasure of the patient.

तैरेव वा द्रवैः पूर्णं कुण्डं सर्वाङ्गोऽनिले ।
 अवगाह्यातुरस्तिष्ठेदर्शः कृच्छ्रादिरुक्षु च ॥ ११ ॥

(*Taireva va dravaih purnam*
kundam sarvangageऽnile ।
avagahyaturastishthet
arsah kricchradirukshu cha ॥ 11 ॥)

The patient remains immersed in a basin filled with liquids mentioned above in diseases like *sarvangavata* (*vata* affecting the whole body) and in pain of *arsa*, *mootrakricchra*

(painful micturition) and similar diseases. This is *dravasveda*.

निवातेऽन्तर्बहिः स्निग्धो जीर्णान्नः स्वेदमाचरेत् ।
व्याधिव्याधितदेशर्तुवशान्मध्यवरावरम् ॥ १२ ॥

(Nivateऽntarbahih snigdho
jeernnannah svedamacharet ।

vyadhivvyadhitadesartu-
vasanmadhyavaravaram ॥ 12 ॥)

Svedana is to be done seated in a place, where there is no wind. The patient should be given internal and external oleation. *Svedana* should be done only after the food taken earlier is digested. Based on the conditions of the diseases and the patient, the place and the season, fomentation of middle degree, optimum degree or minimum degree may be done.

कफार्तो रूक्षणं रूक्षो, रूक्षः स्निग्धं कफानिले ।

(Kapharto rookshanam rooksho,
rookshah snigdham kaphanile ।)

For one who is suffering from excess of *kapha* *rooksha*-sudation should be done after making him *rooksha* (dry). Here internal and external oleation is not needed. For one suffering from *kapha* along with *vata*, *rooksha*-*snigdha* *sveda* (dry as well as unctuous fomentation) may be done.

आमाशयगते वायौ कफे पक्वाशयाश्रिते ॥ १३ ॥

रूक्षपूर्वं तथा स्निग्धपूर्वं स्थानानुरोधतः ।

(amasayagate vayau
kaphe pakvasayasrite ॥ 13 ॥

Rookshapoorvam तथा snigdha-
poorvam sthananurodhatah ।)

When *vayu* is vitiated in the *amasaya*, first give dry fomentation (*rookshasveda*) and

then unctuous fomentation (*snigdhhasveda*). When *vayu* is vitiated in the *pakvasaya* first give unctuous fomentation and then dry fomentation.

Amasaya is the seat of *kapha* and *pakvasaya* is the seat of *vata*. The rule is that first preference should be given to the seat. Since *amasaya* is the seat of *kapha*, and *vayu* is only an entrant, first administer *rookshasveda* – non-unctuous fomentation – to reduce *kapha* and then *snigdhhasveda* (unctuous) to cure *vata*. *Pakvasaya* is the seat of *vata* and *kapha* is only an entrant. So to cure *vata* as per the seat, first administer an unctuous *sveda* and then a non-unctuous (dry) *sveda*.

अल्पं वङ्कणयोः स्वल्पं दृङ्मुष्कहृदये न वा ॥ १४ ॥

(alpam vamkshanayoh svalpam
dringmushkahridaye na va ॥ 14 ॥)

Only mild sudation is to be done at the groin. Milder sudation may be given to the eyes, scrotum and heart; or as far as possible fomentation of these parts may be better avoided.

शीतशूलक्षये स्विन्नो जातेऽङ्गानां च मार्दवे ।

स्याच्छनैर्मृदितः स्नातस्ततः
स्नेहविधिं भजेत् ॥ १५ ॥

(Seetasoolakshaye svinno
jateऽnganam cha mardave ।
syatcchanairmruditah snata-
statah snehavidhim bhajet ॥ 15 ॥)

When the cold sensation and pain are relieved and the parts of the body become soft, the fomentation is complete. Then he is to be massaged slowly and lightly. Then after taking bath, he has to follow the instructions (regimen) presented in the procedure of *sneha* administration.

पित्ताम्नकोपतृणमूर्च्छास्वराङ्गसनभ्रमाः ।

सन्धिपीडा ज्वरः श्यावरक्तमण्डलदर्शनम् ॥ १६ ॥
स्वेदातियोगाच्छर्दिश्च तत्र स्तम्भनमौषधम् ।
विषक्षारान्यतीसारच्छर्दिमोहातुरेषु च ॥ १७ ॥

(Pittasrakopatrinmoorccha-
svarangasadanabhramah ।

sandhipeeda jvarah syava-
raktamandaladarsanam ॥ 16 ॥
Svedatiyogacchardischa
tatra stambhanamaushadham ।
vishaksharagnyatiasara
cchardimohatureshu cha ॥ 17 ॥)

The symptoms of excess sudation are provocation of *pitta* and *rakta*, thirst, swooning, sinking of voice, weariness of the body, giddiness, oppression at the joints, fever, appearance of dark-red circles on the body and vomiting. Here the treatment is *stambhana* (cooling, withholding, be-numbing). *Stambhana* is the opposite of *svedana*. In afflictions due to *visha* (poison), *kshara* (alkali), *agni* (fire) and in diseases like diarrhoea, vomiting and loss of consciousness also *stambhana* is advised.

स्वेदनं गुरु तीक्ष्णोष्णं प्रायः, स्तम्भनमन्यथा ।
द्रवस्थिरसरस्निग्धरूक्षसूक्ष्मं च भेषजम् ॥ १८ ॥
स्वेदनं, स्तम्भनं श्लक्ष्णं रूक्षसूक्ष्मसरद्रवम् ।
प्रायस्तित्तं कषायं च मधुरं च समासतः ॥ १९ ॥
(Svedanam guruteekshnosnam
prayah, stambhanamanyadha ।
dravasthirasarnigdharooksha-
sookshmam cha bheshajam ॥ 18 ॥
(Svedanam, stambhanam slakshnam
rookshasookshmasaradravam ।
prayastiktam kashayam cha
madhuram cha samasatah ॥ 19 ॥)

Generally, heavy, acute and hot substances are capable of producing fomentation; substances with opposite properties produce *stambhana*. Medicines with properties of liquidity, stability, movement, unctuousness, dryness and subtlety are creative of fomentation, while *stambhana* substances possess properties of smoothness, dryness, subtlety, movement and liquidity. Mostly, bitter, astringent and sweet tastes are also *stambhana*.

स्तम्भितः स्याद्बले लब्धे यथोक्तामयसङ्ख्यात् ।

(Stambhitah syatbale labdhe
yadhoktamayasamkshayat ।)

When strength is regained and the symptoms of the disease disappear, he can be called *stambhita* - having attained coldness. The signs of successful *stambhana* are relief from the symptoms mentioned above.

स्तम्भत्वक्स्नायुसङ्कोचकम्पहृद्वाग्धनुग्रहैः ॥ २० ॥
पादोष्ठत्वक्करैः श्यावैरतिस्तम्भितमादिशेत् ।

(stambhatvaksnayusankocha
kampahridvaghanugrahaih ॥ 20 ॥
Padoshtatvakkaraishyavai-
ratistambhitamadiset ।)

Stiffness, contraction of skin and tendons, tremor, feeling of compression of the heart, dysarthria, lock-jaw, bluish-red discolouration of leg, lips, skin and hands are the symptoms of excessive *stambhana*.

न स्वेदयेदतिस्थूलरूक्षदुर्बलमूर्च्छितान् ॥ २१ ॥
स्तम्भनीयक्षतक्षीणक्षाममद्यविकारिणः ।
तिमिरोदरवीसर्पकुष्ठशोषाढ्यरोगिणः ॥ २२ ॥
पीतदुग्धदधिस्नेहमधून् कृतविरेचनान् ।
भ्रष्टदग्धगुदग्लानिक्रोधशोकभयार्दितान् ॥ २३ ॥

क्षुत्तृष्णाकामलापाण्डुमेहिनः पित्तपीडितान् ।
गर्भिणीं पुष्पितां सूतां मृदु चात्ययिके गदे ॥ २४ ॥

(na svedayedatisthoola-
rookshadurbalamoorcchitan ॥ 21 ॥
Sthambhaneeyakshataksheena
kshamamadyavikarinah ।
timirodaraveesarpakushta-
sophadhyaroginah ॥ 22 ॥
Peetadugdhadadhisneha-
madhun kritavirechanan
bhrashtadagdhagudaglani-
krodhasokabhayarditan ॥ 23 ॥
Kshuttrishnakamalapandu-
mehinah pittapeeditan ।
garbhineem pushpitam sootam
mrudu chatyayike gade ॥ 24 ॥)

People, who are excessively obese, dry, weak, unconscious, who are weak due to injury, who are intoxicated with alcohol or poison, who are suffering from cataract, ascitis, erysipelas, and leprosy who have oedema (*sopha*), *vatarakta*, who have just taken milk, curd, *snehas* or honey, who have just taken medicine for purgation, who are with prolapsed/burned rectum/anus, who are exhausted, who are tormented by anger, sorrow or fear, who are affected with hunger, thirst, diseases like *kamala*, anaemia, *meha* or *pitta* provocation, are to be exempted from sudation. Lean people, pregnant women, and *pushpita* (woman in menstruation) and puerpera are also to be exempted from sudation. In case of emergency, mild fomentation may be administered to them.

श्वासकासप्रतिश्यायहिध्माध्मानविबन्धिषु ।
स्वरभेदानिलव्याधिश्छेष्मामस्तम्भगौरवे ॥ २५ ॥
अङ्गमर्दकटीपार्श्वपृष्ठकुक्षिहनुग्रहे ।

महत्वे मुष्कयोः खल्यामायामे वातकण्टके ॥ २६ ॥
मूत्रकृच्छ्रार्बुदग्रन्थिशुक्लाघाताढ्यमास्ते ।
स्वेदं यथायथं कुर्यात्तदौषधविभागतः ॥ २७ ॥

(Svasakasapratishyaya-
hidhmadhmanavibandhishu ।
svarabhedanilavyadhi-
sleshmamastambhagaurave ॥ 25 ॥
Angamardakateeparsva-
prishthakukshihanugrahe ।
mahatve mushkayoh khalyam-
ayamevatakantake ॥ 26 ॥
Mootrakricchrarbudagranthi-
suklaghatadhyamarute ।
svedam yadhayadham kurya-
ttadaushadhavibhagatah ॥ 27 ॥)

Sveda is indicated in *svasa*, *kasa*, *pratisyaya* (chronic sinusitis), hiccup, flatulence, constipation, voice disturbance, *vata* diseases, *kapha* diseases, *ama* conditions, stiffness and heaviness of body, torment or pain all over the body, catch or spasm at loins, flanks, back and stomach, lock-jaw, swollen testicles, *khalli*, *ayamas*, *vatakantaka*, *mootrakricchra*, *arbuda*, *grandhis*, *suklaghata* (obstruction of semen) and *adhyamaruta* (*oorusthamba*). The type of *sveda* to be administered and the *svedana* drugs to be used are to be decided taking into account the nature of the patient, *dosha*, *doosha*, etc.

स्वेदो हितस्त्वनाग्नेयो वाते मेदः कफावृते ।
निवातं गृहमायासो गुरुप्रावरणं भयम् ॥ २८ ॥
उपनाहाहवक्रोधा भूरिपानं क्षुधाऽऽतपः ।
स्वेदयन्ति दशैतानि नरमग्निगुणादृते ॥ २९ ॥
(Svedo hitastvanagneyo
vate medah kaphavrite ।

nivatam grihamayaso
gurupravaranam bhayam ॥ 28 ॥
Upanahahavakrodha
bhooripanam kshudha ॥ 29 ॥
svedayanti dasaitani naramagni-
gunadrite ॥ 29 ॥

When *vata* is covered by *meda* and *kapha*, *anagneyasveda* is indicated. In *anagneya-sveda*, fomentation is done without fire.

Air-tight room, exercises, covering the body with heavy blankets, threatening or frightening, *upanaha*, fight, anger, excessive drinking of liquor, bearing hunger and exposure to sun induce *sveda* without fire.

स्नेहक्लिन्नाः कोष्ठगा धातुगा वा
स्रोतोलीना ये च शाखास्थिसंस्थाः ।
दोषाः स्वेदैस्ते द्रवीकृत्य कोष्ठं
नीताः सम्यक् शुद्धिभिर्निहियन्ते ॥ ३० ॥
(*Snehaklinnah koshtaga dhatuga va*
srotoleena ye cha sakhashthisamstha)

doshah svedaiste draveekritya koshtam
neetah samyak suddhibhir
nirhriyante ॥ 30 ॥

The *doshas* that have entered *koshtha* or *dhatu*s or that are latent in the *srotas*es or stuck up in the *sakhas* are moistened and loosened by *snehapana*; and, by *svedana* they are liquefied and brought to *koshtha*. From here, by proper *suddhi* the *doshas* are expelled.

इति श्रीवैद्यपतिसिंहगुप्तसूनुश्रीमद्वाग्भट विरचिताया-
मष्टाङ्गहृदयसंहितायां सूत्रस्थाने स्वेदविधिर्नाम सप्तदशोऽ-
ध्यायः ॥ १७ ॥

(*Iti srivaidyapatisimhaguptasoonusreemad*
vagbhatavirachitayamashtangahridayasamhi-
tayam sootrasthane svedavidhirnama sapta-
daso ॥ 17 ॥)

This is the seventeenth chapter of the *sootrasthana* titled *Svedavidhi* of *Ashtangahridaya samhita*, composed by *Vagbhata* the son of *Vaidyapati Simha Gupta*.

PHILOSOPHY IN THE INTERPRETATION OF THE SCIENCE OF AYURVEDA*

Raghavan Thirumulpad, K.**

Abstract: Now ayurveda is not taught or studied as a *sastra*; the stress is on medicine. In *sastreeya* ayurveda, medicines were for the physicians to treat the patient. Now physicians are to prescribe and dispense medicines. The quality of the medicine is being stressed, not the quality of the physician. To make a good physician, studies and researches have to be undertaken in the *sastra*. Here an attempt is made to explain how ayurveda texts have to be studied.

Ayurveda as a *sastra*

The word philosophy is used in the sense of the Sanskrit word *darsana*. It may not be very apt, but a better word does not come to mind. The term *sastra* is translated as science. *Darsanas* can be understood as appraisals of the fundamental laws of nature. There can be different *darsanas* because of the different premises from which and through which the enquiry proceeds. *Sastra* is the study of how the fundamental principles of nature are put into practice with regard to some particular aspect of life. What, why, when and how to apply are explained in the *sastra*.

Ayurveda is *ayussastra*, the science of life. Life is what we feel, think, say and do all the time. All these are in relation to the external conditions and circumstances in which we are

placed. These external conditions and circumstances affect the physical and mental manifestations. If all these external factors are in proper order, the internal biological processes are also in proper order resulting in health, experienced as all-round-well-being, or ease. Otherwise it is disease, disorder, with its various aspects.

All these are explained in the texts of Charaka, Susruta and Vagbhata, these being the fundamental source of valid knowledge of ayurveda or *aptavakya*. Only through the correct interpretation of the texts, the ideas can be understood properly. Here the *darsanas* assist in correctly assessing the imports of the texts. One may think that in the evolution of various *darsanas*, ayurvedic speculations may have made some contributions; because, in the

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process of solving certain problems in ayurveda, the ideas of the *darsanas* naturally come up. Perhaps ayurveda provided contexts to prove the validity of the *darsanas*. In this paper, a primary attempt is made to elucidate these points.

काणादं पाणिनीयं च सर्वशास्त्रोपकारकम् - In interpreting all the *sastras*, *Kanada* and *Panineeeya* are essentially helpful. It is so in the case of ayurveda also. *Vaisheshika darsana* expounded by *Maharshi Kanada* deals with the *padarthas*. पदस्य अर्थः पदार्थः - *pada* is word which has an idea to be conveyed. शक्तं पदम्, सुसिद्धन्तं पदम् - It is grammatically perfected to convey the idea efficiently. The *padarthas* are of seven categories - *dravya*, *guna*, *karma*, *samanya*, *visesha*, *samavaya* and *abhava*. Of these, only the first three i.e *dravya*, *guna* and *karma* have independent identity; they are called सत्तावन्तः, सत्पदार्थाः. *Satta* is *jati*, something common to many. There are many *dravyas*, there are many *gunas* and there are many *karmas*. The other *padarthas* explain in a way the relationship between these *padarthas*. *Samanya* is generalisation and *visesha* is particularisation. *Samanya* is eternal relation as that of *dravya* and *guna*, and *dravya* and *karma*. All these six are positive *bhavapadarthas*. *Abhava* is negative *padartha*. Darkness is an example. Even though we feel its existence, when there is no light, actually it means that nothing is seen in the absence of light. All these are explained in the introductory chapters of *Charaka* with slight difference in definitions to suit ayurvedic concepts.

Ayurveda is defined by *Charaka आयुष्याणि अनायुष्याणि च द्रव्यगुणकर्माणि वेदयतीत्यायुर्वेदः*. Ayurveda teaches of *dravya*, *guna* and *karma* with

particular relation to health and disease. Those which cause health have to be adhered to and those which cause disease have to be avoided. For an elaborate understanding of what is what of *dravya*, *guna* and *karma* knowledge of *vaisheshikadarsana* is essential. For a correct understanding of the five *bhutas* (which can be taken as the premise of ayurvedic thought), also, the source is *vaisheshikadarsana*. These are only examples as to how *Kanada* is *upakaraka* (helpful) for understanding the basic concepts of ayurveda.

As the basic texts of ayurveda are written in Sanskrit, a correct knowledge of the classic language is essential for their study. The discussions and evolutions in thought and practice that has continued through the centuries are enshrined in the large number of commentaries written from time to time that adorn the texts. Each commendable commentary is a kind of *pratisamskarana*, revision, of the *sastra*. The best commentaries are written in classic Sanskrit. The commentaries in regional languages are generally adaptations from the Sanskrit commentaries. Hence, without the grasp of fundamentals of Sanskrit grammar the study of ayurvedic texts will never be perfect. This can be explained with an example. All the prescriptions in ayurvedic texts are made with the *lakara - ling* (लिङ्), the potential mood. Why not with the *lakara - lot* (लोट्), the imperative mood? तस्मात् सत्यपि निर्देशे कुर्याद्ब्रह्म स्वयं धिया न करोतु. ब्राह्मे मुहूर्ते उत्तिष्ठेत् not उत्तिष्ठतु. कामलातीयं योजयेत् not योजयतु. षोडशांशस्थितं पचेत् not पचतु. *Panini* attributes the meaning of *sakyata* (that could be done) to *ling* (लिङ्) and *yogyata* (that should be done) to *lot* (लोट्). It can be said that *ling* denotes general rule and *lot* particular rule. *Ling* denotes persuasion (प्रेरण) and *lot* emphasis

(प्रवर्तन). Advaitists say that *sastra* is *bodhaka*, not *karaka*. *Bodhaka* gives information and *karaka* compels. It is the same with ayurveda. Various prescriptions are given with various drugs for each disease. It is impossible to use all of them. The physician has to choose with discretion, the most useful for the particular patient. तस्मात् सत्यपि निर्देशे कुर्याद्बुद्ध स्वयं धिया (चरक).

The physician can make suitable alterations to suit the particular conditions of the patient and availability of the drug - द्रव्यं जह्यादयौगिकं युज्यात्तद्विधमन्यच्च. What is prescribed in the texts are examples for the discerning physicians - उदाहरणमात्रं तु बुद्धिमतां. The ordinary physician should follow the injunctions in total, not to commit mistakes - यथोक्तानुसरणमेव श्रेयो मन्दबुद्धीनाम्. Just because something is said in the texts, you should not act according to it. The properties of the dog's flesh are given in ayurveda. It does not mean that you should use it for food or medicine. न शास्त्रोक्तमित्येतावत् क्रियाणां कारकं भवेत्, रसवीर्यविपाकादि श्वमांसस्यापि वैद्यके. *Madya* (मद्य) is generally prohibited - मद्यं न पेयम्. But in treatment, it is prescribed in some conditions. *Madya* has many benefits. But it makes the mind turbulent - यत्रैकः स्मृतिविभ्रंशः तत्र सर्वमसाधु यत्. After delivery, women are advised to take *madya*. But for those who by habit or custom are averse to take it, gruel medically prescribed, is advised - पेयाममद्यपा. That is the case with *mamsa* (मांस) also. निवृत्तामिषमद्यो यो हिताशी प्रयतः शुचिः, निजागन्तुभिरुन्मादैः सत्ववान् न संयुज्यते. Particularly for a healthy mind, one has to eschew *mamsa* and *madya*. उपदिष्टे विचित्रेऽस्मिन् कर्तव्यार्थानुरोधतः कर्तव्यमेव कर्तव्यं प्राणापायेऽपि नेतरत्. For exhaustive knowledge, many things have to be said in the texts. But in actual practice only that which is morally and socially correct should be

adhered to. The use of the *lakara* - *ling* (लिङ्) not *lot* (लोट्) grammatically convey these ideas. This is just an example for the importance of *vyakarana* in understanding the subtleties of ayurveda. वराहो वेद वीरुधं नकुलो वेद भेषजीम् (अथर्ववेदः). It means that the boar knows the herb, the mongoose knows the medicine. Many other animals also understand herbs and use them as medicine. It is by instinct and experience that they use them. Man also is basically an animal and understand the essential herbs that can be used as food and medicine. Observation of the behaviour of the animals when they are well and ill provided man with much knowledge about herbs. He began to think how, why and when the herb acts in a particular way and that led him to the thought of the structures and properties of the herbs. The result is the *panchabhutasiddhanta*. Every drug, everything in this world is made of the *panchabhutas*, the difference is due to the difference in proportion and arrangement of the *bhutas*, the difference in structure - बहिरिन्द्रियग्राह्यविशेषगुणवत्त्वं भूतत्वम्.

With each of the five senses, we know a particular *guna*, *sabda*, etc. As *guna* cannot exist independently some *dravya* has to be conceived to possess it. *Bhuta* is the *dravya* thought as possessing the *guna*. All these are elaborately discussed in the *vaisesika darsana*. Naturally, any thought is prompted by necessity. Here the thought to reveal the secrecy of the structure and properties of the herbs should have been prompted by the necessity to understand their medicinal benefits and as such the beginning and evolution of the *vaisesika darsana* ought have owed much to ayurvedic thoughts. Even though all *sastras* accept the theory of the *panchabhuta*, it forms the foundation on which the edifice of ayurveda

is built. But it is the *vaisheshika darsana* which elaborated it.

Nyayadarsana is *pramanasastra*. Four *pramanas* are accepted in explaining ayurveda - 1) *pratyaksha*, perception by the senses, 2) *anumana*, inference, where sensory perception alone is not enough to arrive at correct conclusions, 3) *upadesa*, *aptavakya*, the recorded knowledge and experiences of the *acharya* and 4) *upamana*, analogy, the unknown explained in comparison with the known. *Pratyaksha* and *anumana* are given more importance (द्विविधा खलु परीक्षा ज्ञानवतां) with the assistance of *aptopadesa*. Charaka adds one more *pramana* i.e. *yukti*, an aberration of *anumana* where an example (उदाहरण) cannot be given.

यस्मिन् सति भवत्येव न भवत्यसतीति च ।
तस्मादतो भवत्येव युक्तिरेषाभिधीयते ॥
प्रमाणान्तरमेवेयमित्याह चरको मुनिः ।

The sixteen *padarthas* of *nyayadarsana* are accepted with some modification in Charaka in connection with *sambhashavidhi*, explaining how a topic should be discussed and how it should not be discussed to arrive at the correct conclusion (*rogabhishagjiteeya vimana*). In this connection, the *tantrayukti*, propounded in ayurveda are worth mentioning. In *vachaspathya*, the *brihannighanturatanakara*, *tantrayukti* is explained as आयुर्वेदप्रसिद्धा युक्तिः. Charaka and Vagbhata accept thirty-six *tantrayuktis*. Susruta accepts only thirty-two *tantrayuktis*. Bhattaraharischandra in his commentary on Charaka says that forty *tantrayuktis* are to be accepted to properly explain the *sastra*. All these *tantrayuktis* are defined with examples from the texts. Kautilya in his *Arthasastra* accept thirty-two *tantrayuktis*, more or less in the line

of Susruta, the examples given naturally being from that text. I think the *tantrayuktis* have the same purpose (more or less) of the *nyaya* of the *mimamsaka*. A comparative study is surely worthwhile. By *vakyayojana* and *arthayojana*, the seeming contradictions in the various passages of the texts are solved. Each statement in the *sastra* is made from a particular standpoint in a particular context. *Tantrayuktis* assist in solving the seemingly irreconcilable contradictions.

By the time of Gouthama's *nyayasutra*, we have to think that ayurveda as a *sastra* had attained a high standard of acceptance. In the *nyayasutra*, मन्त्रायुर्वेदप्रामाण्यात् तत् प्रामाण्यमाप्तप्रामाण्यात्, to infer the validity of the *veda* in the *anumana*, ayurveda is cited as example. Ayurveda is *aptavakya*; *veda* also is *aptavakya*. *Apta* is a realised one who says only the truth, - यथार्थवक्ता. In experience, ayurveda is true when properly understood and practised. In the *nyayasutra*, the word *dosha* is used more less in the same sense as in ayurveda. All the biological functions of the body are activated by the three *dosha* - *vata*, *pitta* and *kapha* as per ayurveda. In the *nyayadarsana*, the three *doshas* are passion (*raga*) hostility (*dvesha*) and misconception (*moha*). The ordinary man of the world behaves in daily life prompted by the likes or dislikes or misconceptions.

रागो द्वेषश्च मोहश्च त्रय एते महाविषाः ।
निर्विषो भगवान् बुद्धः रागाद्या येन नाशिताः ॥

Raga, *dvesha* and *moha* are the most venomous poisons; Bhagvan Buddha who has conquered *raga*, etc. is poisonless, the efficient *vishavaidya*. The introductory verse of *Ashtangahridaya* begins with *Ragadi rogan...* - the disease beginning from or arising from *raga*.

The *apoorvavaidya* (unique physician) who has vanquished *raga*, etc. is invoked in the beginning. Vagbhata, a bauddha surely thinks of Lord Buddha in the prayer. Hence, *ragadiroga* means the diseases that are *raga*, *dvesha* and *moha*. We can see from these contexts that for evaluating various aspects of ayurveda correctly, a primary knowledge of *nyayadarsana* is essential.

The importance of *samkhyadarsana* is its theory of evolution (*parinamavada*). In *vaisheshika*, the *bhutas* are accepted as such. They exist in the universe as *paramanus*, independent of each other. These *paramanus* join together to form various *dravya*. Ayurveda accepts *paramanuvada*. In the course of digestion of the food, first the dross (मल) is separated, then the essence is reduced to *paramanu*, which in course of *dhatupaka* (metabolism) regroup to nourish the various tissues. In *samkhya*, the primary substance from which creation starts is *prakriti*. *Prakriti* evolves as *mahattattva*, *mahattattva* evolves as *ahamkara*, and *ahamkara* evolves as five *tanmatras*. From the five *tanmatras*, the five *bhutas* are evolved. भूतेभ्यो हि परं यस्मात्त्रास्ति चिन्ता चिकित्सिते - ayurveda ignores everything previous to the five *bhutas* as not very essential to explain the principles of ayurveda. अक्षरात् खं ततो वायुस्ततस्तेजस्ततो जलं, अंभसः पृथिवी जाता भूतानामेष संभवः - ayurveda considers all things in the course of evolution previous to the *bhutas* together as *avyakta*, *akshara*. The *bhutas* are cognisable with *indriyas*. The *vikritis* till the *bhutas* cannot be ascertained with the *indriyas*. Perhaps the term *avyakta* means that which is not perceivable with the *indriyas*. Ayurveda accepts *pratyaksha* as the basic of *pramanas*. Sankaracharya also has said that *anumana* or *agama* is not *pramana*

against *pratyaksha*.

The *jagat* (world) is explained from the point of the *tattvas*. The *tattvas* are enumerated from one to ninety. Each enumeration has its own arguments - सर्वं न्याय्यं युक्तिमत्वात् विदुषां किमशोभनम्. From a particular point of view each is correct. Perhaps the human intellect has not developed to such a stage of comprehension which by negating all other arguments, can provide only one answer to any problem. As Bhartrihari, the grammarian says in his *Vakyapadeeya* - यत्नेनानुमितोऽप्यर्थः कुशलैरनुमापकैः, अभियुक्तैरन्यैरन्यथैवापपाद्यते. However cleverly we argue out and seemingly establish some point of view, intellectually superior people with more experience in life can argue in some other view on some other ground and establish some other opinion. In the ayurvedic texts also, we can see differences of opinion on many points. *Acharyas* accept all of them and advise the students to study the subject from the many different angles.

Ayurveda accept six *tattvas*, with which the principles and practices of ayurveda can be explained - षट्धातुकोऽयं पुरुषः. The six *tattvas* are the five *bhutas* and the *atma*. *Atma* is *sakshi* and *chetana*. Just being witness, it provides the individual with energy for the system to work. It is its nature. Body is the medium, *upadhi*. The *atma* of ayurveda is more or less like the *purusha* of the *samkhya*. *Samkhya* accepts the twenty-four *tattvas* evolved from *prakriti* to explain the body, *purusha* is said to be a separate *tattva* (पुरुषः पञ्चविंशः). According to *samkhya*, the body is *chaturvimsati tattvamsaka*. In ayurveda, the body is *panchabhutatmaka*, the *atma* is the sixth *dhatu*. It is called *dhatu* because with the five *bhutas* which are also called *dhatu*s in this context, the

atma sustains the person. Even if we ignore the *atma*, all aspects of the body in health and disease can be explained with the *bhutas*.

Everything in the body apart from the *atma*, is of the five *bhutas*, hence the *indriyas* and the *mana* also are of the *bhutas*, nourished by the essence of the food. In the course of digestion and assimilation, the most gross part (स्थूलांश) is separated as dross (*mala*) to be eliminated. The most subtle (सूक्ष्मांश) part nourishes the mind and the middle part (मध्यांश) nourishes the tissues (धातु). In *nyaya*, the *indriyas* are accepted as *bhautika* but *mana* is said to be *ahamkarika* (आहंकारिक – born of *ahamkara*). I think that is the idea of the *samkhya* also. The food can be classified as in *Geeta*, *satvika*, *rajasa* and *tamasa* only if we accept the idea that mind is nourished by the essence of food, as said in *ayurveda*.

The theories (सिद्धान्त) of *ayurveda* are the result of research done by the intelligent who are engaged in the study of *sastra* - सिद्धान्तो नाम स यः परीक्षकैः बहुविधं परीक्ष्य हेतुभिश्च साधयित्वा स्थाप्यते निर्णयः (चरक). Theory is the conclusion established by the researchers, experimenting and reasoning in many ways. It is experience that proves the validity of the theory. That is the way the student has to follow to understand the validity of the theories, experimenting, reasoning and experiencing in practice. Nothing should be taken for granted. We can accept anything only when we are intellectually and practically satisfied. The division of the *siddhantas* as of four kinds, *sarvatantra-siddhanta*, *pratitantrasiddhanta*, *adhikarana-siddhanta* and *abhyupagamasiddhanta*, follows *nyayadarsana* entirely, differing only in the examples. *Ayurveda* gives examples from the

ayurvedic texts, in *nyaya* they are from the *nyayadarsana*.

As a seat of disease (रोगाधिष्ठान) mind is studied in *ayurveda* with much importance. *Samkhyadarsana* gives good knowledge of mind from the behavioural point of view. The behaviour of the mind can be divided as of three kinds *santa* (शान्त - *satvika*), *ghora* (घोर - *rajasa*) and *mudha* (मूढ - *tamasa*). *Satva*, *rajas* and *tamas* are the constituents of *prakriti* and as such all the *vikritis* also. In *ayurveda*, they are called *mahagunas* (सत्त्वं रजस्तमश्चेति त्रय एते महागुणाः). They are said to be components of the mind. They are called *gunas*, not because they are qualities or properties of the mind, but because they are secondary, being parts, *avayavas*, of mind. *Avayavi*, the whole, is always considered more important than the *avayava*, part. *Rogas* (diseases) are of two kinds, *sareera* and *manasa*. *Sareerarogas* are the effect of the loss of balance of the *doshas* and *manasarogas* are the effect of the loss of balance of the *gunas*. In the case of *manorogas*, *satvaguna* does not cause disease as it always maintains its balance, being *santa*. *Rajas* and *tamas*, when lose balance out shadow *satva* and cause disease, hence they are called *manodosas*. When *rajas* and *tamas* are under control of *satvaguna*, it is health, when they overrule *satva*, it is disease - वायुः पित्तं कफश्चेति शरीरो दोषसंग्रहः । मानसः पुनरुद्दिष्टो रजश्च तम एव च । प्रशाम्यत्यौषधैः पूर्वो दैवयुक्तिव्यपाश्रयैः । मानसो ज्ञानविज्ञानधैर्यस्मृति समाधिभिः ॥ The treatment for bodily ailments is *daivavyapasraya* and *yuktivyapasraya* together. And for ailments of the mind it is knowledge (ज्ञान), experience (विज्ञान), steadfastness (धैर्य), remembrance (स्मृति) and equanimity of mind (समाधि). *Samadhi* is said to be the final state of mind as per *ashtangayoga*. Practice of the *yoga*

controls the mind. Here the word *vyadhi* as synonym of *roga* comes to mind (*ragadi*). Ayurveda considers sin as the basic cause of disease. Sin is explained as -

हिंसास्तेयान्यथाकामं पैशून्यं परुषानृते ॥
संभिन्नालापं व्यापादमभिध्यां दृग्विपर्ययम् ।
पापं कर्मेति दशधा कायवाङ्मानसैस्त्यजेत् ॥

Himsa is harming others in any way. *Stheya* is stealing. *Anyatha-kama* is immoral sex. *Paisunya* is words making people quarrel. *Parusha* is harsh words, *anrita* is telling lies. *Sambhinnaalapa* is speech creating enmity between people. *Vyapada* is wishing harm for other people. *Abhidhya* is thinking ill of other people (cursing). *Drik* is *darsana* (philosophy), and *drigviparyaya* is following a philosophy that does not compulsorily advocate virtue, that allows *himsa*, etc. as an easy way to achieve one's objective. Ayurveda prescribes *sadachara* virtuous life, for health. *Sadachara* is *punya*, *durachara* is *papa*. *Punya* promotes health and *papa* promotes disease. *Daiva* denotes *punya* and *papa*. *Daivavyapasrayachikitsa* means treatment taking into consideration of *punya* and *papa*. समासतः क्रियायोगो निदानपरिवर्जनम् - in essence treatment is avoiding the cause. It is *hetuvipareetachikitsa*. *Durachara* can be avoided only by adhering to *sadachara*. In *vyotisha* where the *grahas* are attributed to have the power to predispose the destiny of the human beings, the prescription to appease the *grahas* is *sadachara* - अहिंसकस्य दान्तस्य धर्माजितधनस्य च सर्वदा नियमस्थस्य सदा सानुग्रहाः ग्रहाः. Even if one does not believe in *vyotisha* there can not be a difference of opinion as to *sadachara*. Prayer, worship, pilgrimage, etc. are also prescribed as *sadhanas* for attenuation of sin. The belief that such practices will alleviate sin,

that something positive is being done to alleviate sin prompts optimism which will positively help the restorative faculties of the body.

We have seen that *yuktivyapasraya-chikitsa* is medicine prescribed after scientific diagnosis of the disease. Ayurveda is holistic because all factors of life are taken into consideration in ensuring health and curing disease. There are some people who think that early ayurveda was mostly *daivavyapasraya*; *yuktivyapasraya* was a later development when *daivavyapasrayachikitsa* was found to be not fully effective. As we saw earlier, by instinct and observation man began to use herbs as medicine from the beginning. Many diseases are enumerated in the *vedas* for which herbal medicines are prescribed. It is said in the *vedas* - स्वस्ति पन्थामनुसरेम जगदयक्षम् - for the world to be without diseases, we should follow the way of virtue which actually mean adherence to *sadachara*. Expectation and desire are at the root of prayer, pilgrimage, etc. It seems that the two kinds of treatments developed more or less parallel to each other, generally and particularly applied. These two methods together made the treatment holistic. That continued to the time of Charaka as is seen in the lines प्रशाम्यत्यौषधैः पूर्वो देवयुक्तिव्यपाश्रयैः. Here the *dvandva samasa* denotes equal importance and simultaneous application of the two. (Here *vyakarana* comes to help to understand the idea.)

In Bhagavatgeeta, we can find two passages - समत्वं योग उच्यते and योगः कर्मसु कौशलम्. Integrating the meanings of both the passages ayurveda says - समाः स्वं कर्म कुर्वते, योगः कर्मसु कौशलम्. *Samayoga* is the import of Bhagavatgeeta, it is *samyagyoga* in ayurveda - same is the cause

of disease and health. The very same thing, food etc. improperly used causes diseases, properly used promotes health, curing diseases -कथमेकस्मादुभयमिति चेत् सम्यक् मिथ्येति विशेषः. How can the same thing cause diametrically opposite aspects like health and disease? The answer is *samyagyoga*, proper application causes health, *mithyayoga*, improper application, causes disease. Here the idea that the same thing appears as diametrically different things due to *upadhibheda* can be comprehended. The very same *doshas* cause health and disease, their *samya* causes health and *vaishamya* causes disease. There is a glimpse of *advaitavedanta* in this elucidation.

Charaka explains in a passage how the import of a text can be found out. अतश्च प्रकृतं बुध्वा देशकालान्तराणि च । ग्रन्थकर्तुरभिप्रायानुपाधांश्चार्थमादिशेत् ॥ *Prakrita* means context. Seeming contradictions can be solved if we particularly examine the contexts of the passages. *Desakalantarani* means the differences in places and times. Climate etc. change with the places. *Greeshma* is summer. In the texts *greeshmaritu* is said to be more or less from May 15 to July 15. But in Kerala that is the main rainy season. Mode of life has to be changed according to the season to ensure health (*ritucharya*). Here the *acharyas* say that it is not the particular month, but the symptoms (*lakshanas*) of the season that is important in deciding the way of life. The reason for the difference in climate said in the text and actually experienced is that the texts were mostly written in the Himalayan Valleys. It is said also in the texts, that the climate changes south of the Vindhya ranges. Habits and circumstances of life also change from place to place. Centuries have elapsed since Charaka, Susruta and Vagbhata wrote their

texts. With the passing of the centuries, social and circumstantial conditions and rules of conduct might have surely changed. There can be changes in climatic conditions. So whatever said in the texts have to be adapted to the changed conditions, and applied with necessary modifications (उदाहरणमात्रं तु बुद्धिमताम्). We should not compare the up to date aspects of modern medicine with what is found in the texts written centuries back. The comparison would be worthwhile only when what is said in the texts is compared with what was in the so-called modern medicine at that time. Ayurveda used to be made up-to-date with *pratisamskarana* (revision) of the texts from time to time. Charakasamhita and Susruta-samhita available now are many-time-revised-editions of the earlier texts. For some centuries that has not been done for historical reasons. There may be other differences also to be taken into account, in addition to *desa* and *kala*. Then comes ग्रन्थकर्तुरभिप्रायान् – the personal opinion of the authors. In Charakasamhita, much of a chapter is devoted to prove the rebirth of the soul. But essentially it is the personal opinion of the *acharya*. It is immaterial for the validity of the principles and practices of ayurveda whether the soul is reborn or not. Charaka mention of the all pervading *atma* (*advaita*) but Susruta speaks of the individual *atma* (*dvaita*). For the purpose of medicine, it is immaterial whether it is *advaita* or *dvaita*.

In the texts of Vagbhata, there are many references to Buddhist precepts and practices. We noted this in connection with the opening stanza of Ashtangahridaya (रागादिरोगान्...). The physician should always emulate in conduct and behaviour of the Bodhisatvas who are supreme preceptors - अतिगुरु बोधिसत्त्वचरितं सततं विदधत्

- अभ्यस्यतो मार्गमिवार्यसत्यम्. One who studies and practices of Ashtangasamgraha, just as in the case of study and practice of *aryasatya* (the doctrine of the Buddhists) is endowed with the blessing of this world and the next world. *Buddhamantras* are prescribed to be recited in addition to *vedamantras* when medicine is taken. Charaka indicates *vedamantras* alone. Now in modern times, the Christians and Mohammadens may pray in their own way. All these should be taken as the opinion of the author and practitioner, need not be given much importance in explaining the science as these do not apply to the theories and practices. Now also, people with particular partiality to some dogma try to explain ayurveda in their particular way. They maintain that whatever said in the text against their ideas is interpolation and should be removed from the text. It seems Sankara and others who were interpreting *Brahmasootra*, *Bhagavatgeeta*, *Upanishads*, etc. in their own

way were doing the very same thing. I think it is a kind of bigotry. Then comes *upaya*. *Upayas* are explained as the *tantrayuktis*. We have seen that the *tantrayuktis* assist in solving the seeming contradictions; to make the ideas clear and to find out the real import of the prescriptions. From this *sloka* in Charaka, it can be inferred that there were many texts dealing with the subject of ayurveda at that time. In the context of selecting books for teaching ayurveda Charaka says - विविधानि हि शास्त्राणि भिषजां प्रचरन्ति लोके. Here from the context, we can see that the word *sastra* indicates books, not different kinds of medical systems in addition to ayurveda as some think. Let me conclude this paper with a *sloka* of Kalidasa,

सिध्यन्ति कर्मसु महत्स्वपि यन्नियोज्याः
संभावनागुणमवेहि तमीश्वराणाम् ।
किं वा भविष्यदरूपस्तमसां निहन्ता
तं चेत् सहस्रकिरणो धुरि नाकरिष्यत् ॥

NOTES ON ETHNOMEDICINAL USES OF IMPORTANT FABACEOUS PLANTS IN INDIA

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Abstract: This article deals with some important plants of family Fabaceae (Leguminosae) used in ethnomedicinal practices by different communities in India. The plants are arranged alphabetically under their Latin names and their vernacular names in different languages wherever available are provided besides ethnomedicinal uses.

Introduction

India is represented by a rich flora and total number of lower and higher plants is estimated about 45,000¹. The plants are potential source of medicines since ancient time. Many formulations of plants and their products as medicines are met in the form of hymns in the *Vedas*². Man has been using these formulations along with his experiences from generation to generation since a long time. Now, some of these are available in recorded form while others are not. Ethnobotany, the study of direct relationship between man and plants has emerged as a new branch of study to make available the unrecorded data regarding plant's use for the benefit of human beings. In India alone, there are over 400 different tribal and other ethnic communities which constitute 7.5 % of total population. These communities

along with other forest dwellers and rural people are using their own traditional and folk experiences in medicines. Here an attempt has been made to document the ethnomedicinal uses of some of the important plants of Fabaceae (Leguminosae) family.

Abrus precatorius Linn.

[Sanskrit: *Gunja*, Hindi: *Gunci*, Ratti, Bengali: *Kunch*, Tamil: *Gundu-mani*, English: Crab's Eye, Rosary pea, Wild liquorice.] The paste of seeds is applied on skin in leucoderma and other skin diseases. Decoction of the leaves and roots is widely used for cough, cold and colic³.

Acacia catechu (Linn.f) Willd.

[Sanskrit: *Khadira*, Hindi: *Khayer*, Bengali: *Khayer*, Tamil: *Karangalli*, English: Cutch tree.] The resinous extract in powder form is used for

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drying wounds⁴.

***Acacia nilotica* (Linn.) Willd. ex Del. ssp. *indica* (Benth.) Brenan**

[Syn. *A. arabica* (Lam.) Willd. var. *indica* Benth., *A. nilotica* var. *indica* (Benth) Mill, *A. arabica* sensu Baker]

[Sanskrit: *Babul*, Hindi: *Babul*, Bengali: *Babla*, Tamil: *Karuvelei*, English: Indian gum arabic tree.] The twigs are used as *datun* (natural tooth brush) to strengthen the gums and teeth⁴.

***Acacia chundra* (Roxb. Ex. Rottl.) Willd.**

(Syn. *A. sundera* DC.)

[Tamil: *Karangali*, English: Red Cutch tree.] About 50 gm of its root paste is taken orally after delivery as an antiseptic by *Soligas* tribes in Mysore⁵.

***Albizia lebbbeck* (Linn.) Benth.**

[Sanskrit: *Sirisha*, Hindi: *Siris*, Bengali: *Siris*, Tamil: *Vagai*, English: East Indian walnut.] An oil extracted from the seed is smeared on wounds for healing purpose and lesions of leprosy⁶. Besides, a poultice of the seeds is applied on swellings of cervical glands by the tribal communities in India⁴.

***Arachis hypogaea* Linn.**

[Sanskrit: *Bhuchanaka*, Hindi: *Mungphali*, Bengali: *Chinabadam*, Tamil: *Varkadalai*, English: Groundnut.] The groundnut oil is used in daily food preparations locally as it predominates in monosaturated fats and is beneficial for cardiac problems⁴.

***Bauhinia malabarica* Roxb.**

[Sanskrit: *Asmantaka*, Hindi: *Amli*, *Sirhita*, Bengali: *Karwai*, Tamil: *Malaiyarki*.] In different

parts of India, an infusion of its new flowers is taken in dysentery⁷.

***Bauhinia purpurea* Linn.**

[English: Butterfly tree.] In Tamil Nadu, its leaf paste mixed with latex of *Jatropha curcas*, is given to cure jaundice⁸. *Nagas* of Nagaland take a paste of its bark for curing cancerous growth in stomach⁹.

***Bauhinia racemosa* Lam.**

[Rajasthani: *Lakadwass*.] A decoction of fruit pulp is given after motion in dysentery and infusion of bark soaked for a night is taken orally early in the morning as blood purifier in Udaipur (Rajasthan)¹⁰.

***Bauhinia vahlii* Wight Arn.**

[Hindi: *Jallur*, *Malijhan*, Bengali: *Chehur*, Tamil: *Chehur*, English: Camel's foot climber.] An aqueous extract of the root, one teaspoonful, is given thrice a day for three days for the treatment of syphilis¹¹.

***Bauhinia variegata* Linn.**

[Sanskrit: *Kanchanara*, *Kovidara*, Hindi: *Kanchanar*, Bengali: *Rakta Kanchan*, Tamil: *Segapumanchori*, English: Buddhist bauhinia, Mountain abony.] The decoction of the bark is used in diarrhoea and its root is used as antifat remedy by the native people¹².

***Butea monosperma* (Lam.) Taub.**

(Syn. *B. frondosa* Koen. ex Roxb., *Erythrina monosperma* Lam.)

[Sanskrit: *Palasa*, Hindi: *Dhak*, *Palas*, Bengali: *Palas*, Tamil: *Parasa*, English: Flame of the forest.] The warmed and dried flowers are tied over abdomen and swelling of testicles⁴. The

people of Pauri Garwhal, use the seeds as antidote for snakebite and with limejuice to remove dhoby's itches¹³. About one teaspoon full of its stem bark is given 3 times a day for 3 days in dysentery by *Gonds* in U.P¹¹.

Butea superba

[Sanskrit: *Latapalasa*.] In Bastar, local people take about 10 gm paste of its stem bark 3 times a day on empty stomach in haematuria¹⁴.

***Caesalpinia bonduc* (Linn.) Roxb.**

[Syn. *C. cristata* Linn., *C. bonducella* (Linn.) Fleming, *Guilandina bonduc* Linn.]

[Sanskrit: *Kuberakshi*, Hindi: *Kantakaranj*, *Karanjava*, *Karanju*, Bengali: *Nata*, Tamil: *Kazhichikay*, English: Fever-nut.] In Andhra Pradesh, leaf-paste is bandaged on swellings and tumours and bruised leaves are bandaged on the testicles to cure the inflammation due to hydrocele and hernia¹⁵. *Irulas* of Tamil Nadu apply a paste of its seeds on hydrocele⁶.

***Cajanus cajan* (Linn.) Millsp.**

(Syn. *C. indicus* Spr., *C. obcordifolia* Singh, *Cystisus cajan* Linn.)

[Sanskrit: *Adhaki*, Hindi: *Arhar*, Bengali: *Arhar*, Tamil: *Thorvary*, English: Pigeon pea.] A poultice of the seeds and leaves is applied over mammae to check secretion of milk⁷. The roots and yellow leaves of the plant in equal quantities, burnt to ashes, is applied with animal fat on the affected parts in sinus fistula¹⁶. To check the secretion of milk in women, a paste of unripe fruits and leaves is applied on mammae once a day for at least ten consecutive days in Assam¹⁷.

***Cassia fistula* Linn.**

[Sanskrit: *Aragvadha*, *Suvarnaka*, Hindi: *Amaltas*, Bengali: *Bandarlathi*, Tamil: *Konnei*,

English: Indian laburnum.] The juice of the leaves is taken for purification of the blood. A decoction of the root bark is used as a drink for black water fever and as a purgative. In Phulbani (Orissa), a paste of young leaves is kept inside the genitals of women once daily for a week to cure amenorrhoea¹⁸. Besides, its fruit pulp is taken largely as a laxative in different parts of the country⁴.

***Cassia occidentalis* Linn.**

[Sanskrit: *Kasamarda*, Hindi: *Kasondi*, Bengali: *Bara Kalkesenda*, Tamil: *Paeravirai*, English: Negro coffee.] The seeds are used as a substitute for coffee; and after boiling with water is strained and given in the doses of four teaspoonful thrice a day to treat cough. A decoction of the leaves is taken for stomach-ache and stomach disorders¹⁹. In Rajasthan its fruit pulp along with jaggery is given to children suffering from abnormally excessive saliva secretion¹⁰ and poultice of its leaves and flowers is applied on eczema⁴.

***Cassia obtusifolia* Linn.**

(Syn. *Cassia tora* Linn.)

[Sanskrit: *Chakramarda*, Hindi: *Chakunda*, Bengali: *Chakunda*, Tamil: *Tagarai*, English: Sickie senna.] The seeds of the plant and *haldi* (*Curcuma longa*) in equal quantities made into a paste is applied as poultice in gonorrhoea by the *Kondh* tribes in Eastern India²⁰. Its powdered root is taken orally as an antidote in scorpion stings and snake bite. The fruits are eaten in liver disorders and for jaundice a paste of seeds soaked in water is used orally. In ear-ache, the sap of the stem and leaves is used in Rajasthan by the tribes¹⁰.

***Cicer arietinum* Linn.**

[Sanskrit: *Chanaka*, Hindi: *But*, *Chana*, *Chhola*, Bengali: *Chhola*, Tamil: *Kadalai*, English: Bengal gram, Chickpea.] The liquid obtained after maceration of the seeds in water is used as tonic. The tender leaves with leaves of neem are used in leprosy. It is believed that the plant exhales acid vapour which is absorbed by the dew. The dew is collected on muslin cloth by spreading it on the plants over night and wringing out the moisture from it early in the morning²¹.

***Clitoria ternatea* Linn.**

[Sanskrit: *Aparajita*, *Koyal*, Hindi: *Aparajita*, Bengali: *Aparajita*, Tamil: *Kaddanam*.] The root-bark of the plant pasted in water with that of *Vitex negundo* is given in snake poison. In south India, the paste of the flowers is applied to cure infection of the eye and for headache⁶.

***Dalbergia sissoo* Roxb.**

[Sanskrit: *Simsapa*, Hindi: *Sisam*, Bengali: *Sisam*, Tamil: *Sisuitti*, English: Sissoo.] In Uttar Pradesh, women tie the warmed leaves over breast in swelling and juice of leaves mixed with sugar and curd is given to cure dysentery²².

***Dalbergia paniculata* Roxb.**

[Hindi: *Burgi*.] In Uttar Pradesh, 10 cc of watery extract of its root is given two times a day in diarrhoea in children¹⁴.

***Dalbergia volubilis* Roxb.**

[Hindi: *Badribela*.] A paste of its leaflets (four nos.) mixed with half spoon of water is given once or twice a day in diarrhoea in children¹⁴.

***Derris indica* (Lam.) Bennet**

[Syn. *Galedupa indica* Lam., *Pongamia glabra* Vent., *P. pinnata* (Linn.) Pierre]

[Sanskrit: *Karanja*, *Naktamal*, Hindi: *Dithouri*, *Karanja*, Bengali: *Karanj*, Tamil: *Ponga*, English: Indian beech, Pongam oil tree.] The leaves boiled with broken-rice and leaves of *ach* (*Morinda citrifolia*) are made into a salt gruel, and used as a good nutritive food for children²³. The seeds are ground into a paste and applied externally on knee and hip joints for rheumatic diseases by the *Irula* tribes in South India⁶.

***Desmodium gangeticum* (Linn.) DC.**

(Syn. *Hedysarum gangeticum* Linn.)

[Sanskrit: *Salaparni*, Hindi: *Salwan*, Bengali: *Salpani*, Tamil: *Pulladi*.] The decoction of its roots and seeds is used as anticatarrhal⁸.

***Desmodium velutinum* (Willd.) DC.**

(Syn. *D. latifolium* DC., *Hedysarum velutinum* Willd.)

[Sanskrit: *Salparni*, Hindi: *Salaparni*, Tamil: *Chimbattai*.] Approximately 3 - 4 cm of root is crushed and given orally to children in case of rejection of mother's milk by the tribes in Rajasthan²⁴.

***Flemengia nana* Roxb.**

(Syn. *F. congesta* var. *nana*)

[Hindi: *Banraahar*.] About 20 cc of juice extracted from its 20 gm fresh roots is given internally, in oedema, once a day for three days¹⁴.

***Flemengia chappar* Ham. Ex. Benth.**

[Hindi: *Dadhiera*.] Its root juice is given 2 times a day for 3 days in body swellings by the *Gondas* of Uttar Pradesh¹¹.

***Lablab purpureus* (Linn.) Sweet**

(Syn. *Dolichos lablab* Linn., *D. purpureus* Linn., *D. lignosus* Linn., *D. benghalensis* Jacq.)

[Sanskrit: *Madhusarkara*, *Shimb*, Hindi: *Sem*, Bengali: *Avarai Makhan-sim*, Tamil: *Mochchail*, English: Indian butter bean.] Leaf paste is applied thrice a day for one to two weeks in various skin diseases by the *Tharus* tribes of Uttar Pradesh.²⁵

***Leucaena leucocephala* (Lam.) de Wit.**

(Syn. *L. glauca* (Linn.) Benth)

[Hindi: *Saubabul*, Tamil: *Tagarai*, English: Jumpy bean.] A decoction of the seeds is used as a substitute for coffee as tonic and stimulant in different parts of the country²⁶.

***Mimosa pudica* Linn.**

[Sanskrit: *Lajjalu*, Hindi: *Lajwanti*, Bengali: *Lajabati*, Tamil: *Tottalvadi*, English: Sensitive plant.] About 10 gm powder of leaves with milk is taken in piles. *Bondo* tribes tie a 3 cm long cut piece of the stem on Sunday morning over the neck of children suffering from fever²⁷. The root of the plant with that of *Withania somnifera* are powdered and made into a paste which is applied over breast by women to make the nipples hard and attractive²⁸. Besides, an infusion of its leaves or decoction of roots is taken in gravel, piles, fistula and diseases of kidney²⁹.

***Mucuna pruriens* (Linn.) DC.**

(Syn. *M. prurita* Hook, *Dolichos pruriens* Linn., *Stizolobium pruriens* (Linn.) Medicus)

[Sanskrit: *Kapikacchu*, Hindi: *Kaunch*, *Kewanch*, Tamil: *Poonakkalei*, English: Cowhage.] A piece of root is tied over wrist in dropsy and seeds are applied in scorpion stings. A piece of cloth dipped in decoction of the

root is inserted in vagina as *yonis sancochan yoga* to make vagina contractive²⁸.

***Ougeinia oojeinensis* (Roxb.) Hochr.**

(Syn. *O. dalbergiodes* Benth.)

[Sanskrit: *Syandana*, *Tinisa*, Hindi: *Sandan*, Bengali: *Tinis*, Tamil: *Narivengai*, English: Sandan.] The tribes of hilly areas use a decoction of its bark internally when urine is highly coloured. The decoction of the bark is also used for fomentation to subside boils and body swellings. An aqueous extract of the roots is given for 2 months for treating menstrual disorder and the juice of stem bark is instilled in the eye for the treatment of cataract two times a day for one month and stem bark juice along with butter milk is given two times a day for 2 days in diarrhoea¹¹.

***Pithecellobium dulce* Benth.**

[Hindi: *Vilayati babul*, *Vilayati imli*, Bengali: *Dekhani babul*, Tamil: *Kodukkaapuli*, English: Madras thorn, Manila tamarind, Quamachil.] The ripe pods and the raw seeds are eaten as nutritive and aphrodisiac. The bark is used as febrifuge by the natives of the country⁷. A decoction of the bark is used as astringent in skin diseases. A paste of its roots is used as a poultice on boils, swelling and pustles of small pox. Its bark powder mixed with coconut oil is used in various skin diseases by the *Garo* tribes of Meghalaya³⁰.

***Pterocarpus marsupium* Roxb.**

[Sanskrit: *Pitasara*, *Asana*, Hindi: *Bijsar*.] A decoction of bark is taken in diabetes by the tribes in Sundergargh, Orissa³¹.

***Saraca asoca* (Roxb.) de Wilde**

(Syn. *S. indica* auct. non Linn.)

[Sanskrit: *Asoka*, *Hemapushpa*, Hindi:

Asok, Bengali: *Asok*, Tamil: *Asogam*, English: *Asoka tree*.] A decoction of bark in milk is given during the day in menorrhagia from the fourth day of the monthly period till the bleeding ceases. In Orissa, the bark is used as astringent in cases of internal haemorrhoids³².

***Sesbania sesban* (Linn.) Merrill**

[Syn. *S. aegyptiaca* (Poir) Pers., *Aeschynomene sesban* Linn.]

[Sanskrit: *Jayantika*, Hindi: *Jaint*, *Jayanti*, *Raswan*, Bengali: *Jayant*, Tamil: *Champai*, English: Common sesban, Egyptian rattle pod.] The juice of the leaves is given as an anthelmintic and in the form of a poultice is applied to suppuration of boils and rheumatic swellings^{29,16}.

***Tamarindus indica* Linn.**

[Sanskrit: *Amlika*, Hindi: *Aml*, *Imli*, Bengali: *Anbli*, *Tentul*, Tamil: *Amilam*, *Puli*, English: Tamarind tree.] The ripe and unripe fruits are eaten as culinary, laxative and digestive by the natives. The fruits boiled in water and sweetened with sugar are used as a cooling *serbet* with milk in 1:20 ratio and are also given as a laxative for children suffering from fever. In diarrhoea and dysentery, about 0.6 gm of powdered seeds with equal quantity of cumin seeds and sugar are given 2 or 3 times daily. The juice of the leaves warmed by dipping red-hot iron is given in dysentery²⁹. The bark ash, obtained by heating it with salt in an earthen vessel is given in 0.6 - 1.2 gm doses for colic and indigestion. A mixture of this ash with water is used as a gargle for sore throat and as a mouth-wash for apthous sores.

***Tephrosia purpurea* (Linn.) Pers.**

(Syn. *T. hamiltonii* Drum. ex Gamble., *Cracca purpurea* Linn.)

[Sanskrit: *Sarpunkha*, Hindi: *Sarphonka*, Bengali: *Ban-nil*, Tamil: *Kolingi*, English: Wild indigo.] A decoction of the roots with ginger is consumed to relieve headache. The root is tied on the neck of patients suffering from fever. The root extract, one teaspoonful once a day along with seed paste is given for 15 days in spermatorrhoea. The powdered root bark along with black pepper is given as antidote for snakebite. In snakebite, an aqueous extract of the plant together with that of *Calotropis procera* is also given as an antidote¹¹. The stem is used as toothbrush for pyorrhoea. The root of the plant is introduced through vaginal passage into uterus and kept for half an hour to destroy zygote and to start monthly bleeding in women by the tribes in Arunachal Pradesh³³.

***Trigonella foenum – graecum* Linn.**

[Sanskrit: *Methika*, Hindi: *Methi*, Bengali: *Methi*, Tamil: *Vendayam*, English: Fenugreek.] A pessary made of the herb is used for the treatment of leucorrhoea and a poultice of the seeds is applied to reduce swelling and inflammation²⁹.

Conclusion

This paper contains the information on the ethnomedicinal uses of the 40 Fabaceous plants commonly found in India. These various formulations may be also useful for the people of other region, but these preparations should always be taken under the supervision of a qualified physician.

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CHEMISTRY OF RASAMANIKYA – A PRELIMINARY STUDY

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Abstract: In the present work, the drug *rasamanikya* which is obtained from *patratala* chemically known as Arsenic trisulphide (As_2S_3) is chosen. The chemistry of the drug is still unknown. The Atomic Absorption Spectroscopy as well as X-ray Diffraction techniques are employed to know the chemical characteristics as well as the structure of *rasamanikya*.

Introduction

Rasamanikya is obtained by *sodhana* of *patratala*, a variety of *haritala* which is chemically known as Arsenic trisulphide (As_2S_3). The *sodhana* process mentioned in the text *Rasatarangini* is *Vibhavayet dadhna chamlena va tatha* (विभावयेत् दध्ना चाम्लेना वा तथा - 11/90-91). This term scientifically means of two processes, namely trituration and dipping of the material for the period mentioned in the text. It is found that the word '*vibhavayet*' properly fits for dipping and not for trituration because the characteristic ruby colour of the preparation was missing in the product obtained by trituration of the *patratala* in the mentioned juices of *koosmanda* and lemon for the prescribed period.

This research work focuses on the chemistry of the prepared *rasamanikya*, which is not known at present. The resulting mass

after *sodhana* is heated under a well-defined specialised method to make *rasamanikya*. In this process, perhaps the metal present in the drug gets converted to its oxide. This is proved by analysing the prepared compound of *rasamanikya* through Atomic Absorption Spectroscopy as well as X-ray Diffraction.

Method

Two methods are narrated in *Rasatarangini* for *sodhana* of *patratala*. Besides, one more method was used for *sodhana* which is specially used in the preparation of *haritalabhasma*. In this work all the three methods were followed to prepare *rasamanikya*.

During the *sodhana* process, *patratala* is rubbed with *koosmandasvarasa* and lemon juice. This yielded 88% *sodhit patratala*. In the second method, it is dipped for 24 hours in *koosmandasvarasa* and curd. The yield was

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95%. In the third method, which has not been advocated for the *rasamanikya* preparation hitherto was used. In this method, *sodhana* was done using *grihadhuma* (soot) dissolved in water. The yield was 92.5%.

The powder of *rasamanikya* was used to get a characteristic diffractogram by the Diffractometer with the help of Bragg's equation – $2d \sin \theta = n\lambda$. The successive interplaner spacing 'd' was calculated with respect to 2θ (Bragg's Angle). The intensity ratio I/I_0 for all observed 'd' values for the known diffractogram was worked out and three more intense peaks respective to their 'd' values were matched for the known compounds of Arsenic in the Fink Index.

The elemental analysis of *sodhit* samples of *patratala* as well as *rasamanikya* were worked out through Atomic Absorption Spectrophotometer. The *sodhit* samples of *patratala* are named B, C and D. The samples of *rasamankiya* obtained from B, C and D are named RM_1 , RM_2 and RM_3 respectively.

Observation and discussion

The Atomic Absorption spectroscopic analysis of crude *patratala* named A, along with three samples of *sodhit patratala* followed by respective samples of *rasamanikya* are worked out for their elemental findings (Table I).

The percentage (31.7) of Arsenic in crude *patratala* increases in various *sodhana* processes due to concentration of the active minerals present in As_2S_3 . The rise of this percentage (34.6) is less in sample B as compared to samples C and D respectively, which were obtained by dipping the crude mineral in *koosmandasvarasa* & curd and *grihadhuma* dissolved in water.

Rasamanikya prepared from *sodhit* sample B shows very high percentage of As (40.2) and sulphur (29.5) whereas the other two processes show these percentages to be very near to each other. These results make it clear that the third method from which the *rasamanikya* sample RM_3 was prepared has equal characteristics as

Table I. Atomic Absorption Spectroscopic Analysis

Sl. No	Samples	Percentage of various elements				
		As	S	Fe	Mg	Ca
1.	A	31.7	19.0	0.08	0.03	0.05
2.	B	34.6	20.4	0.03	0.02	0.03
3.	C	38.7	16.5	0.06	0.22	0.03
4.	D	36.4	14.0	0.04	0.02	0.04
5.	RM_1	40.2	29.5	0.11	0.03	0.02
6.	RM_2	34.6	13.5	0.03	0.02	0.02
7.	RM_3	34.0	14.7	0.03	0.02	0.05

compared to sample RM₂. But sample RM₁ does not have such characteristics. The prepared *rasamanikya* has no resemblance of ruby colour.

The loss during the *sodhana* for sample B was 11% whereas for C and D it was 5% and 7.5% respectively, giving a better yield of RM₂ (98.5%) and RM₃ (98.9%). The yield of RM₁ was 93%. These findings show that the *sodhana* process specially mentioned for making *haritalabhasma* can be used for the preparation of *rasamanikya* also.

To elucidate the chemistry of prepared *rasamanikya*, the drug was subjected to X-ray diffraction. The diffractogram of one of the sample of *rasamanikya* RM₂ was obtained through X-ray diffractometer having a copper target wavelength $\lambda = 1.5418 \text{ \AA}$ (Model PW 1140/89).

The interplaner spacing 'd' against Bragg's angle 2θ for *rasamanikya* sample RM₂ is shown in Table II. The 'd' values are calculated by well-known Bragg's equation $n\lambda = 2d \sin\theta$.

Out of these determined 'd' values, the

most predominant peaks for intensity ratio I/I_0 , 100, 19.4 and 13.8 are 4.9008, 1.7633 and 2.8228 respectively (Table III).

These 'd' values were searched out in

Table III. showing I/I_0 vs 'd' values

Sl.No.	I/I_0	'd'
1	100	4.9008
2	19.4	1.7633
3	13.8	2.8228

mineral index of Hane Walt grouping. Some of the characteristics of three most predominant peaks and 'd' values for known compounds of Arsenic which may prove fruitful in searching the actual compound formed in the preparation of *rasamanikya* are grouped in Table IV.

The compound crystal lattice of *rasamanikya*, I.S.T.M. data cards for powdered diffraction file, 'd' values at various intensities with respect to hkl indices were also seen for reaching a conclusion. The three predominant

Table II. showing 2θ vs 'd' for RM₂

Sl. No	2θ	'd'	Sl.No	2θ	'd'
1.	14.40	6.1524	12.	37.10	2.4234
2.	18.10	4.9008	13.	38.90	2.3150
3.	23.15	3.8429	14.	43.00	2.1034
4.	27.60	3.2323	15.	43.50	2.0807
5.	28.50	3.1325	16.	46.77	1.9452
6.	29.50	3.0279	17.	48.30	1.8844
7.	31.10	2.8754	18.	49.70	1.8346
8.	31.70	2.8228	19.	51.85	1.7633
9.	32.60	2.7463	20.	54.10	1.6950
10.	34.70	2.5852	21.	56.30	1.6339
11.	36.30	2.4748	22.	57.60	1.6000

Table IV.

Compounds of As	'd'	I / I ₀		
As S	5.40	100		
	3.19	90		
	2.94	80		
	4.85	100		
As ₂ S ₃	4.02	50		
	2.47	40		
	2.94	100		
(Cu Fe) ₁₂ As ₄ S ₁₃	1.80	80		
	1.54	50		
	3.20	100	3.25	100
As ₂ O ₃	6.39	60	3.45	50
	2.54	40	2.77	40
	4.88	100	6.04	100
As ₂ O ₅	3.58	60	3.68	80
	3.40	60	2.94	60

peaks found through X-ray diffractogram did not correlate to any known compounds of Arsenic given in the Fink Index or in Table IV.

In the diffractogram a higher value of 'd' = 6.15 was obtained at a very low intensity 9.25. The greater 'd' value on such a low intensity signifies the overlapping of two phases of low intensities.

The substances used in *sodhana* are enriched with organic compounds containing elements Carbon and Hydrogen. During *sodhana* these elements may make some linkage

with the elements present in crude As₂S₃, causing an increase in the percentage of As after *sodhana*. During the preparation of *rasamanikya*, the *sodhit* sample of *patratata* was heated through known processing with precautions, causing to convert the sulphide into respective oxides. Here replacement of heavier element is followed by the lighter elements causing the increase of percentage of As. The assumption is clearer if a preparation of 50% of As₂S₃ and As₂O₅ is considered theoretically. The percentage of arsenic in As₂S₃ and As₂O₅ are 61 and 65.2 which becomes 63%

for a 50% preparation. This theoretical assumption signifies the truth that *rasamanikya* is a mixture of As_2S_3 and As_2O_5 , because of the rise of As 31.0% to As 40.0%.

X-ray diffraction confirms that the *rasamanikya* is neither As_2S_3 , As_2O_3 , As_2O_5 nor any other compound of As but it implies that it is a mixture of As_2S_3 and As_2O_5 . The three intense peaks (Table III) also show same characteristics. These peaks are in between the values of three most intense peaks of As_2S_3 and As_2O_5 which are well known in Fink Index.

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TLC AS A TOOL FOR STANDARDISATION OF AYURVEDIC SODHANA WITH SPECIAL REFERENCE TO GUNJA SODHANA

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Abstract: *Gunja* (*Abrus precatorius*) is a very important member of *upavisha gana* in *rasasastra*. It contains an alkaloid hypaphorine¹ and a protein abrin² which are toxic in nature. The purpose of *sodhana* of any *visha* or *upavisha* is to make it less toxic and at the same time to impart better therapeutic efficacy. In the present study the seeds of *gunja* (white, red and black³) were subjected to two *sodhana* methods [cow's milk and *kanji* (sour gruel)]. All the *sodhit* samples were compared to the crude one. The ayurvedic *sodhana* of *gunja* has been standardised by using Thin Layer Chromatographic (TLC) technique and the significance of the findings is discussed.

Introduction

Gunja is a component member of the *upavisha gana*, which is particular to the *rasasastra* texts. Three forms of the plant, with white, red and black seeds³ are known to occur in this species. According to ayurveda it is a poisonous material and should be given to the patients after *sodhana*³.

Sodhana is a process which is considered highly necessary for converting the metals, sub-metals and minerals into a suitable form in which they could be administered internally for achieving their therapeutic effects. Without subjecting to the *sodhana* and *marana*

processes, the drugs of mineral origin (*parthiva dravya*) cannot be used internally and if used they are likely to produce various harmful and toxic effects in the body. These toxic effects can be avoided only if they are properly purified or reduced to ashes. The *sodhana* and *marana* processes have proved helpful not only in removing the bad or toxic effects of such drugs but also in converting such substances into a fine, sub-divided state so as to make it light, highly absorbable and assimilable on oral administration. And if these substances are converted into a suitable form through these processes, they will be highly useful as

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therapeutic agents even in very small quantities. Probably because of this reason various *sodhana* and *marana* processes have been developed in ayurveda⁴.

Materials and methods

Gunja was subjected to *sodhana* with cow's milk and *kanji* (sour gruel) separately to remove its toxic effects. In the present study Thin Layer Chromatography (TLC) has been used as a parameter for the standardisation of *gunja sodhana*.

Sodhana of *gunja* kernels and pericarps

Kernels and pericarps of white, red and black *gunja* (1 kg each) were subjected to the process of *sodhana* in *dola yantra* with cow's milk and with *kanji* separately for 6 and 3 hours respectively³. The *sodhit* materials were washed with hot water, dried in shade and powdered. Subsequently both the *asodhit* and *sodhit* materials were processed separately for extraction with different solvent systems.

Successive extraction with different solvent system

5 gm of powdered material of each seeds (kernels and pericarps) were put in a soxhlet apparatus successively with hexane, chloroform, and alcohol and were completely extracted by each solvent. The percentage of each extract was calculated after evaporating the respective solvents.

Thin Layer Chromatography and finger printing

These extracts were subjected to Thin Layer Chromatography. The Thin Layer Chromatography was performed on pre-coated

silica gel GF 254 using different solvent systems according to the nature of the constituents present in the extract. These plates were further finger printed with the help of Hitachi fluorescence spectrophotometer 650-60 at different excitation and emission wavelengths. In addition to these, the elucidation of different compounds on silica gel plates was also made after spraying with different spraying reagents.

Observation and results

No significant variation was observed in the TLC plates of hexane soluble materials in solvent chloroform: benzene: acetic acid (113:38:1). However, slight variation was observed in the chloroform fraction of the *sodhit* and *asodhit* kernels of all the three varieties. Almost similar spots were observed in the chloroform extractives of pericarps of all the three varieties of *gunja*.

The hexane extractive when scanned in fluorescence spectrophotometer after spraying with anisaldehyde sulphuric acid at excitation and emission wavelength 365 and 736 nm respectively showed some interesting changes in *sodhit* and *asodhit* material. For example, the spots at R_f values 0.50 and 0.65 are observed only in *asodhit* kernels and milk *sodhit* kernels of all the three varieties of *gunja*. (Tables I & II and Figs. 1 & 2)

The absorption spectra of chloroform extractive at 470 nm excitation and emission wavelength show some variations in *sodhit* and *asodhit* material, although more or less similar spots were observed in all the three types of kernels (white, red and black). However, some significant changes in certain

Table I. Some significant Rf values of Hexane extractives (Densitometric scan) in solvent system chloroform: benzene: acetic acid (113:38:1)

Rf values	<i>Sodhit and asodhit kernels of gunja</i>								
	GW1	GWM1	GWK1	GR1	GRM1	GRK1	GB1	GBM1	GBK1
0.11	+	+	-	+	+	+	+	+	+
0.25	+	+	-	-	+	+	+	+	+
0.38	+	+	+	+	+	+	+	+	+
0.45	+	+	-	+	+	-	-	-	-
0.50	+	+	-	+	+	-	+	+	-
0.65	+	+	-	+	+	-	+	+	-
0.71	-	-	-	+	+	+	-	-	+
0.85	-	+	-	-	+	-	-	-	-

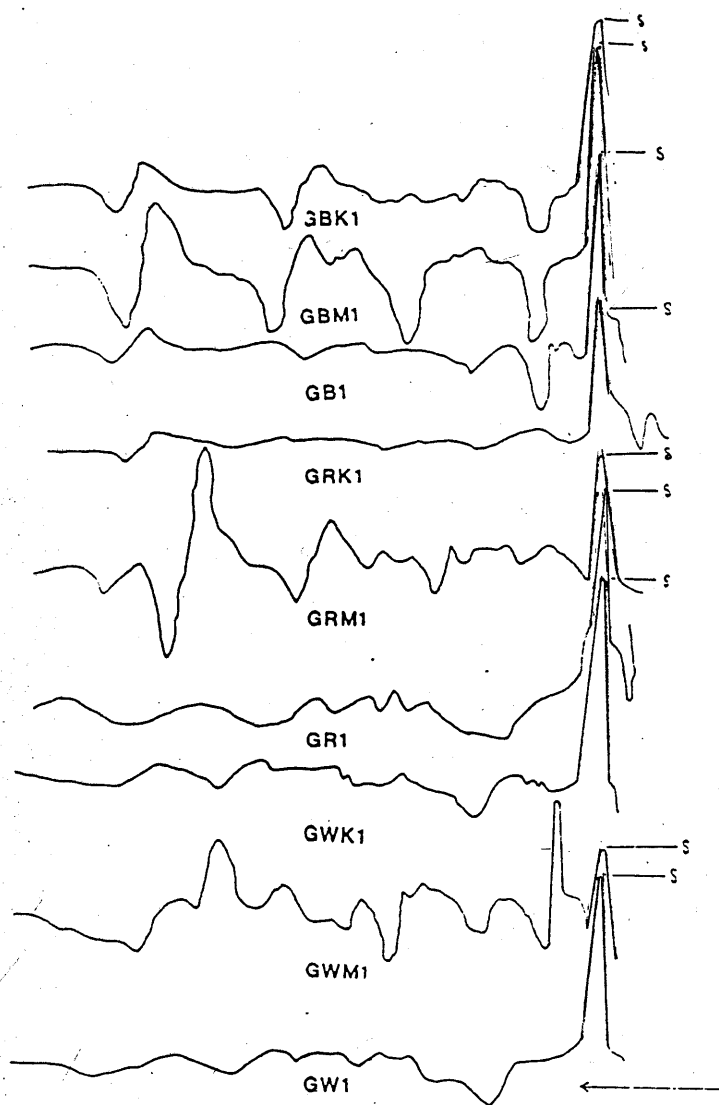
Spraying reagent - Anisaldehyde sulphuric acid

Table II. Rf values of Hexane extractives (Densitometric scan) in pericarps. Solvent system chloroform: benzene: acetic acid (113:38:1)

Rf values	<i>Sodhit and asodhit pericarp of gunja</i>								
	GW2	GWM2	GWK2	GR2	GRM2	GRK2	GB2	GBM2	GBK2
0.09	+	+	+	+	+	+	+	+	+
0.135	+	+	+	+	+	+	-	-	-
0.162	-	+	-	-	+	-	+	+	+
0.306	-	+	-	-	+	+	+	+	+
0.361	+	+	+	+	+	+	+	+	+
0.405	-	-	+	-	+	+	-	-	-
0.495	+	-	-	+	-	-	-	-	-
0.558	-	+	+	-	+	+	+	+	+
0.630	+	+	+	-	-	+	+	+	+
0.675	-	+	+	-	-	+	-	-	-
0.837	-	-	+	-	-	+	+	+	+

Spraying reagent - Anisaldehyde sulphuric acid

Fig. 1 Densitometric Scan (Finger printing)



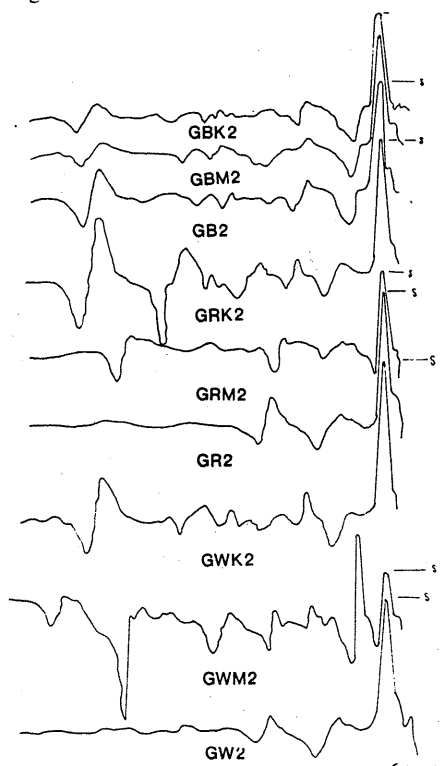
Hexane Extractive

SOLVENT - Chloroform: Benzene: Acetic acid (113: 38: 1)

Excitation 365, Emission 736, Range 0.5, Slit 7/7

Speed Chart 30 mm/min. Plate 30 mm/min.

Fig. 2 Densitometric Scan (Finger printing)



Hexane Extractive

SOLVENT - Chloroform: Benzene: Acetic acid (113: 38: 1)

Excitation 365, Emission 736, Range 0.5, Slit 7/7

Speed Chart 30 mm/min. Plate 30 mm/min.

spots (Table III & IV) viz. the three spots at Rf. values 0.32, 0.39 and 0.43 are only observed in *asodhit* material of two types i.e. white and red. In the black variety, the spot at Rf values 0.39 is absent. The concentration of the spot of 0.32 Rf values in the white variety is slightly higher in comparison to the black and red variety (Figs. 3 - 8).

The variations may be explained that in the

sodhana process there is some decline in the concentration of the spot of 0.32 Rf values in the white variety in comparison to the black and red variety. In the *sodhana* process, there must be some decline in the concentration of some of the constituents (which are either soluble in milk and *kanji* or may be reduced or destroyed by the boiling process). It is also clear from the densitometric scan (Fig 1 - 8) that the white variety is different from red and

Table III. Some significant Rf values of Chloroform extractives (Densitometric scan) in solvent system n - heptane: ethylmethyl ketone: methanol (58:34:8).

Rf values	<i>Sodhit and asodhit kernels of gunja</i>								
	GW1	GWM1	GWK1	GR1	GRM1	GRK1	GB1	GBM1	GBK1
0.06	+	+	+	+	+	+	+	+	+
0.11	+	+	+	+	+	+	+	+	+
0.20	+	+	+	+	+	+	+	+	+
0.28	+	+	+	+	+	+	+	+	+
0.32	+	-	-	+	-	-	+	-	-
0.39	+	-	-	+	-	-	-	-	-
0.43	+	-	-	+	-	-	+	-	-
0.50	+	+	+	+	+	+	+	+	+
0.65	+	+	+	+	+	+	+	+	+
0.76	-	+	+	-	+	+	-	+	+
0.80	+	+	-	+	-	-	+	+	-

Spraying reagent - 10% methanolic sulphuric acid

Table IV. Rf values of Chloroform extractives (Densitometric scan) in pericarp solvent system n - heptane: ethylmethyl ketone: methanol (58:34:8)

Rf values	<i>Sodhit and asodhit Pericarp of gunja</i>								
	GW2	GWM2	GWK2	GR2	GRM2	GRK2	GB2	GBM2	GBK2
0.38	+	+	+	+	+	+	-	-	-
0.76	-	+	+	-	+	+	+	+	+
0.114	+	+	+	+	+	+	+	+	+
0.209	+	+	+	+	+	+	+	+	+
0.266	+	-	-	+	-	-	+	-	-
0.323	+	+	+	+	+	-	-	-	-
0.361	+	-	-	+	-	-	+	-	-
0.428	+	+	+	-	+	+	+	+	+
0.533	+	+	+	+	+	+	+	+	+
0.571	+	-	-	+	+	+	+	-	-
0.695	+	+	+	+	+	+	+	+	+
0.866	+	+	+	+	+	+	+	-	-
0.942	-	-	-	+	+	+	+	+	+

Spraying reagent - 10% methanolic sulphuric acid

Fig. 3 Densitometric Scan of White Seeds

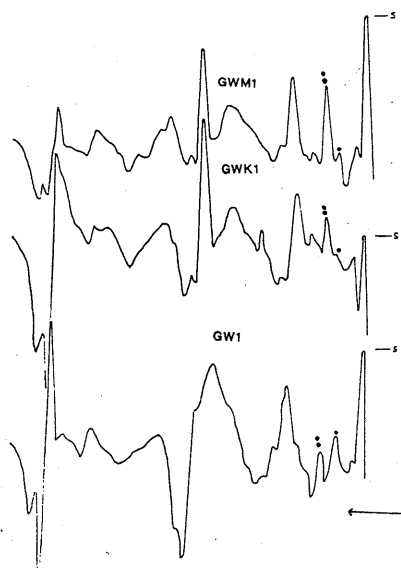
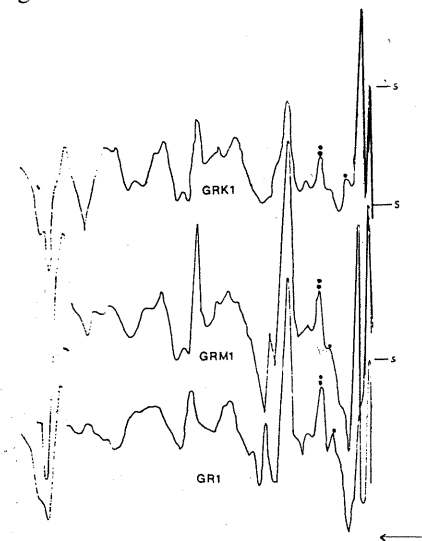


Fig. 4 Densitometric Scan of Red Seeds



Chloroform Extractive

SOLVENT - n-heptane: ethylmethylketone: methanol (58:34:8)

Excitation 470nm, Emission 470, Range 0.2, Slit 8/8

Speed Chart 30 mm/min. Plate 30 mm/min.

Fig. 5 Densitometric Scan (Finger printing)

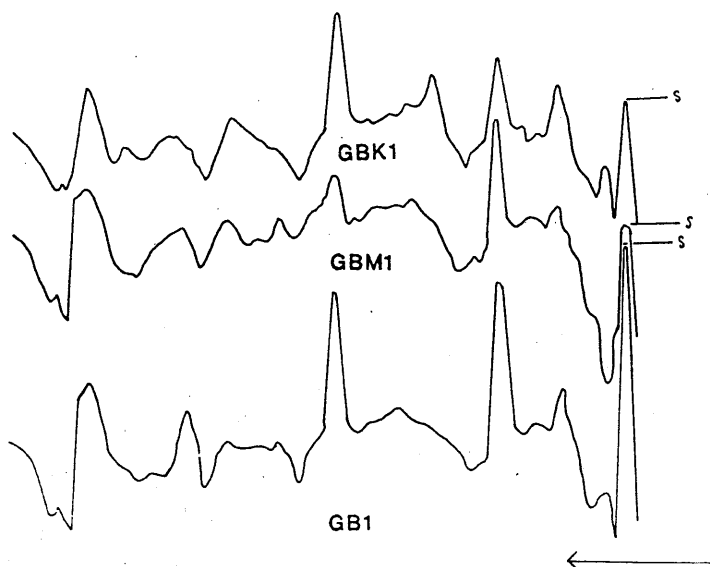
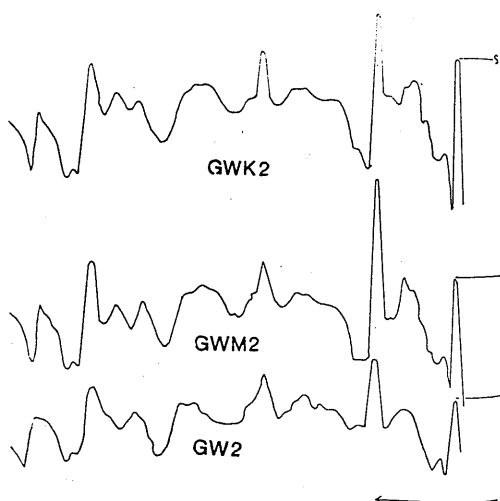


Fig. 6 Densitometric Scan (Finger Printing)



Chloroform Extractive

SOLVENT - n-heptane: ethylmethylketone: methanol (58:34:8)

Excitation 470nm, Emission 470, Range 0.2, Slit 8/8

Speed Chart 30 mm/min. Plate 30 mm/min.

Fig. 7 Densitometric Scan

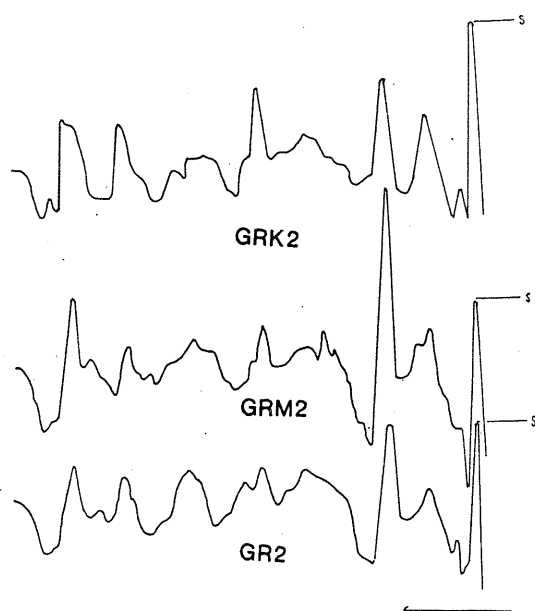
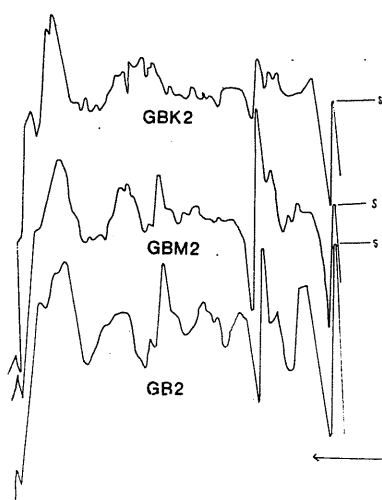


Fig. 8 Densitometric Scan



Chloroform Extractive

SOLVENT - n-heptane: ethylmethylketone: methanol (58:34:8)

Excitation 470nm, Emission 470, Range 0.2, Slit 8/8

Speed Chart 30 mm/min. Plate 30 mm/min.

Abbreviations

GB1	Black <i>gunja</i> kernel	GR2	Red <i>gunja</i> pericarp
GBM1	Black <i>gunja</i> kernels <i>sodhit</i> with milk	GRM2	Red <i>gunja</i> pericarp <i>sodhit</i> with milk
GBK1	Black <i>gunja</i> kernels <i>sodhit</i> with <i>kanji</i>	GRK2	Red <i>gunja</i> pericarp <i>sodhit</i> with <i>kanji</i>
GB2	Black <i>gunja</i> pericarp	GW1	White <i>gunja</i> kernels
GBM2	Black <i>gunja</i> pericarp <i>sodhit</i> with milk	GWM1	White <i>gunja</i> kernels <i>sodhit</i> with milk
GBK2	Black <i>gunja</i> pericarp <i>sodhit</i> with <i>kanji</i>	GWK1	White <i>gunja</i> kernels <i>sodhit</i> with <i>kanji</i>
GR1	Red <i>gunja</i> kernels	GW2	White <i>gunja</i> pericarp
GRM1	Red <i>gunja</i> kernels <i>sodhit</i> with milk	GWM2	White <i>gunja</i> pericarp <i>sodhit</i> with milk
GRK1	Red <i>gunja</i> kernels <i>sodhit</i> with <i>kanji</i>	GWK2	White <i>gunja</i> pericarp <i>sodhit</i> with <i>kanji</i>

black both of which are more or less similar in nature.

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SCREENING OF TOXIC COMPOUNDS IN A FEW MEDICINAL PLANTS

Seetharam, Y.N. and Gururaj chalageri*

Abstract: The present study focuses on ten medicinally important plant species which are used in North-East Karnataka by village practitioners and tribes to cure different ailments. However, the presence of toxic metabolites such as non-protein amino acids and pyrrolizidine alkaloids and their ill effects on domestic animals and humans is to be reckoned with. The present investigation brings to light the presence of such toxic metabolites in these plant species.

Introduction

Plants synthesize large amount of organic compounds such as proteins, amino acids, carbohydrates and lipids which are useful not only to the plants themselves but also to human beings and animals. At the same time, these plants also synthesize other different chemical compounds that are known to exert deleterious effects, when ingested by man or animals. Man learned the art of cooking plants and plant products to destroy the toxic constituents and to produce palatable and nutritious food. It is clear that some of these toxic compounds pose serious threat to the health of animals and man by virtue of their acute and chronic toxicity. These toxic compounds enter the organisms by way of contamination through the food chain

and also from crude drugs¹. The best evidence of toxicity is the well-documented association between the use of pulses and folk medicines and the occurrence of diseases such as hepatotoxicity, venous occlusions¹, lathyrism and favism², haemolytic anaemia³, falling of hair by mimosine^{3,4} in both human beings and grazing animals. Several such instances have led to the evolution of preventive measures by educational efforts to clean the crude drugs and render them fit for human consumption.

The present investigation is focussed on qualitative screening of ten of the widely used plants in folk medicine of North-East Karnataka (Table I) for their content of toxic compounds such as non-protein amino acids and pyrrolizidine alkaloids. The ten plants were

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Table I. Particulars of Taxa studies

Sl. No	Name of the Taxa	Ethnic name	Family	Place of collection	Ethnic uses
1	<i>Abrus precatorius</i>	<i>Gulguni</i>	Fabaceae	MPCA Sandur	Water extract from Lf is given orally about 15 days for blood purification.
2	<i>Abutilon indicum</i>	<i>Mudre gida</i>	Malvaceae	GUG Campus	Lf paste with <i>Securinega virosa</i> Lf paste is given for dysentery and diarrhoea.
3	<i>Achyranthes aspera</i>	<i>Uttarani</i>	Amaranthaceae	Bellary	Lf paste is used for rheumatic pains and juice for ear pain.
4	<i>Dodonaea viscosa</i>	<i>Bandarike</i>	Sapindaceae	MPCA, Sandur	Lf paste is used for bone fracture. 2 drops of juice is instilled into nose to cure fits.
5	<i>Eclipta alba</i>	<i>Kadigargu</i>	Compositae	Koppal	Wp extract is used for cuts & wounds and also for ear ache in children.
6	<i>Enicostemma littorale</i>	<i>Bele Ranjaka</i>	Gentianaceae	GUG Campus	Wp extract is mixed with pepper & garlic and used for leucorrhoea.
7	<i>Gynnnema sylvestre</i>	<i>Kodapatri</i>	Asclepiadaceae	MPCA, Karpakapalli	Lf extract is given orally for diabetes, paste is used for bone fracture.
8	<i>Pterocarpus marsupium</i>	<i>Rakthachandana</i>	Fabaceae	MPCA, Sandur	Bk extract is used for anaemia and wood is used in diabetes.
9	<i>Soymida febrifuga</i>	<i>Some gida</i>	Meliaceae	MPCA, Sandur	Bk powder with rock salt is used for urinary problems and stomach pain.
10	<i>Tridax procumbens</i>	<i>Tekesoppu</i>	Compositae	GUG Campus	Wp extract is applied for cuts & wounds and as an aphrodisiac in males.

Sign used : Lf - leaves, Bk - Bark, Wp - Whole plant.

taken from Sandur, Karpakapalli and adjoining areas of Gulbarga and Raichur districts.

Materials and methods

Extraction procedure:

The plant extract was obtained by using 25 g of powdered plant material (shade dried) and 250 ml 80% ethanol, using Soxhlet apparatus for 8 - 10 hrs. at room temperature. The obtained extract was further screened for the presence of non-protein amino acids and pyrrolizidine alkaloids.

Extraction of non protein amino acids from ethanolic extract:

The ethanolic extract was separated from the debris by filtration and the filtrate was centrifuged for 15 min. at 2000 rpm. About 0.4 ml of the supernatant was taken and used for further separation of non-protein amino acids⁵.

Extraction of pyrrolizidine alkaloid from ethanolic extract:

The ethanolic extract was concentrated by evaporation to which 10 ml of 2N HCl and 50 ml chloroform were added. The acid layer separated was basified by adding ammonia (adjust to pH 8.5). This solution is filtered and to this, 50 ml of chloroform was added. The chloroform layer was separated and evaporated to dryness. The crystals obtained were used for further screening^{1,6}.

Qualitative separation by thin layer chromatogram:

An efficient separation of non-protein amino acid was obtained in n-Butanol: Acetic acid: Water (6:2:2) used as a solvent. For pyrrolizidine alkaloids the solvent used was

Ethyl acetate: Acetone: Ethanol: Ammonia (5:3:3:1)

Development of chromatogram:

The qualitative assessment of non-protein amino acid was done after spraying Ninhydrin reagent on the chromatogram and activated at 110° C in an oven for 5 minutes³. The identical and non-identical colouring spots and hRf values were compared with the standard non-protein amino acids such as 2 n-amino butyric acid, 3 n-4 dihydroxy phenyl alanine, Hydroxy proline, Nor-leucine and Ornithine [Hi-Media make]⁷. For the identification of pyrrolizidine alkaloid the thin layer plate was sprayed with Ehrlich's reagent. The coloured spots and their hRf values were recorded.

Results and discussion

The characteristic purple to red colour reaction³ of non-protein amino acid to Ninhydrin reagent indicates their occurrence in all species studied. Few of the spots coincide with standard non-protein amino acid in their colour and hRf value, when co-chromatographed. Positive result was obtained in plants like *Abrus precatorius*, *Abutilon indicum*, *Achyranthes aspera*, *Enicostemma littorale* and *Tridax procumbens*. These plants are widely used as a source of medicine for various ailments. The unidentified spots appeared in *Eclipta alba* and *Gymnema sylvestre* which are also used in this system of medicine (Table II).

The pyrrolizidine alkaloids are converted into the N-oxide when sprayed with Ehrlich's reagent giving the positive reaction for pyrrolizidine alkaloid with magenta coloured spots on TLC. These compounds have unsaturated ring of alkaloids of N-oxide in the

Table II. Detection of non-protein aminoacids.

Non-protein aminoacid	Colour	hRf Value	1	2	3	4	5	6	7	8	9	10
---	Mimosa yellow	14.81						+				
---	Ivory	19.37								+		
Oranithine	Blood red	22.15										
Hydroxy proline	Mimosa yellow	34.14										+
---	Lavender	34.35							+			
---	Mauve	39.89							+			
---	Buff	44.84	+									
---	Cinnamon	52.38			+							
---	Brick red	53.28					+					
3-4 Di hydroxy phenyl alanine	Chacolate	56.97										+
---	Burnt orange	57.87					+					
---	Yellow	58.28								+		
2 - aminobutyric acid	Rose	59.87	+	+	+			+				
---	Buff	68.48	+									
---	Lettuce green	69.33								+		
Norleucine	Caramine	71.68			+							
---	Citron	73.29				+						
---	Spring green	75.65		+								
---	Golden yellow	76.54						+				
---	Lilac	77.77								+		
---	Nile green	79.39										+
---	Citron	80.26					+					
---	Buff	80.37										+
---	Old gold	81.81	+									
---	Citron	84.21		+								
---	Citron	89.75			+							
1.	<i>Abrus precatorius</i>											
2.	<i>Abutilon indicum</i>											
3.	<i>Achyranthes aspera</i>											
4.	<i>Dodonaea viscosa</i>											
5.	<i>Eclipta alba</i>											
6.	<i>Enicostemma littorale</i>											
7.	<i>Gymnema sylvestre</i>											
8.	<i>Pterocarpus marsupium</i>											
9.	<i>Soymida febrifuga</i>											
10.	<i>Tridax procumbens</i>											

basic moiety to give this reaction⁸. The plants like *Abrus precatorius*, *Abutilon indicum*, *Dodonaea viscosa*, *Enicostemma littorale*, *Gymnema sylvestre*, *Soymida febrifuga* and *Tridax procumbens* have shown the occurrence of pyrrolizidine alkaloids by intense colour reaction with Ehrlich's reagent. But no such reaction was observed in *Achyranthes aspera*, *Eclipta alba* and *Pterocarpus marsupium* (Table III).

Ten plants species were screened for non-protein amino-acids. Among these species, the leaf extract of *Abrus precatorius*, *Abutilon indicum* and *Enicostemma littorale* have shown only one spot corresponding to 2-aminobutyric acid of the co-chromatogram. *Achyranthes aspera* shows three spots of which two correspond to 2-aminobutyric acid and norleucine and another spot with hRf value 52.38 gave cinnamon colour. *Eclipta alba* shows unidentified spot with brick red and burnt orange colour of hRf value 53.28 and 57.89 respectively. *Gymnema sylvestre* shows unidentified spot with lavender and mauve colour of hRf value 34.35 and 39.89 respectively. *Tridax procumbens* gave only a single spot corresponding to 3 - (3-4 dihydroxy phenylalanine) when co-chromatographed with the standard sample. Plants like *Dodonaea viscosa*, *Pterocarpus marsupium* and *Soymida febrifuga* did not show the characteristic colour reaction with Ninhydrin, indicating the absence of non-protein amino acids.

Plants having pyrrolizidine alkaloids were detected by the colour reaction with Ehrlich's reagent and hRf values on TLC. In the present investigation *Abrus precatorious* has shown single magenta coloured spot with hRf value

7.32 where as *Abutilon indicum* has shown three spots with mauve, wine red and magenta colour with hRf value 16.55, 88.07 and 89.52 respectively. *Dodonaea viscosa* has a total of five spots indicating the occurrence of five different types of pyrrolizidine alkaloids. They are mauve, magenta, two spots with mauve and a single spot with and light magenta colour having the following hRf values 16.43, 19.48, 27.16, 83.11 and 88.96. *Enicostemma littorale* has shown three spots of ruby red, magenta and purple colour with hRf values 82.75, 88.78 and 93.10 respectively where as *Tridax procumbens* has shown three spots of light magenta, mauve and lilac colour with hRf value 22.77, 35.13 and 41.11 respectively. *Soymida febrifuga* has a single spot with maroon colour and hRf value 61.07. *Achyranthes aspera*, *Eclipta alba* and *Pterocarpus marsupium* did not show their colour reaction for the presence of pyrrolizidine alkaloids. It can be inferred from the data that some pyrrolizidine alkaloids are wider distributed in different genera. *Abutilon indicum* and *Dodonaea viscosa* though they belong to different taxonomic groups, do have common pyrrolizidine alkaloid with hRf value 16.55. Similarly pyrrolizidine alkaloid with hRf value 35.13 is seen in *Gymnema sylvestre* and *Tridax procumbens* and spot with hRf value 88.96 is seen in *Dodonaea viscosa* and *Enicostemma littorale*. It is seen that plants which are used in folk system of medicine are likely to contain in them the toxic compounds which need to be screened for better health care system.

Conclusion

In the present investigation the ten plants were screened qualitatively and these plants were used in folk system and ethnomedicine of

Table III. Detection of Pyrrolizidine alkaloid by Ehrlich's reagent

Name of the Taxa	Part used	Clour	hRf value	Pre(+)/ Abs(-)
<i>Abrus precatorius</i>	Leaves	Magenta	7.32	+
<i>Abutilon indicum</i>	Leaves	Mauve	16.55	+
		Winered	88.07	+
		Magenta	89.52	+
<i>Achyranthes aspera</i>	Leaves	-	-	-
<i>Dodonaea viscosa</i>	Stem & leaves	Mauve	15.43	+
		Magenta	19.48	+
		Mauve	27.16	+
		Mauve	83.11	+
		Light magenta	88.96	+
<i>Eclipta alba</i>	Whole plant	-	-	-
<i>Enicostemma littorale</i>	Whole plant	Ruby red	82.75	+
		Megenta	86.78	+
		Purple	93.10	+
<i>Gymnema sylvestre</i>	Leaf	Magenta	22.77	+
		Mauve	35.13	+
		Ruby red	45.14	+
<i>Pterocarpus marsupium</i>	Bark	-	-	-
<i>Soymida febrifuga</i>	Bark	Maroon	61.07	+
<i>Tridax procumbens</i>	Whole plant	Light	22.77	+
		Magenta		
		Mauve	35.13	+
		Lilac	41.11	+

North-Eastern Karnataka.

The studied plants show the presence of non-protein amino acid in plants such as *Abrus precatorius*, *Abutilon indicum*, *Achyranthes aspera*, *Eclipta alba*, *Enicostemma littorale* and *Tridax procumbens*. Remaining plants did not show any spots for presence of non-protein amino acids.

The plants like *Abrus precatorius*, *Abutilon indicum*, *Dodonaea viscosa*, *Enicostemma littorale*, *Gymnema sylvestre*, *Soymida febrifuga* and *Tridax procumbens* show positive reaction of pyrrolizidine alkaloids. Awareness about the toxic compounds in plant is necessary before administration of the crude drugs. The qualitative and quantitative analysis and its pharmacological effects should be studied in detail.

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EXCERPTS FROM CHIKITSAMANJARI – XXX

Unnikrishnan, P*

Abstract : Micturition may be obstructed due to various causes such as *mootrakricchra*, *asmari*, etc. They are collectively called *mootraghatam*. The classifications, treatment principle, preparation of specific formulations and certain procedures to relieve urine are explained.

1. Vitiated *doshas* situated in *vasti* (urinary bladder) causes twenty types of *mootraghatam* (retention of urine). Based on the predominance of *dosha* causing vitiation, the *mootrakricchra* is classified into four i.e. *vatika*, *paittika*, *slaishmika* and *sannipatika*.

2. *Asmari* (urinary calculi) is classified into *vatika*, *paittika*, *slaishmika* and *suklaja*. *Asmari* broken to small pieces by the action of *vata*, is termed *sarkara*.

3-4. *Mootrotsamga*, *mootrakshaya*, *mootra-grandhi*, *mootrajathara*, *mootrateeta*, *mootra-sukla*, *vatakundalika*, *vatashtheela*, *vatavasti*, *vidvighata*, *ushnavata* and *mootrasada* are the other twelve *mootraghatas*. In all *mootrakricchras* vitiated *doshas* occupy *vatasthana*.

5-6. *Snehapana*, *svedana*, *abhyanga* and *avagaha* are indicated in *mootrakricchra*. The medication of *sneha* should be based on the

specific *dosha*. *Snehavirechana* and the three types of *vasti* (*snehavāsti*, *kashayavasti* and *uttaravasti*) are indicated. For *kricchra* patients, food, drink and medicines should be *vatanulomana*, *snigdha*, *ushna*, *srotovisodhana* and *deepana*.

7. Irrigation with *dhanyamla* below *nabhi* (umbilicus) cures pain during urination. In *vatika mootrakricchra* oils medicated with drugs capable of relieving *vata* should be applied below the navel region.

Irrigation shall also be done with a mixture of oil and ghee. Irrigation or/and *avagaha* with *kati* (first washing of rice) is also very effective.

8. In *kricchra* caused by vitiation of *vata*, after *abhyanga* with oil, treatments like *pindasveda*, *lepa*, *seka* (irrigation) and *avagaha*, which are *snigdha* shall be done.

In *paittikakricchra*, the above treatments

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which are cool in potency, are to be followed. In *slaishmikakricchra*, the food, medicines, etc. should be *teekshna* and *ushna*, and *vamana* shall also be done.

9. A *kalka* prepared from the roots of *nirgundee* (*Vitex negundo*) mixed with buttermilk shall be consumed. Similarly, *ela* (*Elettaria cardamomum*) *kalka* mixed with tender coconut water also cures *mootrakricchra*.

10. A *kalka* prepared from *prasaranee* (*Merremia tridentata* ssp. *tridentata*) and *varshabhoo* (*Boerhaavia diffusa*) mixed with tender coconut water should be consumed to make urination quick.

11. A *kalka* prepared from the roots or the whole plant of *padma* (*Nervilia aragoana*) mixed with *dharoshna* milk (freshly milked from the cow) or tender coconut water shall be consumed.

Kottampala (*Coriandrum sativum*), finely powdered, mixed with tender coconut water will help quick excretion of urine.

12. Seeds of *nerinjil* (*Tribulus terrestris*) made to paste is consumed in the expressed juice of *abheeru* (*Asparagus racemosus*) or fresh milk for curing *mootrakricchra*.

13. A *kalka* prepared from the roots of *parutti* (*Gossypium herbaceum*) consumed in *kati* relieves *mootrakricchra* and aids in excretion of calculi.

Kalamkompu (horn of deer), finely powdered and made to a *kalka* consumed with warm water, milk or *kati* relieves *mootrasanga*.

14. The *mootrakricchras* like *ushnavata*,

mootrakshaya, *vaticakricchra*, *mootrasada*, *vidghata*, *mootrajathara* and *vatavasti*, caused by vitiation of *vata*, can be cured by the *kashaya* prepared from the following.

<i>Padma</i>	<i>Nervilia araguona</i>
<i>Varee</i>	<i>Asparagus racemosus</i>
<i>Kataka</i>	<i>Strychnos potatorum</i>
<i>Gokshura</i>	<i>Tribulus terrestris</i>
<i>Darbha</i>	<i>Desmostachya bipinnata</i>
<i>Kasa</i>	<i>Saccharum spontaneum</i>
<i>Pattooramoolam</i>	<i>Alternanthera sessilis</i>
<i>Brihatee</i>	<i>Solanum anguivi</i>

15. A *kashaya* is prepared from the following to which a small quantity of powdered *ela* (2.5 gm) is added. Consume this for the cure of *mootrasanga*.

<i>Cherupoola</i>	<i>Aerva lanata</i>
<i>Kalloorvanji</i>	<i>Rotula aquatica</i>
<i>Nerinjil</i>	<i>Tribulus terrestris</i>

The thirteen medicines of *Traikantaka ghrita* should be used to prepare a *kashaya* to which finely powdered *ela* and *suddha silajit* (asphalt) are to be added. This is consumed for the relief of *mootrakricchra*. Milk can also be added.

16. The following *kashaya* cures *mootrakricchra*.

Trinapanchamoola

<i>Darbha</i>	<i>Desmostachya bipinnata</i>
<i>Kasa</i>	<i>Saccharum spontaneum</i>
<i>Ikhsu</i>	<i>Saccharum officinarum</i>

Sara *Saccharum arundinaceum*

Salee *Hygroryza aristata*

1 part each

Nerinjil *Tribulus terrestris* 5 parts

17. The following medicines finely powdered and ground should be introduced into a tender coconut by making an opening. The hole should then be closed and the contents kept over night. Next morning the coconut water and contents are to be extracted to another vessel and consumed.

Yashtyahva *Glycyrrhiza glabra*

Ela *Elettaria cardamomum*

Ervarubeeja *Cucumis sativus* (seeds)

Ikshukanda *Saccharum officinarum*

Adding finely powdered *ela* and *tippali* (*Piper longum*) is beneficial. This preparation cures *paittika mootrakricchra*, *daha*, *trishna*, *ushnavata*, *raktasrava* and *mootrasada*.

18. A *kashaya* prepared from the following when consumed with honey or sugar cures *paittika mootrakricchra*.

Sara *Saccharum arundinaceum*

Kar *Cyperus rotundus*

Karimpu *Saccharum officinarum*

Salee *Hygroryza aristata*

Nerinjil *Tribulus terrestris*

Kusa *Desmostachya bipinnata*

Kasa *Saccharum spontaneum*

Varee *Asparagus racemosus*

* 4.86 g ** 75 ml *** 300 ml

Vidaree *Pueraria tuberosa*

19. *Mootrakricchra* associated with burning sensation is relieved by consuming the following *kashaya* with milk and sugar candy (*khandam*).

Vazhuthina- *Solanum melongana* /

kal randu *Solanum anguivi*

Solanum surattense

Avanakku *Ricinus communis*

Paruttee- *Gossypium herbaceum*

yugalam *Gossypium arboreum*

1 part each

Nerinjil *Tribulus terrestris* 10 parts

It is difficult to get *vazhutinaver* (roots of *Solanum melongana*). Therefore the following alternate preparation is suggested.

Except the *vazhutinaver*, the other four medicines are taken one *kazhanchu** each and *nerinjil* eight *kazhanchu*. Prepare a decoction of it on the previous day and concentrate it into four *uzhakku*** in four *nazhi**** of each juice. Next day, warm this decoction and add half *uzhakku* of milk, then concentrate to the quantity of milk. Sugar is added while consuming, which cures *vaticamootrakricchra*.

20. A *kashaya* prepared from *satavari* (*Asparagus racemosus*) to which milk is added shall be taken for the relief of acute pain, burning sensation and blockade while passing urine.

21. Medicated milk or *kashaya* prepared from the following relieves *mootraghata*, *vidaha* (burning sensation), *mootrasada*, *mootra-*

jathara, asthisrava (leucorrhoea) and *suklasruti*.

Matsyakshee Alternanthera sessilis

Trinapanchamoola

<i>Darbha</i>	<i>Desmostachya bipinnata</i>
<i>Kasa</i>	<i>Saccharum spontaneum</i>
<i>Ikshu</i>	<i>Saccharum officinarum</i>
<i>Sara</i>	<i>Saccharum arundinaceum</i>
<i>Salee</i>	<i>Hygroryza aristata</i>
<i>Musalee</i>	<i>Curculigo orchioides</i>
<i>Padma</i>	<i>Nervilia araguona</i>
<i>Varee</i>	<i>Asparagus racemosus</i>
<i>Yoothika</i>	<i>Jasminum auriculatum</i>
<i>Vyaghree</i>	<i>Solanum surattense</i>
<i>Amsumatee</i>	<i>Pseudarthria viscida</i>
<i>Vasuka</i>	<i>Spermocoe hispida</i>
<i>Kataka</i>	<i>Strychnos potatorum</i>
<i>Asmabhit</i>	<i>Rotula aquatica</i>
<i>Gokshura</i>	<i>Tribulus terrestris</i>

The *prakshepas* are *sita* (sugar), *ajya* (ghee), *jeeraka* (*Cuminum cyminum*) and *tuti* (*Elettaria cardamomum* seeds)

The medicines from *matsyakshee* (*Alternanthera sessilis*) to *kataka* (*Strychnos potatorum*), in the above *yoga* 24 gm *kalloorvanji* (*Rotula aquatica*) and *gokshura* (*Tribulus terrestris*) 12 gm each. The *kashaya* or medicated milk prepared from the above is also effective.

22. Medicated ghee prepared from the following clears urine.

Expressed juice of

<i>Satavari</i>	<i>Asparagus racemosus</i>	16 parts
Ghee		4 parts
Milk		8 parts
<i>Nerinjil</i>	<i>Tribulus terrestris</i>	1 parts

23. The expressed juice from the roots of *pookkaita* (*Pandanus odoratissimus*) is to be mixed with the *kalka* prepared from its own tender shoots and a medicated ghee is to be prepared. A small quantity of powdered sugar is to be mixed with ghee and consumed in the morning. Alternatively, the expressed juice of *pookkaita* shall be consumed with the addition of ghee. These preparations relieve burning sensation while passing urine and blockade in its passage.

24. In *slaishmika mootrakricchra*, *vamana*, *sveda* and *kalaseya* (buttermilk) are indicated. In *sannipatika mootrakricchra*, drugs shall be used in combination. In *suklasmari*, spermato-purifiers are indicated.

25-26. *Dhanyamla* irrigation below *nabhi* also clears the passage of urine.

A *khala* prepared from buttermilk using the following relieves acute pain in micturition.

<i>Cherupullati</i>	<i>Indigofera enneaphylla</i>
<i>Nellikka</i>	<i>Emblica officinalis</i>
<i>Cherupoola</i>	<i>Aerva lanata</i>

Another *khala* prepared from the following also produces similar effect.

<i>Tartavalveru</i>	<i>Spermocoe hispida</i> (root)
<i>Meenkannu</i>	<i>Alternanthera sessilis</i>

27. Expressed juice from the leaves of *kumbalavalli* (*Benincasa hispida*) to which a rich quantity of sugar is added shall be consumed in the morning for the relief of haematuria.

28. Expressed juice of *chittamritu* (*Tinospora cordifolia*) to which powdered *ela* is added shall be consumed for 5, 8 or 10 days for the relief of *mootrakricchra*. The duration of consumption depends on the severity of the condition.

29. The following should be used to prepare a paste using *kati* which shall be applied on and around *nabhi* for the instant relief of *mootrakricchras*.

<i>Kera</i> root	<i>Cocos nucifera</i>
<i>Kramuka</i> root	<i>Areca catechu</i>
<i>Tala</i> root	<i>Borassus flabellifer</i>
<i>Mooshikamalam</i>	Excreta of rat
<i>Gokhsurabeejam</i>	<i>Tribulus terrestris</i> (seeds)
<i>Urvarabeejam</i>	<i>Cucumis sativus</i> (seeds)

Rat's faecal matter and *vellari* (*Cucumis sativus*) fruit without rind, shall be made to a paste and used as above.

30. In constipation and *mootrakricchra*, tender coconut water mixed with jaggery and finely powdered *haritaki* (*Terminalia chebula*) shall be taken.

31. In flatulence resulting from constipation and *mootrakricchra*, the following preparation is effective.

Four *haritakis* should be warmed in ember

and ashes. The seed is removed and the pulp finely powdered to which boiled tender coconut water and jaggery is to be added and consumed.

In flatulence caused due to *mootrasanga*, laxatives are effective.

Avipattichurnam shall be taken with ghee in *mootrakricchra* caused by the vitiation of *vata* and *sleshma*. Irrigation by warmed *kati* is effective.

32. The following, finely powdered should be mixed with buttermilk and consumed for removing calculi.

<i>Erandamoola</i>	<i>Ricinus communis</i> (roots)
<i>Simheemoola</i>	<i>Solanum anguivi</i> (roots)
<i>Nerinjil</i>	<i>Tribulus terrestris</i>
<i>Vayalchulliver</i>	<i>Hygrophila auriculata</i> (root)

A *kashaya* prepared from the following cures *sarkara* and *mootrakricchra*. This preparation is a guarded secret.

<i>Yootheemoola</i>	<i>Jasminum sambac</i>
<i>Kulattha</i>	<i>Macrotyloma uniflorum</i>
<i>Gokshura</i>	<i>Tribulus terrestris</i>

33. A *kashaya* is prepared from *varanamoola* (roots of *Crataeva magna*) to which its own *kalka* is added. On consumption, it instantly ejects *sarkara* and *asmari*.

34-35. A *seetakashaya* or *sritakashaya* prepared from the following to which *silajit* (asphalt) is added also clears *sarkara* and *asmari*.

<i>Varana</i>	<i>Crataeva magna</i>
---------------	-----------------------

<i>Kataka</i>	<i>Strychnos potatorum</i>
<i>Khalva</i>	<i>Macrotyloma uniflorum</i>
<i>Grinjana</i>	<i>Moringa oleifera</i>
<i>Sinduvaraka</i>	<i>Vitex trifolia</i>
<i>Yoothee</i>	<i>Jasminum sambac</i>
<i>Gokshura</i>	<i>Tribulus terrestris</i>
<i>Pathya</i>	<i>Terminalia chebula</i>
<i>Tila</i>	<i>Sesamum indicum</i>
<i>Matsyakshi</i>	<i>Alternanthera sessilis</i>
<i>Vasuka</i>	<i>Spermocoe hispida</i>

Kharamanjari *Achyranthes aspera* (root)

36-37. To the above said *seetakashaya* or *sritakashaya*, the following drugs, finely powdered may be added to prepare a *khala* or ghee to relieve *sarkara*, *asmari* and all diseases related to *vasti* (urinary bladder)

<i>Urvarubeeja</i>	<i>Cucumis sativus</i> (seeds)
<i>Girija</i>	<i>Asaphalt</i>
<i>Pippali</i>	<i>Piper longum</i>
<i>Ela</i>	<i>Elettaria cardamomum</i>

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आयुर्वेद में एकौषधियाँ

वारियर, पी. आर.*

Abstract: Single drugs in a broad sense have wider meanings and they vary contextually. The present article basically highlights the primary meaning of the word single drug, the importance of their judicious application in relevant contexts and the experiences of the dignitaries in this regard. This article, contained in the collection of essays 'Ayurvedapathanangal Avalokanangal' is reproduced here in translation.

आयुर्वेद शास्त्र में यह दोहराया गया है की जो भी बीमारी हो उनकी चिकित्सा में रोगी का उम्र, प्रकृति, वासस्थल, मौसम के भेद, आहारविहार क्रम, रोगावस्था-विशेष, दोषदूष्य विकारों के अवस्था, चय, प्रकोप, प्रसर, स्थानसंश्रय, व्यक्ति, भेद आदी क्रियाकाल, इत्यादी ससूक्ष्म निरीक्षण करना चाहिये। फिर भी यह कहना पड़ेगा कि एकौषधियों के प्रयोग में ऐसी विचिन्तन नहीं है।

एक और बात यह है कि कामला एक केवल रोग जैसे ही नहीं लिया जा सकता। सिर्फ लक्षण रूप में ही यह कई गंभीरयुक्त, अतिकठिन से चिकित्सा योग्य रोगों में दिखाई पड़ती है। यह सब सोचेंगे तो, क्या यह दोहराना यथायोग्य होगा कि एक ही औषधी से एक रोग कि सम्पूर्ण शान्ति मिले?

लेकिन, सच बात यह है कि किस चिकित्सा में, हो

सके तो थोड़ी हि दवाओं के उपयोग करना। आहार-विहार नियंत्रणों को प्राधान्यता देना। ठीक यह होगा कि अगर एक ही औषधि से काम चले तो, उसे बिना हिचाकिच से प्रयोग करे।

एक परम्परा यह है की एकौषध को अकेले प्रयोग करनेवाले योग्य औषध - सिद्धौषध रूप में ले। जहाँ भी एक उपाय से काम चलनेवाले उपायों के प्रस्ताव किया गया है वहाँ “एकौषध”- पद का प्रयोग मलयालम भाषा कि एक शैली यही होगी है। फिर भी शास्त्रीय तर्क वितर्कों में इसे थोड़ी बहुत व्यक्तरूप अर्थसहित परिमिती की सोच विचार देना ही पड़ेगा।

आयुर्वेद औषधों को सामान्य रूप में सस्यौषध, जंगमौषध, पार्थिवौषध, जैसे तीन प्रकार में वर्गीकरण

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किया है। मिट्टी को फाड़कर निकलने वाले अर्थ में सस्यौषधों को औषद्धि नाम से पुकारते आ रहे हैं। बला, पुनर्नव, भृङ्गराज इत्यादि इसका उदाहरण है। जानवरों से प्राप्त दूध, सींग, खुर, दन्त, लाह, मैयुक, मधु, मांस, शंख इत्यादि जंगम द्रव्य है; रस, लोह, लवण, रत्न इत्यादि खनिज द्रव्य पार्थिव विभाग में अंतर्गत है। इसमें जंगम और पार्थिव द्रव्यों को औषध रूप में प्रयोग करने से पहले कुछ संस्कार करना ही पड़ेगा। इस के लिए कुछ न कुछ सस्यौषधों के ही आश्रय लेना पड़ता है। सस्यौषधियों को प्रायः अकेले और अन्य द्रव्यों से मिलाके - शुद्धि करके अन्यथा दोनों प्रकारों में प्रयोग कर सकते हैं। इस अनोखा गुण से सस्यौषधों को एक प्राधान्य है। अकेले या फिर केवल रूप में - एकौषध - सस्यौषध विभाग में अंतर्गत है। लेकिन, क्या सभी सस्यौषधों को एकौषध नाम से पुकार सकते हैं? कुछ सस्यौषध ऐसे भी हैं जो प्रभावातिशय से कुछ विशिष्ट धर्मों को शरीर में उत्पन्न कर सकते हैं। सन्दर्भानुसार, हम उन सस्यौषधों को एकौषध कहें जो अकेले प्रयोग करने से फलोत्पादक होता है।

सस्यौषधियाँ : बहुत कुछ औषध सस्यों के बारे में आयुर्वेद ग्रन्थों में परामर्श किया गया है। औषध चिकित्सा में प्रमुख चरक ने सस्यौषधियों को प्रायः वनस्पति, वीरुद, वानस्पत्य, औषधी ऐसे चार प्रकार में बाँटा है। फल सहित सस्य - जो बिना फूले-मगर फलने वाले गुलार, कटहल, पीपल आदि महा वृक्ष वनस्पति हैं। फूलने के बाद फलने वाले सभि वृक्ष जैसे आम, बेल इत्यादि वानस्पत्य नाम से बुलाया जाता है। औषधि वह है जो फलपाकान्त हो, यानी फल पक्व होने पर सस्य का नाश होता है। धान, केला आदि इस वर्ग में अंतर्गत है। वीरुद - फैल कर और आपस में लिपटने वाले लता के नाम हैं। गुड़ूचि, द्राक्ष, पेठा आदि लताभेद इस विभाग में अन्तर्गत हैं। उपरोक्त चार विभागों के सारे के सारे औषधगुण बताने पर भी हर एक सस्य समूल उपयोग योग्य नहीं हो जाता। कंद, मूल, मूल के छाल, काठ या लकड़ी, काठ से उत्पन्न गोंद, काठ के अन्तर भाग, काठ

के छाल, दूध, कांटे, फूल, पंखुडियाँ, किशलय, पत्ते, पत्तों के सिरा, पत्ते और अन्य के स्वरस, फल, फलों के बीज, दोनों में से उत्पन्न पानी (उदा:- नारिकेलोदक), पौधों के शाखा, अंकुर, बीजों से निकलने वाले तेल, ऐसे हर एक का ग्राह्यांश प्रत्येक है। सन्दर्भानुसार कुछों के सभी भागों का उपयोग कर सकते हैं। जिन जिन पौधों के मूल का प्रयोग करना है, ऐसे कई निर्देश हैं।

क्या कोई शास्त्रीय मार्ग ऐसे है जिस से यह निर्णय कर सके की इन सब द्रव्य शरीर में किस तरह के धर्म कर रहे हैं? आयुर्वेदाचार्यों ने यह सिद्धांत किया की एक औषध कि पाँच प्रकार के क्रियाक्षम स्वरूप गढक है। रस, गुण, वीर्य, विपाक और प्रभाव जैसे पाँच। इन पाँचों को कई अवान्तर विभाग हैं। द्रव्य धर्मों के व्यवहार इन्हीं के आधार पर है। द्रव्य के निर्णायक गढकों में, पाँचवी धर्म - प्रभाव - एक द्रव्य के विशिष्ट गुण के कारण बनते हैं और द्रव्य के बारे में आखरी विचार लिखने वाले भी हैं। यह पहले ही प्रस्ताव किया गया था कि प्रभावातिशय से विशिष्ट धर्म करनेवाले सस्यौषध ही एकौषधि हैं।

आयुर्वेद ग्रन्थों में औषधों को, प्रत्येक स्वभाव एवं विशिष्ट धर्म के पालन करने की आधार पर कई गणों में विभाजन किया है। कण्डूघ्न (कण्डू शमन करनेवाले), कण्डूकर (कण्डू उत्पाद करनेवाले), कण्ठघ्न (गल भाग में हित), कफहर, कृमिघ्न, संग्राहि, अश्मरीघ्न (मूत्राशय और वृक्कों में उत्पन्न होने वाले पत्थरों को निकालने वाले), वमन (उल्टी करनेवाले), विरेचन (रेचक - पेट साफ करनेवाले), वर्ण्य (शरीरकान्ति बढ़ानेवाले) इत्यादि कई गणों हैं। चरकाचार्य ने 10 द्रव्य रहनेवाले 50 गणों को बताया है। सुश्रुत ने 760 द्रव्यों को 37 गणों में विभाजन किया है। इन गणों में अन्तर्गत सभी सस्यौषधों को हमें एकौषध मान सकते हैं।

अग्न्यौषधियाँ : अष्टाङ्गसंग्रह के 'अग्न्यसंग्रहणीय' नामक अध्याय में, अष्टाङ्गहृदय उत्तरस्थान के आखिर में, आचार्य

वाग्भट ने कुछ अग्रौषधों के बारे में दोहराया है जो देश, काल, बल आदि के अनुसार कई रोगों में प्रयोग कर सकता है। इन अग्रौषधों का चुनाव ऐसा किया गया है जो अपने अपने रोग निवारण में अति उत्तम है। इन में सस्यौषध विभाग को एकौषध वर्ग में अन्तर्गत कर सकते हैं।

औषधों कि आकृति या फिर कुछ विशिष्ट धर्मों को प्रधान्यता देकर उसे नाम देने में प्राचीन आचार्यों ने ध्यान दिया था। आखुकर्णी - इसकी पत्तों को चूहे के कान जैसे होने के कारण यह नाम दिया गया है। मलयालम में इसे 'एलिच्चेवि' नाम भी है। उग्रगन्ध - तीक्ष्ण गन्ध होने के कारण वच को यह नाम दिया गया। इसी प्रकार 'शंखुपुष्प' को 'गोकर्णी', लाल एरण्ड को चित्रबीज, लज्जवन्ती को लज्जालु, तीन काँटे होने वाले गोखुर को त्रिकंटक - यह सब उदाहरण है।

कृमिघ्न (कृमि को नाश करनेवाले) नाम विडंग को दिया गया है। दद्रु नामक त्वक रोग को निवारण करनेवाले चकुण्डा को दद्रुघ्न, वृक्षों तथा मूत्राशय में उत्पन्न पत्थरों को लुप्त करनेवाले अश्मघ्न को पाषाणभेदि, शोफ में - सूँज में - क्षमताशाली पुनर्नव को शोफघ्नी - ऐसे कई उदाहरण हैं। संस्कृत भाषा को ज्यादा अनुकरण करनेवाले मलयालम भाषा में ऐसे कई उदाहरण हैं जैसे 'माडानारि', 'मुयलच्चेवि', 'मुळ्ळिल', 'तोट्टावाटि' इत्यादि।

ग्रन्थ : सस्यौषधों के बारे में, हर एक के स्वरूप, गुण, धर्म इत्यादि के बारे में प्रतिपादन करने वाले कई प्रामाणिक ग्रन्थ उपलब्ध हैं। सुश्रुतसंहिता, चरकसंहिता, अष्टाङ्गसंग्रह, अष्टाङ्गहृदय इत्यादि और सिर्फ औषधों के बारे में प्रस्थाव करनेवाले ग्रन्थ भी हैं जैसे धन्वन्तरि निघण्टु, शार्ङ्गधरसंहिता, भावप्रकाश, मदनविनोद, राजनिघण्टु, वैद्यामृत, आतङ्कतिमिरभास्कर, शालिग्रामनिघण्टु, राजवल्लभनिघण्टु, भैषज्यरत्नावलि, वैद्यजीवन इस में बस थोड़े हैं।

आधुनिक सस्य शास्त्र दृष्टी से औषधों के विस्तार करनेवाले कुछ सचित्र ग्रन्थ इस शताब्दी के पहले दशक से

ही आने लगे हैं। Sri. Kirtikar, Major Dr. Basu, Dr. K.M. Nadkarni, Lef. Col. R.N. Chopra, U.C. Dutt - आदि के परिश्रम यहाँ प्रातःस्मरणीय है। किन्तु यह एक न्यूनता है कि इन्हीं के किसी ग्रन्थ में आवश्यानुसार ग्रन्थ प्रमाण या फिर सूचना प्रमाणों कि उतनी लभ्यता नहीं है। इस न्यूनता को भी घुलाव कर केरल विश्वविद्यालय के फार्मकोग्रसि डिपार्टमेंट से प्रकाशित "The Pharmacognosy of Ayurvedic drugs (Kerala)" नामक पुस्तक श्रृंखला केरल में अधिकतर प्रचार होने वाले तथा विवादास्पद औषधों के बारे में समग्र शास्त्रीय जानकारी देने योग्य है। हर एक औषध के आधुनिक वानस्पतिक वैज्ञानिक सार्वलौकिक नाम इत्यादि भी इस में दिखाई पड़ती है।

आधुनिक अनुसन्धान: आयुर्वेद के कई सस्यौषधियाँ, इससे पहले ही ब्रिटिश फार्मकोपिया नामक पाश्चात्य भैषज्यकल्पन ग्रन्थों में अन्तर्गत है। धतूरा (*Datura alba*), पलाश (*Butea monosperma*), अरूणा (*Justicia beddomei*), खुनखुनिया (*Swertia chirayita*), प्याज (*Allium cepa*) आदि इनमें से बस थोड़ी ही हैं। सर्पगन्ध के क्रियाक्षम गटक होनेवाले आल्कलोइड को पृथक करके रक्तभारी बीमारों में प्रयोग कर रहे हैं; ऐसी पद्धति शुरू होकर ज्यादा दिन नहीं हुआ।

कई प्रभावशाली एकौषधों के रस-गुण-वीर्य-विपाक प्रभावों के बारे में बार बार पठन करके, अनुसन्धान करके, वो शरीर के किन किन अवयवों में किस तरह काम कर रहे हैं- जैसे विषयों को आधुनिक विज्ञान विद्या से परिशोधन करके, व्याख्यान करके स्पष्ट करने का दीप्तिमय परिश्रम कुछ दिनों से विजयपूर्व आगे बढ़ रहे हैं। Central Council for Research in Indian Medicine and Homoeopathy नामक विभाग के तले काम कर आ रहे Clinical Research, Drug Research जैसे स्वयंपूर्ण विभाग इस मंच के कुछ शुभ सूचक चिह्न संकेत हैं। 1973 February 10 से लेकर 13 तक दिल्ली में इस संघटना के अनुग्रह में चला पहला वैज्ञानिक विचार गोष्ठी में अवतरण किया गया कई प्रबन्धों, प्रमेयों इस

जाँच में प्रकाश डालने वाले थे। All India Institute of Medical Science के Dr. R.B. Arora गुग्गुलु (*Commiphora mukul*) के बारे में किये गये अनुसन्धान-विषयों को प्रबन्ध रूप में अवतरण किया था। हृद्रोग के प्रधान कारण कुछ रक्तधमनी रोगावस्था में गुग्गुलु के (सोतोशुद्धीकरणगुणों) उपयोगी धर्मों को उन्होंने व्यक्तरूप से विवरण दिया।

सन्धियों में सूँज और वेदना उत्पन्न करने वाले Arthritis नामक रक्तविकारों में और व्रण में भी गुग्गुलु के उपयोग आयुर्वेद ग्रन्थों में दोहराया हुआ है। यहीं नहीं, नये परीक्षणों से यह भी सुनिश्चित होगया है कि गुग्गुलु को ऐसे गुण है जिससे रक्त में संचय होने वाले कोलस्टरोल को कम करें जो रक्त धमनियों

के ठोस, ऊबड़-खाबड़ को बढ़ाते है। यह पहले ही सुनिश्चित किये गये थे कि यही गुण प्याज़ वर्ग को भी है। प्रमेह, गृध्रसी (sciatiaca), कुछ चर्मरोग, तमक-श्वास (bronchial asthma) इत्यादि बहुतसी बीमारियों में इसी तरह के उपयोगप्रदी, सुनिश्चित एकौषधों के बारे में प्रबन्धों का अवतरण किया था। चर्मरोगों में आरग्वध नामक औषध की उपयोग्यता के बारे में किया गया अनुसन्धान वृत्तान्तों को भी इस चर्चा गोष्ठी में अवतरण किया था। यह सब चेष्टा यह सूचित कर रहे है की आयुर्वेद सस्यौषध - विशिष्ट में एकौषधी विभाग - पाश्चात्यविज्ञान लोक के श्रद्धा एवं आम तौर पर स्वीकृती लेने में कामयाबी हासिल कर रहें हैं।

बृहच्छारीरम्

(संस्कृत शारीर ग्रन्थ)

आयुर्वेद पर जो यह शिकायत है कि उस का शरीर विज्ञान अपूर्ण है; वह दूसरे वैद्य पद्धतियों के समान योग्यता नहीं रखता, इस का वैद्यरत्न के इस अनुपम, बृहत् ग्रन्थ से निराकरण किया जाता है। सरल संस्कृत भाषा में लिखे हुए इस ग्रन्थ में नवीन शारीर विज्ञान से मेल कराते हुए, आयुर्वेद के शारीर विज्ञान को विस्तार से वर्णन करके विकसित किया है। सारी बातों का तत्तद् अनुयोज्य नक्शों के साथ सूक्ष्म रूप से प्रतिपादन किया है।

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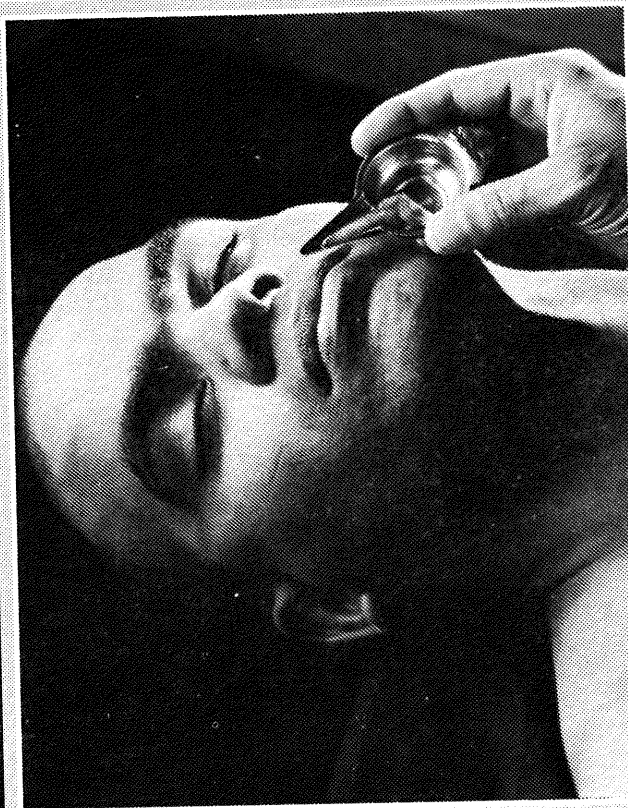
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