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लाभानां श्रेय आरोग्यम्

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



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FROM THE PAGES OF VĀGBHĀṬA - LXXIII

P. Madhavikutty*

Abstract: Aṅgavibhāga of Śārīrasthāna continues. Here, the definition of rasa, the formation of saptadhātus, the essence and waste products of each dhātu, etc. are explained. The different status of digestive fire (jatharāgni) with the association of triḍoṣa, details of strength (bala), and the predominance of vāta in constituting the seven prakṛtis are also dealt with.

रसाद्रक्तं ततो मांसं मांसान्मेदस्ततोऽस्थि च ॥ ६२ ॥
अस्थनो मज्जा ततः शुक्रं शुक्राद्गर्भः प्रजायते ।

(rasādraktaṁ tato māṁsaṁ
māṁsānmedastatoSsthi ca ॥ 62 ॥
Asthno majjā tata: śukraṁ
śukrādgarbha: prajāyate ।)

The fine essence of the well digested food is termed as rasa.¹ From this rasa, rakta is derived; from rakta, māṁsa; from māṁsa, medas; from medas, asthi; from asthi, majja; and from majja, śukra. The origin of embryo is from this śukra. [According to Aṣṭāṅgasamgraha, the essence of the well-digested food is again digested by the fire in the tissues (dhātvāgnis) and assorted into essence (sāra) and waste (kiṭṭa). From this sāra, is derived rakta, a nourisher of rakta dhātu which is one of the saptadhātus, the original cause of the body.²] All the sāras deriving through dhātvāgnipāka are poṣakadhātus, and kiṭṭas, poṣakamalās. Thus sāras and kiṭṭas of

all the preceding dhātus are nourishers of the sāras and kiṭṭas of the succeeding dhātus. Rakta is the sāra of rasadhātu, whereas kapha and lasika are its kiṭṭas. The sāra of kiṭṭa is māṁsa; kandaras (tendons), siras (conduits), and pitta are its kiṭṭas. The sāra of māṁsa is medas skin and vasā. Its kiṭṭas are the waste products of external orifices. The sāra of medas is asthi (bones) tendons and joints. Its kiṭṭa is sweat. The sāra of asthi is majja, and its kiṭṭa is the hair and nails. The sāra of majja is śukra and its kiṭṭa is the unctuousness of eyes, feces and skin. The sāra of śukra is ojas. It does not have any kiṭṭa, as it is extremely pure. Some other ācāryas opine that the sāra of śukra is garbha (embryo).

कफः पित्तं मलाः खेषु प्रस्वेदो नखरोम च ॥ ६३ ॥
स्नेहोऽक्षित्वग्विशामोजो धातूनां क्रमशो मलाः ।

(kapha: pittaṁ malā: kheṣu
prasvedo nakharoma ca ॥ 63 ॥

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1. आहारस्य सम्यक् परिणतस्य य स्तेजोभूतः सारः परमसूक्ष्मः स रस इत्युच्यते (सु. सू. १४)
2. दोषधातुमलामूलं सदा देहस्य

SnehoSkṣītvaḡviśāmojo

dhātūnām kramaśo malā:)

Kapha, pitta, the wastes of the orifices, sweat, nails and hair, the unctuousness in the eyes, skin and feces, and ojas, are the malas (kiṭṭas) of the seven dhātus respectively.

प्रसादकिट्टौ धातूनां पाकादेवं द्विधच्छतः ॥ ६४ ॥

परस्परोपसंस्तम्भाद्भातुस्नेहपरम्परा ।

(prasādakiṭṭau dhātūnām

pākādevaṃ dvidharcchata: ॥ 64 ॥

Parasparopasaṃstambhād-

dhātusnehaparamparā ।)

Thus through the digestive process of dhātvaḡnis, the dhātus also are assorted in two parts as prasāda and kiṭṭa (waste). In this way, by supporting each other, the unctuousness of the dhātus is maintained continuously and with more superiority.

केचिदाहुरहोरात्रात्षडहादपरे, परे ॥ ६५ ॥

मासेन याति शुक्रत्वमन्नं पाकक्रमादिभिः ।

सन्तता भोज्यधातूनां परिवृत्तिस्तु चक्रवत् ॥ ६६ ॥

(kecidāhurahorātrāt-

ṣaḡahādapare, pare ॥ 65 ॥

Māsenā yāti śukratva-

mannāṃ pākakramādibhi: ।

santatā bhojyadhātūnām

parivṛttistū cakravat ॥ 66 ॥)

According to some ācāryas, the consumed food, after series of digesting process, is transformed into śukra by one day, while some others regard this period as six days, and yet others consider it as one month. This exchange of bhojyadhātus (transforming of the essence of the preceding dhātu into the succeeding one) is continuous just like the circling of a wheel.

वृष्यादीनि प्रभावेण सद्यः शुक्लादि कुर्वते ।

प्रायः करोत्यहोरात्रात्कर्मन्यदपि भेषजम् ॥ ६७ ॥

(Vṛṣyādīni prabhāveṇa

sadya: śuklādi kurvate ।

prāya: karotyahorātrāt-

karmānyadapi bheṣajam ॥ 67 ॥)

Some substances like aphrodisiacs, etc., by their special power, show effects as producing śukra, etc. immediately. Almost all other drugs also show their actions within a day.

व्यानेन रसधातुर्हि विक्षेपोचितकर्मणा ।

युगपत्सर्वतोऽजस्रं देहे विक्षिप्यते सदा ॥ ६८ ॥

क्षिप्यमाणः खवैगुण्याद्रसः सज्जति यत्र सः ।

यस्मिन्विकारं कुरुते खे वर्षमिव तोयदः ॥ ६९ ॥

(Vyānena rasadhāturhi

vikṣepocitakarmanā ।

yugapatsarvatoऽjasraṃ

dehe vikṣipyate sadā ॥ 68 ॥

Kṣipyamāṇa: khavaigunyaḡdrasa-

rasa: sajhati yatra sa: ।

yasminvikāraṃ kurute

khe varṣamiva toyada: ॥ 69 ॥)

Rasadhātu is always being induced and circulated throughout the body simultaneously by vyānavāyu, whose usual function is always inducing or prompting. During this course of circulation, by any defect of the rasāvasrotas, if rasa stagnates somewhere, it produces disease in that place, just like the clouds in the sky produce rain when stagnated.

दोषाणामपि चैवं स्यादेकदेशप्रकोपणम् ।

(Doṣāṇāmapi caivaṃ syād-

ekadeśaprapakoṇam ।)

In the same way, due to the defect of the srotas,

local aggravation occurs to the doṣas also. (Doṣas are pervading all over the body always, and so they do not have separate carrier channels. They pervade through all channels).*

अन्नभौतिकधात्वग्निर्कर्मति परिभाषितम् ॥ ७० ॥

(annabhautikadhātvagni-
karmeti paribhāṣitam ॥ 70 ॥)

Thus, the functions of the agnis pertaining to anna (food), pañcabhūtas and saptadhātus are explained in detail here.

अन्नस्य पक्ता सर्वेषां पक्वणामधिको मतः ।

तन्मूलास्ते हि तद्वृद्धिक्षयवृद्धिक्षयात्मकाः ॥ ७१ ॥

तस्मात्तं विधिवद्युक्तैरन्नपानेन्धनैर्हितैः ।

पालयेत्प्रयतस्तस्यस्थितौह्यायुर्बलस्थितिः ॥ ९२ ॥

(Annasya paktā sarveṣāṃ
paktṛṇāmadhiko mata: .
tanmūlāste hi tadvṛddhi-
kṣayavṛddhikṣayātmakā: ॥ 71 ॥

Tasmāttam vidhivadyuktair-
annapānendhanairhitai: ।

pālayetprayatastasya-
sthitauihyāyurbalasthiti: ॥ 92 ॥)

Jaṭharāgni, which digests the food, is the most important one amongst all these thirteen agnis, because it is the prime source of all the other agnis. Their increase or decrease is depending on the increase or decrease of the jaṭharāgni. So this agni should be protected carefully using the proper fuel of wholesome foods and drinks. The existence of life and strength are mainly depending upon the stability of jaṭharāgni.

समस्माने स्थानस्थे विषमोऽग्निर्विमार्गि ।

पित्ताभिमूर्च्छिते तीक्ष्णो मन्दोऽस्मिन्कफपीडिते ॥

समोऽग्निर्विषमस्तीक्ष्णो मन्दश्चैवं चतुर्विधः ।

(Samassamāne sthānasthe
viṣamoSgnirvimārgage ।

pittābhimūrcchite tīkṣṇo
mandoSsminkaphapīḍite ॥ 73 ॥

samoSgnirviṣamastīkṣṇo
mandascaivam caturvidha: ।)

When samānavāyu remains in its own stipulated place, then the agni is in its proper condition (sama). Neglecting its own way, when it moves through other paths, then it is termed as viṣama (uneven). When associated with pitta, it is tīkṣṇa (sharp), and associated with kapha, it is manda (slow/weak). Thus the jaṭharāgni has four status sama, viṣama, tīkṣṇa and manda.

यः पचेत्सम्यगेवान्नं भुक्तं सम्यक् समस्त्वसौ ॥ ७४ ॥

विषमोऽसम्यगप्याशु सम्यग्वाऽपि चिरात्पचेत् ।

तीक्ष्णो वह्निः पचेच्छीघ्रमसम्यगपि भोजनम् ॥ ७५ ॥

मन्दस्तु सम्यगप्यन्नमुपयुक्तं चिरात्पचेत् ।

कृत्वाऽऽस्यशोषाटोपान्त्रकूजनाध्मानगौरवम् ॥ ७६ ॥

(ya: pacetsamyagevānnaṃ
bhuktaṃ samyak samastvasau ॥ 74 ॥

ViṣamoSsamyagapyāśu
samyagvāSpī cirātpacet ।

tīkṣṇo vahni: pacecchīghra-
masamyagapi bhojanam ॥ 75 ॥

Mandastu samyagapya-
nnamupayuktaṃ cirātpacet ।

kr̥tvāSsyaśoṣāṭopāntra-
kūjanādhmānagauravam ॥ 76 ॥)

If the agni digests the properly ingested food in due course of time, then it is sama agni. Viṣamāgni is that which digests even the improperly ingested food quickly but sometimes

* वातपित्तश्लेष्मणां पुनः सर्वशरीर चराणां सर्वाणि स्रोतांसि अयनभूतानि (च.वि. ५)

even the properly ingested light food very slowly. Tikṣṇāgni digests quickly even the improperly consumed heavy food. Mandāgni digests the food very slowly, producing various kinds of troubles as dryness of the mouth, swelling of the abdomen, borbogymus, flatulence and heaviness, even though the food is a properly consumed light one.

सहजं कालजं युक्तिकृतं देहबलं त्रिधा ।
तत्र सत्वशरीरोत्थं प्राकृतं सहजं बलम् ॥ ७७ ॥
वयस्कृतमृतूत्थं च कालजं, युक्तिजं पुनः ।
विहारहारजनितं तथोर्जस्करयोगजम् ॥ ७८ ॥

(Sahajam kālajam yukti-
kṛtam dehabalam tridhā ।
tatra satvaśarīrotham
prākṛtam sahajam balam ॥ 77 ॥
Vayaskṛtamṛtūtham ca
kālajam, yuktijam punaः ।
vihārāhārajanitam ta-
thorjaskarayogajam ॥ 78 ॥)

Bala (strength or vigour) is of three types sahaaja, kālaja, and yuktikṛta. Sahajabala is the inborn strength of mind and body, acquired from parents naturally (originated from the wholesomeness of the four components needed for the proper formation of embryo i.e. ṛtu, kṣeṭra, ambu and bīja). Kālajabala is pertaining to age and season. Bala is excellent in youth. In childhood and old age it is comparatively low. In the same way, bala reaches its maximum state in winter. In rainy season and summer, it is in the minimum state. In the other two seasons, spring and autumn, it is moderate. The third one, yuktikṛtabala, is to be obtained by adapting to proper activities, wholesome food, and the usage of invigorating substances.

देशोऽल्पवारिद्रुनगो जाङ्गलः स्वल्परोगदः ।
आनूपो विपरीतोऽस्मात्समः साधारणः स्मृतः ॥ ७९ ॥
(Deśoऽlpavāridrunago
jāṅgalaः svalparogadaः ।
ānūpo viparītoऽsmā-
tsamaः sādharmaṇaः smṛtaः ॥ 79 ॥)

A region with less water, tree and mountain is termed as jāṅgala (dry places). Here, diseases occur rarely. The region with just opposite qualities, is ānūpadeśa (marshy place). The place where both these qualities exist moderately is termed as sādharmaṇa.

मज्जमेदोवसामूत्रपित्तश्लेष्मशकृन्त्यसृक् ।
रसो जलं च देहेऽस्मिन्नेकैकाञ्जलिवर्द्धितम् ॥ ८० ॥
(Majjamedovasāmūtra-
pittaśleṣmaśakṛntyasṛk ।
raso jalam ca deheऽsminn-
ekaikāñjalivarddhitam ॥ 80 ॥)

The quantity of the substances in the body as bone marrow, fat, muscle fat, urine, pitta, kapha, feces, blood, rasa and jala is maintained in a successively increasing order, by the measure of one añjali (96 ml; bone marrow one añjali, fat two añjalis, muscle fat three añjalis and so on).

पृथक् स्वप्नसृतं प्रोक्तमोजोमस्तिष्करेतसाम् ।
द्वावञ्जली तु स्तन्यस्य चत्वारो रजसः स्त्रियाः ॥ ८१ ॥
समधातोरिदं मानं विद्याद् वृद्धिक्षयावतः ॥ ८२ ॥

(Pṛthak svaprasṛtam prokta-
mojomastiṣkaretasām ।
dvāvañjali tu stanyasya
catvāro rajasaः striyāः ॥ 81 ॥
samadhātoridam mānam
vidyād vṛddhikṣayāvataः ॥ 82 ॥)

The quantity of ojas (vital essence of dhātus), mastiṣka (brain matter) and retas (semen) is svaprasṛta.* The quantity of breast milk is two anjalis, and that of rajas is four anjalis. These are the proper measurements of the body substances of a normal person. From this explanation, the increase or decrease of these things can be understood.

शुक्रासृग्गर्भिणीभोज्यचेष्टागर्भाशयर्तुषु ।

यः स्याद्दोषोऽधिकस्तेन प्रकृतिः समधोदिता ॥ ८३ ॥

(Śukrāsṛggarbhīṇibhojya-
ceṣṭāgarbhāśayartuṣu ।

ya: syāddoṣoḥdhikastena
prakṛti: saptadhoditā ॥ 83 ॥)

The constitution of a person is formed as per the predominance of doṣas in the parent's seeds (at the time of union), in the food and activities

of the pregnant woman, in the uterus and in the particular season. Thus seven types of constitution are described as vātaprakṛti, pittaprakṛti, kaphaprakṛti, vāta-pittaprakṛti, vāta-kaphaprakṛti, pitta-kaphaprakṛti and samadoṣaprakṛti.

विभुत्वादाशुकारित्वाद्बलित्वादन्यकोपनात् ।

स्वातन्त्र्याद्बहुरोगत्वाद्दोषाणां प्रबलोऽनिलः ॥ ८४ ॥

(Vibhutvādāśukāritvād-
balitvādanyakopanāt ।
svātantryādbahurogatvād-
doṣāṇām prabaloḥnīla: ॥ 84 ॥)

Vāyu is the most powerful amongst the other doṣas because of its all pervading and briskly acting character, strength, and ability to provoke other doṣas, independent, and the capacity to produce many diseases.

*The word prasṛta, actually denotes a measurement equal to two palas (96g). But here, svaprasṛta means the quantity measurable with the palm of one's own hand stretched out and hollowed.

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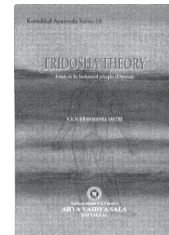
TRIDOSHA THEORY A Study on the Fundamental Principles of Ayurveda

Dr. V.V. Subrahmanya Sastri

The theory of *tridosha* forms the foundation of ayurveda. In this text the learned author scientifically explains the physiology of human body through the principles of *vata*, *pitta* and *kapha* keeping in view some of the processes as explained by modern science without detriment to the main concept postulated in ayurveda.

The author, late Sri. V.V. Subrahmanya Sastri, is well known in the world of ayurveda. He was Professor of Ayurveda, Deputy Director and Research Officer under CCRAS. He was also a successful practitioner, an erudite scholar and an eminent pundit deeply immersed in the study of classical texts.

Dr. P.K. Warriar in his preface to the new edition



PHARMACOGNOSTICAL EVALUATION OF *NYMPHAEA STELLATA* WILLD

S.P.Dhanabal, Mohan Maruga Raja, N.Paramakrishnan and B.Suresh*

Abstract: *Nymphaea stellata* Willd., belonging to the family Nymphaeaceae is an aquatic herb with underground perennial rhizome. This plant finds use in traditional systems of medicine in the management of vomiting, giddiness, worms and burning of skin, fevers, dysuria, etc., and is aphrodisiac. This paper deals with the pharmacognostical studies carried out on the leaves of *Nymphaea stellata* for identification and differentiation of the plant from other related species of Nymphaea.

Introduction

Nymphaea stellata Willd. (synonym: *Nymphaea nouchali* Burm.f., *Nymphaea lotus* Hook F. & Thompson) belongs to the family Nymphaeaceae. It is known as karunaital and nilotpalam in Tamil. The various parts of this plant find use in traditional system of medicine; its flowers are aphrodisiac and are said to be refrigerent and alleviative cough, vomiting, giddiness, worms, burning of skin, fevers and dysuria. Roots and seeds are edible, stomachic, restorative and used in diabetes. In Cambodia the maceration of the leaves is used as a lotion in eruptive fevers^{1,2}.

Materials and method

The leaves of *Nymphaea stellata* were collected during November 2004 from Coonoor and Ootacamund, The Nilgiris. It was properly identified and authenticated by comparing with the voucher specimen available at the Survey

of Medicinal Plants and Collection Unit, Ootacamund.

Macroscopic characters

The leaves are floating, orbicular, marginious smooth or bluntly dentate, glabrous beneath; Flowers - large forne on long pedicel; Sepals - 4, greenish, white; petals - numerous blue or white, oblanceolate, spirally arranged; Stamens - flattened, spiral, appendaged at the apex; ovary - many celled, ovules many, stigma sessile, radiating, unappendaged.

Histological characters

Sectioning

The required samples of different organs were cut and removed from the plant and fixed in FAA (Formalin-5 ml +Acetic acid-5 ml +70% Ethyl alcohol-90 ml). After 24 hours of fixing, the specimens were dehydrated with graded series of tertiary-butyl alcohol. Infiltration of the specimens was carried by gradual addition

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of paraffin wax (melting point 58-60°C) until TBA solution attained super saturation. The specimens were cast into paraffin blocks^{3,4,6}.

The paraffin embedded specimens was sectioned with the help of Rotary Microtome. The thickness of the sections was 10-12 µm. Dewaxing of the sections was done. The sections were stained with Toluidine blue. Since Toluidine blue is a polychromatic stain, the staining results were remarkably good; and some cytochemical reactions were also obtained. The dye rendered pink colour to the cellulose walls, blue to the lignified cells, dark green to suberin, violet to the mucilage, blue to the protein bodies, etc., wherever necessary sections also stained with safranin and fast-green and iodine (for starch).

For studying the stomatal morphology, venation pattern and trichome distribution, paradermal sections (sections taken parallel to the surface of leaf) as well as clearing of leaf with 5% sodium hydroxide or epidermal peeling by partial maceration employing Jeffrey's maceration fluid were prepared. Glycerin mounted temporary preparations were made for macerated/cleared materials.

Photomicrographs

Microscopic descriptions of tissue are supplemented with micrographs wherever necessary. Photographs of different magnification were taken with Nikon Labphot 2 microscopic unit. For normal observations bright field was used. For the study of crystals, starch grains and lignified cells, polarized light

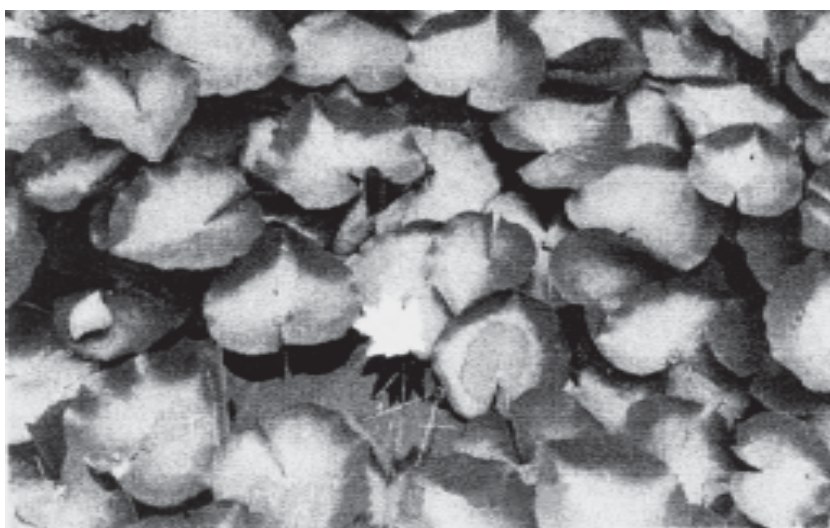


Fig. I - Species of *Nymphaea stellata* Willd.

was employed. Since these structures have birefringent property, under polarized light they appear bright against dark background. Magnifications of the Figures are indicated by the scale-bars.^{6,7}

Physico-chemical constants

Ash values

Ash values are helpful in determining the quality and purity of crude drugs in the powder form according to the standard procedures⁸⁻¹¹, viz. total ash (2.21 % w/w), acid-insoluble ash (1.09% w/w), water-soluble ash (0.88% w/w) and sulphated ash (2.60% w/w).

Extractive values

The amount of extractive drug yield to a given solvent is often an approximate measure of a certain constituent or group of related constituents the drug contains. In some cases the amount of drug soluble in a given solvent is an index of its purity. The solvent used for extraction should be in a position to dissolve appreciable quantities of the presence of substances desired.⁸⁻¹¹

Extractive values of crude drugs are useful for their evaluation especially when the constituents of a drug cannot be readily estimated by any other means. Further, these values indicate the nature of the constituents present in a crude drug. 95% ethanolic soluble extractive values were determined and found to be 17.28% w/w and 25.17% w/w respectively.

Results and discussion

The leaf is hydromorphic with wide air-chambers, reduced vascular strands and sclerenchyma. The lamina is 400 μ m thick. It consists of thin adaxial and abaxial epidermal layers, which are less conspicuous; the cells are small and squarish (Fig IIa) The mesophyll

tissue is differentiated in to adaxial palisade zone and abaxial aerenchyma zone. The palisade zone is 100 μ m in height and consists of two layers of cells. The aerenchyma zone consists of wide air chambers separated by thin, one-cell thick partition walls (Fig IIIb).

All along the partition filaments, these are stellately branched, long armed sclerenchyma cells called 'trichosclereids'. These sclereides have pointed arms on the surface of which minute prismatic crystals are densely deposited (Fig III a&c). These sclereides give mechanical support to the mesophyll tissue.

The vascular bundles differ in size from different zones of the lamina. The largest vascular of the major veins occur in the abaxial part of the lamina (Fig IIb). A thin parenchymatous cells surround the bundle; a large mass of collenchyma is situated at the base of the bundles. The xylem consists of a cluster of wide vessels and large mass phloem. There are also slightly smaller vascular bundles placed in the median part of the lamina (Fig IIa). These bundles are also collateral with a small cluster of xylem and a mass of phloem, the bundles being surrounded by parenchymatous sheath. Along the adaxial part and beneath the palisade zone are still smaller vascular bundles (Fig IIa & IIIa). These adaxial bundles are circular, collateral and have small groups of xylem and phloem surrounded by dilated hyaline bundle sheath cells.

The quality control parameters for the crude drugs as raw materials were established with the help of several official determinations based on physical and physico-chemical studies. These studies were aimed at ensuring standardization of herbal drugs under

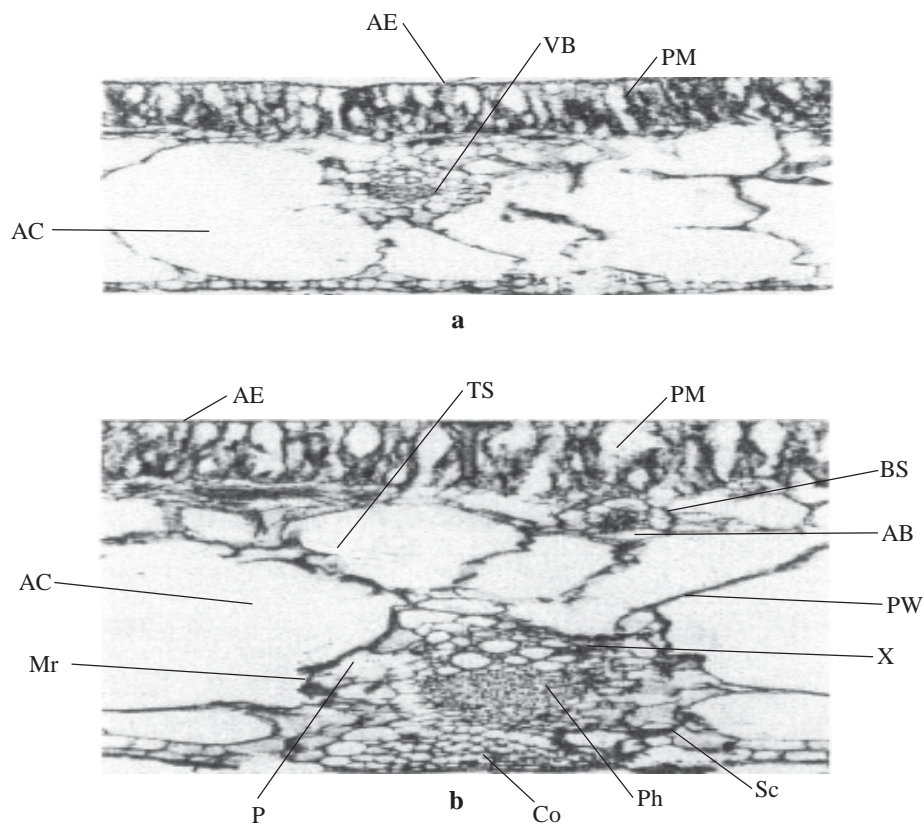


Fig: II. **a & b** *Nymphaea stellata* Willd - Microscopic characters of leaf
a T.S. of leaf through smaller vein **b** T.S. of leaf through larger vein

AE Abaxial epidermis **AC** Air chamber **BS** Bundle sheath **Co** Collenchyma
Mr Midrib **P** Parenchyma **Ph** Phloem **PW** Phloem Wall **PM** Palisade Mesophyll
Sc Sclerenchyma **VB** Vascular Bundle **X** Xylem **AB** Accessory bundle **Ts** Trichosclereids

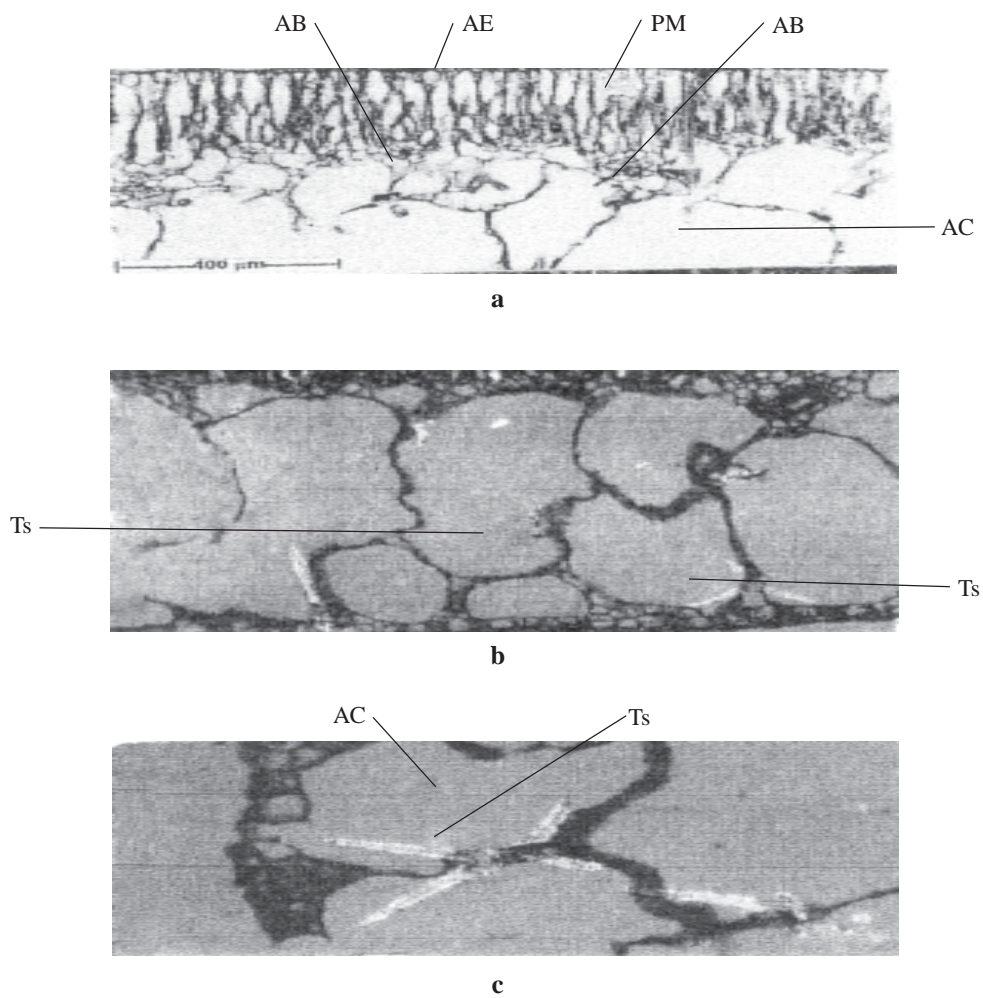


Fig: III. **a - c** *Nymphaea stellata* Willd - Microscopic characters of leaf
a T.S. of leaf showing the palisade zone **b & c** Trichosclereids in the leaf
as seen under polarized light

AB Accessory bundle **AE** Abaxial epidermis **PM** Palisade Mesophyll
AC Air chamber **Ts** Trichosclereids

investigations.

Pharmacognostical studies of this plant was carried out in order to identify the correct species and also to differentiate the closely related other species of *Nymphaea*. These parameters observed may be useful for the further identification of the plant.

References

1. Karnick, C.R., *Pharmacopoeial Standards of Herbal Plants*, Shri Sathguru Publishers, Indological and Oriental Publisher, A division of Indian Book, New Delhi, Vol I; 10-12, 1994.
2. Siddharth N Shah., *Diabetes - Millennium*, The Asian Journal of Diabetology, 2(2); 11, 2000.
3. Johnson, D.A., *Plant Microtechnique*, Mc Graw Hill Book Co., New York, 523; 1940.
4. Metcalfe, CR. and Chalk, L., *Anatomy of the Dicotyledons*, Clarendon Press, Oxford, Vol. I., 276, 1979.
5. Solerder, H., *Systematic Anatomy of the Dicotyledons*,. Transl. L.A. Boodle and F.E. Fritieh, Clarendon Press, Oxford, 132, 1899.
6. O'Brien, T.P., Feder, N. and Mc Cull, M.E., *Polychromatic Staining of Plant Cell walls by toluidine blue-O*, *Protoplasma*, 59; 364-373, 1964.
7. Sass, J.E., *Elements of Botanical Microtechnique*, Mc Graw Hill Book Co, New York, 222, 1940.
8. Trease, G.E. and Evans, W.C., *Pharmacognosy*, *Bailliere Tindall*, London, 12th edn., 241, 1983.
9. Khandelwal, K.R., Pawar, A.P., Kokate, C. K. and Gokhale, S.B., *Practical Pharmacognosy*, Nirali Prakashan, Pune, 140 - 141, 1995.
10. Mukherjee, P.K., *Quality Control of Herbal drugs*, Business Horizons, New Delhi, 187-191, 2002.
11. Anonymous, *Indian Pharmacopoeia*, Ministry of Health & Family Welfare, Govt of India, Controller of Publications, New Delhi, Vol II., A53 - 54, 1996.

SATTVĀVAJAYA - THE ĀYURVEDIC APPROACH TO PSYCHOTHERAPY

Rajni Chandre and J.S. Tripathi*

Abstract: There are three types of therapy for the management of mental disorder i.e. spiritual, rational and psychological. Sattvāvajayacikitsa refers to one of the three broad-based approaches to therapy in āyurveda. It is the fundamental approach for treating psychiatric and psychosomatic problems. This therapy involves several dimensions, many of them have been discussed in this article, but many references are available in ayurvedic classics and ancient Indian literature which need to be explored and practically utilized to provide new leads in the psychiatric care.

Introduction

In addition to the other three components viz. physical body (śarīra), sense organs (indriya) and the soul (ātma), mind (manas) is an important component of the life (āyu)¹. Both the ancient as well as the modern schools of science and philosophy have accepted the existence of mind. Mind serves as an important instrument in the process or perception. It plays an important role in the spiritual life.

Sattvāvajaya cikitsa in āyurveda refers to one of the three broad-based approaches to therapy. It is specifically indicated for the treatment of mental illnesses. Caraka defines it as a method of restraining or withdrawal of the mind from the unwholesome objects.²

A wise person should adapt the mental faculties, which are causing mental disorders and should

strive to abstain from unwholesome virtue (adharma), wealth and sensory pleasure (artha) and enjoyment/desires (kāma), and should pursue wholesome ones by constantly keeping an eye to wholesome or otherwise. No mental happiness or unhappiness can occur in this world without these three. The therapy of mental disorders is to properly following the tṛivaṛgas - the three categories viz. virtue, wealth and enjoyment, company of the experts (psychiatrists) and all round specific knowledge and knowledge of self (spiritual knowledge), etc³. Hence, this should be practiced: remain in touch with the experts of mental illnesses - the psychiatrist and recognize the ātma (self), deśa (place), kāla (time), śakti (strength).

There are three types of therapy for the management of mental disorders i.e. spiritual,

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rational and psychological. The former one, the physical disorders, are specified by the remedial measures of divine and rational nature while the mental diseases are treated with the help of promoting spiritual knowledge, specific knowledge, mental restraint, memory concentration and other similar yogic practices (psychotherapy)⁴.

Sattvāvajaya cikitsa is aimed at the control of mind i.e. one should keep himself established in his inner-being after knowing the real nature of the soul and attaining the height of spiritual wisdom⁵.

Caraka describes the several psychological supportive techniques under the management of Unmādaroga, which all come under the purview of the broad-based sattvāvajaya cikitsa of āyurveda. He advocates āśvasana (reassurance and explanation), suhṛtvākya (guidance and suggestion), dharmārthavākya (education of individual and family), iṣṭa vināśana (verbal shock: milieu therapy), atbhuta darśana (showing extra-ordinary things), tāḍana (physical shock), trāśana (mental shock) and sāntvana (rehabilitation and reassurance), which are also known as psychological intervention.

Cognitive psychotherapy

(Promotion of jñāna)

Cognition (jñāna), in this particular reference, is used for the spiritual knowledge for all practical purposes. The methods for improving prajña (cognition) and its component like dhī (intellect), dhṛti (controlling power) and smṛti (recollection and recall) should be used as components of sattāvavajaya cikitsa. It aims at correcting the maladaptive methods of thinking, and thereby providing relief from symptoms. Some important techniques in cognitive

therapy are cognitive techniques like recognizing and correcting negative automatic thoughts, teaching reattribution techniques i.e. increasing objectivity in perspectives, identifying and testing maladaptive assumption, etc., decentering and behavioural techniques like activity scheduling, homework assignments, graded task assignment, behavioural rehearsal, role playing and diversion techniques and teaching problem-solving skills.

There are a good number of patients who do not know what is good or bad, and even if they know, they are unable to take decisions under certain situations or prevailing circumstances. The patients are to be given guidance to take decision with the help of guideline of dharma and artha that are available in the classical literature. The patients should know the pros and cons of their disease state and healthy state. The family is to be guided positively to support the patient and his needs. All the family members are to be informed about the nature and course of the disease and the precautions to be taken for the fast management of the disease; they are to be educated to behave properly with the patient in whatever the situation he is.

Dharma-artha-vākya involves correcting the depressive negative cognitions (ideations) e.g. hopelessness, worthlessness, helplessness and pessimistic ideas, and replacing them by new, cognitive, emotional (pratidvanda cikitsa) and behavioural responses.

Behaviour therapy

(Promotion of vijñāna)

The vijñāna is understood to be referring to specific and skilled knowledge based on systematic information about worldly phenomenon.

Thus the promotion of vijñāna in reference to Sattvāvajaya refers to development and uses of behavioural techniques for treating psychosomatic and psychiatric disease. Social skills training is the most widely used for many neurotic conditions including depression. In this treatment, disturbed behaviour is seen as a consequence of insufficient reinforcement, which can result from deficits in social skills. Social skills training, therefore, attempts to correct the behavioural deficits including the inability of patients to obtain social reinforcement from others and the tendency to induce a negative affect in others.

Use of supportive equipments (biofeedback):- Biofeedback is the use of an instrument (usually electronic), which provides immediate feedback to the patient regarding his physiological activities normally not available to the conscious mind e.g. EKC, EEG, pulse rate, blood pressure, EMG and galvanic skin response (GSR). The feedback helps the patient, apparently to control these responses. Relaxation is easily achieved by this method.

A simpler form (relaxometer) uses only one parameter, the GSR. Other uses of biofeedback include treatment of enuresis, migraine headaches, tension headache, idiopathic hypertension, incontinence, cardiac arrhythmias, uncontrolled generalized tonic clonic seizures and also for neuromuscular rehabilitation. These methods should be used as in combination with other methods for promotion of vijñāna.

Samādhi

(Yogic psychotherapy)

Yogic relaxation is a part of psychotherapy. According to Patañjali, concentration (yoga) is

the hindering of the modification of the thinking principle⁶.

According to āyurvedic principles, sattva, rajas and tamas are three basic guṇās of the manas (mind); and according to the predominance of these guṇās, an individual presents with sāttvika, rājasika and tāmasika type of prakṛti. In other words, the triṅguṇas are responsible for each and every psychological event in an individual. Sattva is responsible for spiritual pleasure, correct knowledge and light (prakāśa), rajas is responsible for functional entity of an individual and tamas for inertia and darkness⁷.

Cittavṛttis

(Different deeds of mind)

There are five cittavṛttis viz. 1) pṛamāṇa (right cognition); this includes valid states of perception, inference and belief in valid testimony, 2) viparyaya (error); this is the knowledge of the unreal as in doubt, 3) vikalpa (fiction); this is the existence of abstract imagination on the basis of language symbols, 4) nidra (deep sleep); this is the mental state which has for its objective substratum, the feeling of emptiness, and 5) smṛti (memory); it is recollection of the object through the impressions left behind by the previous experience.

Cittabhūmi

(Different levels of mind)

The five cittabhūmis described by Vyāsa's Bhāṣya of Patañjali's Yogadaśana are: 1) kṣipta (craving); it is a state in which the mind is greatly attached by the objects of senses, 2) mūḍha (forgetful); in this state there is a tendency towards, vice, ignorance, excessive sleep and the like, 3) vikṣipta (distracted); this makes for virtue, knowledge,

etc., 4) ekāgra (concentrated); this is a state where the mind is purged of impurities and there is prolonged concentration and 5) niruddha (restrained); this is the state where all the mental functions cease and the mind is left in its original unmodified state of calmness and tranquility.

The last two states i.e. ekāgra and niruddha are found in mentally sound and healthy persons. The remaining three represent inferior mental states (Singh R.H., 1986). The various psychiatric illnesses originate in mūḍha and kṣipta state of mind. The kṣipta, mūḍha, vikṣipta, ekāgra and niruddha states represent the performance of rajas, tamas, rajas-tamas, sattva and only sattva guṇa, respectively. The state of complete cessation (niruddha - samādhi) of these vṛttis has been considered to be the state of yoga⁸.

Mind is the course of human personality and yoga is the technique like meditative āsanās of developing personality. Personality is divided into five levels, which are mentioned above as cittabhūmi.

On the basis of their state of mind people are advised to follow yoga. One can slowly, but steadily develop his mental stamina and arrive at a state of concentration or niruddha citta (samādhi) through proper yogic technique. Practice of yoga reduces the stress i.e. by the practice of yoga one can attain the mokṣa (salvation), process of increasing sattva and decreasing rajas and tamas, that may cause to karmaṣaya (loss of deeds), is the way of attaining mokṣa⁹.

Stress is supposed to be a major causating factor of mental illness. Yogic relaxation is the means for getting free from stress. There are

various types of relaxation procedures are advised.

Pratyātma cikitsa

(Interpersonal psychotherapy)

āyurveda emphasizes that every individual is different in its psychosomatic constitution (deha prakṛti), psychic personality (mānasika prakṛti), deśa (habitat), kāla (time), vāya: (age) and pratyātmajīvanavṛtta (individual life situations). Therefore, every patient should be dealt as a separate individual and treatment decisions should be taken after considering all these factors, which make the individual unique and specific. Caraka specifies the individualistic therapy in the management of diseases in general and psychological problems in particular.¹⁰ It is a systematic and standardized treatment approach to relationship and life problems. It has now been adopted for treatment of longer duration and for different populations.

Pratyātma cikitsa is based on the assumption that the precipitating cause of many mental illnesses usually occurs in an interpersonal context. It focuses on improving the quality of the current interpersonal functioning of the patient by diagnosing and educating the patient about the particular mental illness and identifying problems associated with the onset of disorder. It generally focuses on patients' immediate social context, and attempts to intervene in the symptoms formation and social functioning problems associated with mental illness rather than on enduring aspects of personality.

Pratidvanda cikitsa

(Replacement of emotions)

Replacement of opposite emotions (viz. kāma for kṛodha) is one of the approaches of

psychotherapy (sattvāvajaya) in āyurveda. In the case of mental derangements resulting from an excess of desires, grief, delight, envy or greed, etc. should be allayed by bringing the influence of opposite contras, to bear on the prevailing one and neutralize it. Thus the desires (kāma) and emotional factors are to be allayed by bringing in the influence of anger (kṛodha); grief (śoka) by pleasure (haṛṣa) and likewise.¹¹

Āśvāsana (reassurance):- Reassurance relieves fears, boosts self confidence and promote hope in the patients. Under the āśvāsanacikitsa, the nature of the disease is explained to the patients freely and frankly, so that the patient develops insight into the disease. Further, he is made aware about the necessity of medication and taking treatment. Education about the disease should also be included the reasons for relapse of the disease, so that they could be prevented by adopting appropriate measures. It is also equally effective and applicable for treating physical diseases and their exacerbation.

Suḥṛtvākya (guidance): - Here, advice is given to the patients by his well wishers, friends or relatives on whom he has got the maximum faith. The focus is given on such fundamental matters as budgeting, personal hygiene and nutrition. Efforts are to be made to persuade the person to give up the unhealthy habits and replace them with healthy ones. Physician should explain the fundamental nature of the disturbance, importance of the change of attitudes and positive thinking based on an improved philosophy of life. Suggestion usually is given in conditions where there are more than two alternatives for a given situation and the person finds himself helpless to decide for or against a particular alternative. He is helped

to take the specific decision after analyzing the prevailing situations and circumstances.

Iṣṭavināśana: - It is a method of changing the thought process; or a verbal psychological shock therapy that includes changing the situation and environment of the patient. In this method, such a type of information is given to the patient, which can change the internal thought process and activities. It helps to bring back the normalcy in patient's behaviour. When the behaviour of the patient becomes normal, it means they are cured properly. They should also be rehabilitated at their level of intelligence and stamina; this will help them to live for long.

Manokṣobha cikitsa (Psycho-shock therapy): - āyurveda describes psycho-shock therapy elaborately. This is an important method of treatment that has also been included under sattvāvajaya cikitsa (Murti A.R.V. et al, 1987). āyurveda describes a number of methods of psycho-shock therapies for managing acute episodes of mental ailments and to restore the patients mind.

Intimidation or threatening (tṛasana), terrorization, coaxing, exhilaration (haṛṣaṇa), gratification, frightening and astonishing (vismāpana) are the causative factors of forgetfulness (vismaraṇa) and are the main ways to change the ideas and bring back mind to its original state from delusionary and psychotic state. Elaborate descriptions have been made regarding the methods of giving psycho-shock. Mental shock should be given to the patients by announcing the news of loss of his dearly loved objects. These may correct the mind by showing marvels. The patient may be applied mustard oil over body with tied hands and feet

and made to lie openly in the sun on his back or he may be touched with the bristles of cowage or lightly branded with hot irons or scalded with boiling water or oil.¹² They may be terrorized by means of snakes with removed fangs or by trained lions and elephants or foremen with weapons in their hands, or men impersonating as the king's officers dragging him out securely bound, intimidating him with threats of immediate execution by order of the king. These methods will produce physical pain and mental shock, which may bring tranquility and normalcy to the deranged mind. It is based on the presumption that if the patient is put in a state of shock, by the fear of death, he regains his past memory and is thus cured. In principle, this is very similar to shock therapy as practiced in modern psychiatry under Electro-convulsive Treatment (ECT).

Conclusion

Sattvāvajaya cikitsa is the fundamental approach of āyurveda for treating psychiatric and psychosomatic problems; as all the diseases are associated with some form of stress, this approach can be placed on broader footings, for selective cure in case of physical diseases also where patients need reassurance, etc. This therapy involves several dimensions, many of them have been discussed in this article, but many references are available in āyurvedic classics and ancient Indian literature which need to be explored and practically utilized to provide new leads in the psychiatric care to the present world.

References:

1. Carakasamhita, Sūtrasthānam 1/42
2. Ibid 11/54

3. मानसं प्रति भैषज्यं त्रिवर्गस्यान्ववेक्षणम् ।
तद्विद्यसेवा विज्ञानमात्मादीनां च सर्वशः ॥
(च. सू. ११/४७)
धीधैर्यात्मादि विज्ञानं मनोदोषौषधं परम् – अ.ह.
4. प्रशाम्यत्यौषधैः पूर्वो दैवयुक्तिव्यपाश्रयैः ।
मानसो ज्ञानविज्ञानधैर्यस्मृतिसमाधिभिः ॥
(च. सू. १/५८)
5. Carakasamhita, Śārīrasthānam 3/31
6. योगाश्च चित्तवृत्ति निरोधः (प.यो. सू. १/२)
7. Bhagavatgīta 14:5, 19
8. Yogasūtra 1/2
9. Carakasamhita, Śārīrasthānam 1/137, 14/2
10. पुरुषं पुरुषं वीक्ष्य....। (च. सू. १/१२३)
11. कामशोकभयक्रोधहर्षेर्ष्यालोभसंभवान् ।
परस्परप्रतिद्वन्द्वैरिभिरिव शमं नयेत् ॥
(च. चि. ९/८६)
12. Carakasamhita, Cikitsāsthānam, 9/80.

Bibliography:

1. Ahuja Niraj, *A short text book of Psychiatry*, 5th Edn., 2002
2. Baranawal Shekher and Singh, R.H., *A clinical study on the Ayurvedic Management of depressive illness*, 2000.
3. Sharma, R. K. and Bhagavan Dash, V., *Caraka Samhita* (Eng. Translation), Vol. I., Chowkhamba Sanskrit Series Office, Varanasi, 1976.
4. Ibid - Vol. II, 1977.
5. Ibid - Vol. III, 1988
6. Chandre Rajni, Singh R. H. and Narasimha Murthy, K.H.H.V.S.S., *Therapeutic*

- evaluation of Nasya Karma and Ayurvedic Drugs / Medicated Ghrita in the cases of depressive illness, 2004.*
7. Gupta Sheelendra, Singh, R. H., *A clinical study of depressive illness and its Ayurvedic Management*, 2001.
 8. Bloch, S., *Supportive Psychotherapy: An introduction to the Psychotherapies*, Oxford University Press, Oxford, 1979.
 9. Shukla Punam Rani, *Supportive Psychotherapy in stress related diseases -* report submitted to teachers re-orientation training programme held at Department of Kāyacikitsa, Faculty of āyurveda, IMS, BHU. 2000.
 10. Singh, R.H., *Ayurvediya Manasa Vignana*, Chaukamba Amarabarati Prakasan, Varanasi, 1986.
 11. Hearold I. Kaplan, Benjamin J. Sadock and Jack A Grebb, *Synopsis of Psychiatry - Behavioural Sciences Clinical Psychiatry*, B.I. Waverly Pvt. Ltd., New Delhi, 1994.

CORRIGENDUM

Vol. XIX., No.2

HEALTH THROUGH SELF-REGULATION - AN INSIGHT THROUGH AYURVEDA

Madhabendra Nath Pal

Page 120

Conduct of mind

A patient introspection would reveal that one may become a spring of endless energy if he conducts his mind in such manner that it brings all the beck and call, like a disciplined soldier; the mind, tickled by nature almost all the time, moves to and fro from one object to other.

The above should be read as follows:

A patient introspection would reveal that one may become a spring of endless energy if one conducts one's mind in such a manner as may bring it at one's beck and call, like a disciplined soldier. Mind, fickle by nature, almost all the time, moves to and fro from one object to other.

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References No. 1, 2 and 8

Instead of Mahendra Nath Pal, it should be read as Madhabendra Nath Pal.

EFFICACY OF ERAᅇDATAILA KALPA AND VIRECANAKARMA ON ĀMAVĀTA - A COMPARATIVE STUDY

Suman Navin Chandra, J.P. Chaurasia and U.S Nigam*

Abstract: Āmavāta is a disease symptomatically near to Rheumatoid Arthritis. The prolonged intake of modern medicines such as Acetaminophen, NSAIDs and Cox-2 inhibitors for the symptomatic management and pain, brings about side effects including renal toxicity. This paper comparatively evaluates the efficacy of Eraᅇdataila (castor oil) kalpa and Virecanakarᅇma in the management of āmavāta.

Introduction

Dietary fatty acid composition is important for the prevention of the chronic disease. Results of epidemiological research shows that one who takes diets rich in fish oils have lower incidence of cardiovascular disease. It has been shown that eicosapentaenoic (EPA) is the main component in fish oil that provides such protective benefits.⁴⁻⁶ EPA an eicosanoid precursor, and docahexaenoic acid (DHA) are omega3 polyunsaturated fatty acids. Epidemiological and clinical research indicates that individuals suffering from āmavata show symptomatic similarity with rheumatoid arthritis (RA). EPA and DHA supplementation also provide benefits in this crippling disease. It has been observed that Eraᅇdataila (medicated castor oil) also has a similar constitution of Ricinoleic acid (Hydroxy-octa-dexgenoic acid). There are references to Eraᅇdataila and

virecana karᅇma for the management of āmavāta in the āyurvedic classics like Gadanigraha.^{7,8}

Materials and methods

Two medical clinics were enlisted for this study in Government Dhanvantari āyurveda College and Hospital, Ujjain (M.P.) India. Total 45 patients were selected according to the diagnostic criteria laid down by ARA (1988) and the symptoms described in āyurvedic classics.

Patients were randomly categorized in two groups i.e. A & B; and 5 ml of medicated Eraᅇdataila with lukewarm water was administered to the patients of group A throughout the assessment of koᅇᅇᅇa and sāmanirāma. The dose was gradually increased up to a maximum dose when 5-6 motions appeared and then the dose gradually decreased. Total duration of treatment was 21 days. The patients

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of group B were administered virecana karma as per classical method. Trikaṭucūrṇa was given to patients of both the groups having symptoms of āma.

Clinical assessment

The assessment of clinical signs and symptoms were based on the following:

Pain

No pain - 0 point; mild pain of bearable nature that comes occasionally - 1 point; moderate pain but no difficulty in joint movement, appears frequently and requires some measures for relief - 2 points; slight difficulty in joint movements due to severe pain requires some medications and remain throughout day - 3 points; more difficulty in moving the joints and pain is severe, disturbing and requires analgesics - 4 points.

Swelling

No swelling - 0 point; slight swelling - 1 point; moderate swelling - 2 points; severe swelling - 3 points.

Stiffness

No stiffness or stiffness lasting for 5 minutes - 0 point; stiffness lasting for 5 minutes to 2 hours - 1 point; stiffness lasting for 2 to 8 hours - 2 points; stiffness lasting for more than 8 hours - 3 points.

Tenderness

No tenderness - 0 point; subjective experience of tenderness - 1 point; wincing of face on pressure - 2 points; wincing of face with withdrawal of affected part on pressure - 3 points; resists to touch - 4 points.

Redness

Redness observed before treatment - 2 points; reduction in redness after treatment - 1 point;

no redness - 0 point; no change after treatment - 2 points.

Warmth

Raised temperature compare to normal body surface - 2 points; fall in local warmth - 1 point; normal temperature - 0 point; no change after treatment - 2 points.

Assessment of general symptoms

Aṅgamaṛḍa, aruci, tṛṣṇa, ālasya, gaurava, jvara, apāka and aṅgaśūnata were scored as symptoms observed before treatment - 2 points; some relief after treatment - 1 point; complete relief after treatment - 0 point; no relief after treatment - 2 points.

Periodical functional tests like walking-time, grip-strength, foot-pressure and general functional capacity were carried out for objective assessment of the improvement.

TABLE 1
Effect on cardinal symptoms

Cardinal symptoms	% of change in mean + SD*	P value
Group A:		
- Pain	43.5 + 0.57	<0.001
- Swelling	50.0 + 0.35	<0.001
- Stiffness	51.2 + 0.41	<0.001
- Tenderness	37.5 + 0.57	<0.001
- Redness	50.0 + 0.27	>0.05
- Warmth	50.0 + 0.56	<0.01
Group B:		
- Pain	83.7 + 0.70	<0.001
- Swelling	88.5 + 0.75	<0.001
- Stiffness	93.75 + 0.60	<0.001
- Tenderness	61.5 + 0.55	<0.001
- Redness	50.0 + 0.22	>0.05
- Warmth	60.0 + 0.57	<0.02

*Group A (n=25), Group B - (n=20)

Degree of disease activity for diagnostic and therapeutic purpose was estimated on the basis of criteria laid down by ARA (1967); overall assessment of therapy was also assessed by the same criteria. Statistical analysis was done by applying student 't' test.

Result and discussion

The improvement in joints pain shows statistically significant result ($p < 0.001$) in both groups. The same results were observed for joint swelling, joint stiffness and joint tenderness. Improvement in joint redness was statistically insignificant ($p > 0.05$) in both the groups. With regard to joint warmth the result was significant at 1 % and 2% level for group

TABLE 2
Effect on general symptoms

General symptoms	% of Improvement	
	Group A	Group A
1. Aṅgamarda	52.5	78.5
2. Aruci	60.0	50.0
3. Tṛṣṇa	62.5	75.0
4. Ālasya	54.2	80.5
5. Gaurava	44.7	61.1
6. Jvara	60.0	68.75
7. Apāka	54.0	71.4
8. Aṅgaśūnata	43.7	46.8

TABLE 3
Effect on functional parameters

Functional parameter	% of Change	
	Group A (n=25)	Group B (n=20)
Walking time	7.5 + 3.48	83.7 + 0.70
Grip strength	9.7 + 3.42	88.5 + 0.75
Foot pressure	11.5 + 1.34	93.75 + 0.60
Disability index	57.4 + 0.58	61.5 + 0.55

Mean + SD; $p < 0.001$

TABLE 4
Comparison of result in general symptoms

Group	Mean Score		% Change	+ S.D	+ S.E	t_7
	BT	AT				
A	1.39	0.66	52.5	0.20	0.07	10.35
B	1.37	0.45	67.15	0.29	0.10	9.25

$p < 0.001$

TABLE 5
Comparison of effect on disease activity

Group	Mean Score		% Change	+ S.D	+ S.E	t
	BT	AT				
A	1.56	0.81	48.0	0.23	0.47	15.2*
B	1.71	0.78	54.3	0.35	0.08	9.75**

$p < 0.001$ * t_{24} ** t_{19}

A and B respectively. Effect of therapies on functional parameters shows statistically significant result ($p < 0.001$) in both the groups; the same result was observed on disease activity also (Tables 1-5).

The overall effect of therapies shows that none of the patient got complete remission in both groups. But major improvement of 55% and 4 % was observed in group B and group A respectively. Minor improvement was 52% and 45% in group B and group A respectively; 44% were unimproved in group A.

From the above study it is clear that both Eraṇḍatailakalpa cikitsa and virecanakaṛma shows good relief in āmavāta. Virecankaṛma found more efficacious in comparison to Eraṇḍatailakalpa. Eraṇḍatailakalpa is proved as a good analgesic, anti-inflammatory and immuno-modulator and after mūrcaṅkaṛma the pharmacological properties are probably

enhanced. It may be subjected to future research in large samples.

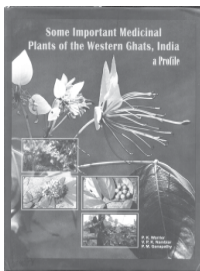
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References

1. Wilcox C.M. *et al.*, *Striking prevalence of over-the-counter NSAID used in patients with upper GI hemorrhage*, Arch. Intern. Med., 15: pp42-45, 1994.
2. Clive, D.M. and Stoff, J.S., *Renal syndromes associated with NSAID*, N. Engl. J. Med., 310; pp563-72, 1984.
3. Brandt K., *NSAID and articular cartilage*, Rheumatol, 14 Suppl., pp132-33, 1987.
4. Kremer J. M. *et al.*, *Fish oil fatty acid supplementation in active RA*, Ann. Inter Med., 106: pp497-503, 1987.
5. Kremer J.M. and Bigauoette *et al*, *Effects of manipulation of dietary fatty acid on clinical manifestations of RA*, Lancet, 1: pp184-87, 1985.
6. Kremer J.M., *N-3 Fatty acid supplements in RA*, Am. J. Clin., Nutr., 71 Suppl., 3: pp495-515, 2000.
7. Sharma, P. V., *Cakradutta* (Cakrapanidutta) 166, Chaukhambha Sanskrit series, Varanasi, India.
8. Tripathi, Indra Dev, *Gadanigraha : Ausadhikalpadhikara*, pp327-328, Chaukhamba Bhartiya Academy, Varanasi, India.

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PUṬA - THE QUANTUM OF HEAT

Swapna S. Reddy and Anand Kumar Chaudhary*

Abstract: The concept of puṭa has been very well defined in āyurveda. It is to convert metals, minerals, mercury, etc. into man-friendly, health promoting and health maintaining drugs. This paper briefly discusses different types of puṭas and their features; frequency for various materials, etc. are also dealt with.

Introduction

In the medieval period, when many new diseases turned out due to the changes in life style, man felt the need of new medicines than herbals. Then the introduction of rasa (mercury), minerals and metals was taking place for dehavada, and the invention of a method for their conversion pharmaco-therapeutically to make them man-friendly, came out and it is called puṭa.

The concept of puṭa has been very well defined in āyurvedic classics. It is the quantum of heat specifying the pāka (conversion) of dravyas like rasa, etc; it should neither be too much nor too little, but an exact quantum of heat is required for good medicinal preparation¹. According to Rasatarāṅgiṇi, it is the measurement of heat of pāka of the rasa, uparasa, loha, etc. by using the source of combustion (fuel) as lepalas².

These definitions indicate the exact quantum of energy required to convert the metal or mineral into a pharmaco-therapeutically useful

form. It was somewhere around 7th century that Nāgārjuna declared the significance of rasa for eradicating the diseases from this world³.

The progress of puṭa is slow and study depending on metals and minerals used. The prime base of our śāstras is on practical experiences. In those days, the chief source of energy was cow dung, and the cow dung cakes were used as the standard fuel. Number of cow dung cakes and the dimension of pit formed the puṭa in which incineration was done to convert various metals and minerals. The dimension of the pit and the number of cow dung cakes were varied according to the metals/minerals i.e. it varied according to the hardness and chemical form of the materials, and various chemical and physical properties present and required.

Classification

Based on the practical experiences, our ācāryas of Rasaśāstra have been classified puṭas according to their shape, dimension, etc. for the pharmaco-therapeutic transformation of

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various substances (Table 1). Also, there are descriptions viz. ar̥dhagajapuṭa (for abhṛaka, kāmsya, vaṅga), kapotapuṭa (for śilājī, haratāla), lāvakuṭa (for mṛḍu dravyas) candrapuṭa (for pṛavaḷa) and sūryapuṭa (for lauha) in the āyurvedic classics. The different types and frequency of classical puṭas for various materials have been referred to in Rasaratnasamuccayam (Table 2).

Puṭa vs Electric muffle furnace (EMF)

In the modern science and technology, when puṭa is started being given its place, it came from the gajapuṭa put into Electric Muffle Furnace that found comfortable owing to various aspects like no labour, easy operation, well regulated apparatus, etc. But the problem

comes when the temperature regulation in classical puṭa is not understood properly. To work out a modern apparatus like EMF, it is necessary to keep in mind the every aspects of a classical puṭa including the svāṅgaśīta pattern and safety from the poisonous gases evolving from it. It seems more of trial and error methods are required for us to reach a perfect muffle furnace equating our classical puṭas.

Muffle furnaces are very useful in materials like sukṭi, śaṅkha, etc., but in the cases of substances like tāmṛa that requires a definite temperature pattern (which at present is found to be given only by typical classical puṭa), the problem arises. Technology needs to be implemented more perfectly keeping the every aspects of our classical science in mind.

TABLE 1

Classification of puṭas, their dimension, total number of upala, maximum temperature, etc.

Name of puṭa	Dimensions		Total No. of upalas	Max. Temp. (in hours)	SSK* (in hrs)	Metals/Minerals incinerated
	Classical	Metric (in cm)				
Mahāpuṭa	(2 hasta) ³	91 ³	1500	1000°C (hr)	10	Tāmṛa, parāda, svaṛṇa, hīraka
Gajapuṭa	(1 rājahasta) ³	57 ³	1000	1000°C (hr)	10	Pārada, tāmṛa, ṭṛivaṅga
Kukkuṭapuṭa	(2 Vitasti) ³	46 ³	100	1000°C (½ hr)	7	Pārada, svaṛṇa, lauha, tūttha
Varāhapuṭa	(1 Aratni) ³	42 ³	500	1000°C (½ hr)	6	Abhṛaka, tāmṛa, svaṛṇamākṣika
Laghupuṭa	8 Upala	23 ³	8	800°C (½ hr)	3.5	Abhṛaka, svaṛṇa, rajata
Bhudharapuṭa	-	20 ³	-	140°C (½ hr)	9	Pārada, somala
Goṛbarapuṭa	(1 Vitasti) ³ Height	23 ³	Upala cūṛṇa	400°C (4 hrs)	23	Pārada bhasma
Bhandapuṭa	Bṛhat Bhanda	1700 ³	-	400°C (8 hrs)	28	Haratāla, somala
Vālukapuṭa	Bṛhat Bhanda	17000 ³	-	400°C (8 hrs)	28	Pittala, Haratāla, Somala

*SSK = Svāṅga Śīta Kāla (self cooling period)

Generally, the procedure of puṭas are divided into nine steps i.e. 1) collection of raw material (proper), 2) śodhana, 3) cūrṇīkaraṇa, 4) bhāvana, 5) cākṛika formation, 6) sampuṭīkaraṇa, 7) puṭa, 8) svāṅgaśītīkaraṇa (self cooling period) and 9) collection and test of final product.

TABLE 2
Type and frequency of puṭa for various materials

Name	Puṭa	Frequency of puṭa	Reference (RRS)*
Abhraka	Arđhagajapuṭa	28	2/16-20
	Gajapuṭa	10	2/22
	-	60	2/23
	Gajapuṭa	20	2/24-25
	Paṭrapuṭa	3	2/26-28
Vaikranta	Gajapuṭa	8	2/67
Māksika	Varāhapuṭa	5	2/84
Vimala	Gajapuṭa	10	2/100
Śilājatu	8 Upala	1	2/119
Sasyak	Kukkuṭapuṭa	3	2/131
Haratala	10 Upala	12	3/74
	-	10	5/15-17
	-	12	5/15-17
Svarṇa	-	8	5/15-17
	-	12	5/34-35
	-	30	5/36
Rajat	30 Upala	14	5/38-39
	-	3	5/53
Tāmra	-	3	5/53
	Gajapuṭa	4	5/105
	Gajapuṭa	20	5/109-112
	Gajapuṭa	40	6/113-115
Lauha	Gajapuṭa	30	5/116
	-	4	5/159
Vaṅga	Laghupuṭa	4	5/159
	Laghupuṭa	4	5/161
Nāga	Laghupuṭa	60	5/181-183
	-	10	5/184

* *Rasaratnasamuchayam*

Raw material standardization: - It indicates the quality of final product formed. Typical classical properties need to be considered, for many of Rasaśāstra drugs are still controversial.

Śodhana: - This is a very wide area wherein the things happen to the raw material are: purification of material both physically and chemically, microfication, reduction of hardness and importing all physical and chemical properties for final drug preparation. Proper process standardization is required to give the same standard product. Śodhana process may also be repeated for a standard product in some cases.

Cūrṇīkaraṇa: - This is powdering of the material to expose it to bhāvana dravya by increasing its surface area.

Bhāvana: - It is trituration or impregnation. Here, the exact quantity of liquid required pressure, time and method necessary to get the required properties of bhāvana specified in classics needs are to be standardized. Another concept in bhāvana is that nirīndriya dravyas turn into sendriya dravya by adding sendriya dravyas; this implies towards the concept of impregnation of micronutrients.

Cākṛika formation (penetisation): - The size, shape and amount of substance to prepare the pellets needs standardization. The proper heat exposure to the pellets is essential for a required final product. It is essential for analyzing chemically and physically for the final product.

Sampuṭīkaraṇa: - The shape and size of the sampuṭa for the convenience of the procedure as well the exposure of heat uniformly and formation of proper final material need to be standardized. The material used for sampuṭa should be inert, economical as well as strong and convenient for use. Sandhibandhan of the sampuṭas is required in some cases and this

signifies the exposure of air during reactions. This needs to be analyzed and standardized. The best sampuṭa as of now is earthen sampuṭa which is inert, economical and provide controlled heat as well. Inside the sampuṭa the redox reaction takes place at specific temperature, pressure, volume, etc. which are exactly the requirements for the formation of the final product.

Puṭa : - This is the step where the main process of transformation takes place. Our ācāryas opted pits and cow dung cakes to make the puṭa according to availability and convenience. What actually required is exact temperature pattern i.e. exact quantum of energy required for transformation. And so, puṭa may be replaced by modern technology wherein the classical end product would not be compromised.

Svāṅgaśītīkaraṇa : - This is the stage in which the product formed is given sufficient time for self-cooling for attaining the stability.

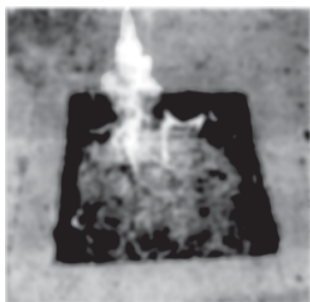
Collection and test of final product : - The classical properties of the final product should be verified and established chemically by the methods like Electron Spectroscopic Chemical

Analysis (ESCA) to form a definite standard properties viz. a) rekhāpūrṇata, b) vāritarata, c) apunaṛbhava, d) nischandratva, etc. After collection, powdering is essential to make the bhasma bio-available; the principle may be explained as making the bhasma in suitable dosage forms for better absorption in human physiology.

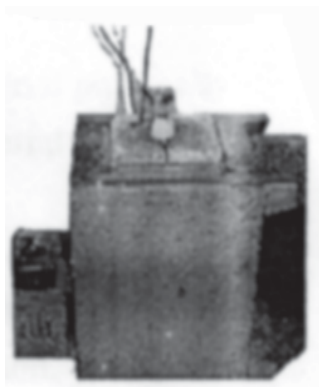
Discussion

The entire business of puṭa stands on 'thermochemistry', may be the modern terminology for the classical puṭa. Hess's law of thermochemistry states: "total heat of reaction is constant no matter whether the reaction is allowed to take place directly or in stages. In other words, the heat of reaction depends only on initial and final steps." Indicating that whatever may be the process when the final product and initial raw material are, the energy transaction will be the same; it denotes the validity of the huge number of processes told in Rasaśāstra to prepare (a single) final product.

The typical signs of good bhasma denote something very specific. The particle size (10^6), which is very significant for absorption and



Classical puṭa



Vertical EMF



Horizontal EMF

increase in cell permeability, is always indicated by rekhāpūrṇata and vāitarata. The chemical form of a bhasma is indicated by its colour, which can be explained by Myo theory of colour that signifies specific chemical form for specific colour. There are specific tests for specific bhasmas to know whether they are pharmaco-therapeutically converted or not; for e.g., the toxicity test (curd test) of tāmṛa bhasma. According to which, the black tāmṛa bhasma when put into curd, converts into blue copper sulphate; which means it is toxic.

All these points signify the action of basma at the level of cell, it forms as a chemical entity yet to be analyzed, microfined something at the level of nano technology wherein a hypothesis can always be made that the particles of bhasmas form a nano suspensions in the gastro-intestinal tract before absorption and in cell after cell absorption.

To study the action of basma, nano technology i.e. the quantum dots, may be implanted on to the bhasma particles, analyzing the physiological travel of bhasma in the body. And so bhasma, which is the outcome of puṭa, can be very well understood by nano-technology and so also puṭa itself by thermochemistry.

Bhasmas that are the outcome of puṭas, signify specific properties owing to the specific elements present in them; this indicates the micronutrients that play chief role in many reactions, enzymes, proteins and structure and function of the body.

Conclusion

The business of heat, thermodynamics needs

to be well understood to get a puṭa equal to classical puṭa in terms of quality of bhasma obtained; this can be very well explained by the theories of nano-technology and nano-suspension. Puṭa, literally means the conversion, implies the entire thermodynamic processes; and a lot more of scientific and technological experiments are required in this regard for its better understanding.

References:

1. रसादि द्रव्यपाकानां प्रमाणज्ञापनं पुटम् ।
नेष्टो न्यूनाधिकः पाकः सुपाकं हितमौषधम् ॥
- रसरत्नसमुच्चयः १०/५०
2. रसोपरसलोहादेः पाकमानप्रमापकम् ।
उत्पलध्यग्निसंयोगात् यत्तदत्र पुटम् स्मृतम् ॥
- रसरत्नसमुच्चयः ३/३२
3. सिद्धे रसे करिष्यामि निदारिद्र्यं गदं जगत् ।

Bibliography

1. Vāgbhaṭa, *Rasaratnasamuccaya*, Kulkarni D.A., Hindi commentary, Meharchand Laxmandas Publication, New Delhi, 1998.
2. Sadananda Sharma, *Rasatarāṅgiṇi*, edited by Kashinath Shastry, 11th Edn., Motilal Banarasidas, Varanasi, 1989.
3. Deepali R. Korde *et al*, *A pharmaceutical standardization of Abhraka Bhasma (Evaluation of effect of different number of Putas in its single preparatory method)* (M. D. thesis), Jamnagar, 2003.
4. Bahl, B.S., Arun Hahl and Tuli, G.D., *Essentials of physical chemistry*, S. Chand and Company, New Delhi, 2005.

CONCEPT OF TAKṚABASTI

Santosh N. Belavadi*

Abstract: Basti (enema) prepared with takṛa (buttermilk) is known as takṛabasti. Takṛa has got high medicinal values. It is indicated in disorders like atisāra, pravāhika, grahaṇi, aṛśas, kṛmi, etc. This article attempts to highlight the properties, types, importance and nutritive values of takṛa; its indications in different ailments, preparation and administration of takṛabasti, references, probable mode of action, pathyāpathya, etc. are also dealt with.

Introduction

Agni (the digestive fire) plays an important role in the body to lead a normal life. According to Vāgbhaṭa, there are a number of diseases caused merely by deranged digestive fire (agniduṣṭi)¹. In the present time, unwholesome food habits and changes in life style cause mental disturbances like anxiety, grief, fear, anger, lassitude, etc. which lead to many disorders like atisāra, pravāhika, grahaṇi, aṛśas, etc. Here, indigestion (agnimāndya) plays a major role in manifesting such disorders.

Buttermilk (takṛa) is said to be the ambrosia of earth (bhūloka amṛta) and it is taken as a drink, with food, as an additive, etc. Takṛa has got high medicinal value. It is indicated in the above mentioned disorders. Takṛa can be given in two ways i.e. through anus (gudamārga) and mouth (mukhamārga); the former is said to have an added effect, for the absorption will be more compared to the latter. Basti prepared with takṛa is known as takṛabasti.

Properties: - The properties of takṛa are astringent, sour and sweet in taste; light, rough, spreading and dense in property; hot in potency and sweet in after-digestive taste.

Doṣāghnata:- It alleviates three doṣas, mainly kapha-vāta. Though it is sour, it won't aggravate pitta and it is ameliorative of pitta due to its sweet post-digestive taste. It aggravates kapha due to its percolating property; however, it does pacify kapha due to its astringent taste, hot potency, spreading and rough properties. It may aggravate vāta due to its astringent taste and roughness, but its sweet and sour taste and denseness pacify vāta².

Kāṛmikata:- It is constipating, digestive, aphrodisiac, pleasing, anthelmintic and cardi tonic in action.

Rogaṅghnata: - It is indicated in atisāra, medoroga, pravahika, prameha, grahani, udararoga, arsa, svitra, aruci, kosthagataroga, kṛmi, sotha, panduroga, gulma, mutrakṛcha and parinamasula.

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Varieties of buttermilk (takṛabheda): - Ghola, mathita, takṛa, udhvaśvit, chacchikā and svacchā are the varieties of takṛa³. Takṛa from which sneha is completely removed is called rūkṣa; takṛa from which half of the sneha is removed is called arḍdhodhṛta, and takṛa from which no sneha is removed is anuddhṛta^{3a}.

Takṛabasti

There is no direct reference to takṛabasti but some cross-references are available in our classics. Caraka explains takṛa as bastidrava in sourgroups (amḷaskanda), which is one among the six oil-enema group (ṣaḍāsthāpana skanda)⁴. In Anuktabasti kalpana, it is described that if basti is not mentioned by considering the drugs, which are capable of curing the disease of the respective disorder, any medicine, which is suitable for basti preparation, can be used; hence takṛa is used⁵. Takṛa is explained as a drink, with food, an additive, etc. in diseases like grahaṇi, atisāra, pravāhika, aṛśas, etc. The drug administered through the oral route is absorbed and much of it is activated in the liver and reaches the systemic circulation; the drug given through rectal route may act locally or systemically after getting absorbed through the mucus membrane⁶. A sagacious physician who knows the disease (roga), digestive power (agni), medicine (auśadha), body strength (bala), nature (prakṛti), etc. of the patient can do wonders with the available potential medicines; he should not hesitate to do any treatment, which is effectual to the patient⁷. Both takṛa and basti are indicated in grahaṇiroga, hence takṛabasti is recommended in this disease. So, takṛa in the form of basti is to be administered in the yogabasti pattern which contains 5 oil enema (anuvāsanabasti) and 3 decoction enema (nirūhabasti).

Preparation

Preparation of fresh buttermilk: - Boil ¼th liter of cow's milk and remove the cream formed; when it is cooled, add a little amount of curd and allow it to ferment. In the next morning, churn well this curd added with ¼th of water. Remove the butter, and filter the buttermilk⁸.

Preparation of bastidrava: - The following dravyas are to be mixed and churned well in the order⁹.

• Madhu	35 ml
• Saindhava (lavana)	1 pinch
• Cāngeryādi (ghṛta)	70 ml
• Pūtoyavānyādi (kalka)	15 g
• Freshly prepared takṛa	400 ml

The above dravyas are to be mixed as in the case of nirūhavasti preparation. Here, Cāngeryādi ghṛta is selected as snehadravya explained in the Grahaṇicikitsa. Vāgbhaṭa says that if kalka dravya is not mentioned then pūtoyavānyādi cūrṇa must be selected. Here, freshly prepared takṛa is taken in the place of decoction. The total quantity of bastidrava is about 530 ml (48 tola).

Administration

Here, the type of basti preferred is yogabasti that contains 3 nirūhabasti and 5 anuvāsanabasti. Generally, the procedure and administration of takṛabasti is explained under the three headings viz. pre, principal and post procedures (pūrvakaṛma, pradhāna kaṛma and paścātkaṛma).

Pūrvakaṛma (nirūhabasti): - Nirūhabasti is to be administered from the second day of the course. The preparation of bastidrava is as follows:

Mix 35 ml of madhu with 1 pinch of saindhava and add 70 ml of cāngeryādi ghṛta; add 15g of Pūtoyavānyādi kalka and 400 ml of takṛa

and mix well. Then filter the contents and fill the enema-can in lukewarm condition. The patient is advised not to take any food. He is advised to attend to the natural urges. Then carry out unctio using Kṣīrabalataila and sudation, and make the patient lie in the left lateral position i.e. position suitable for administering bastikaṛma.

Pradhānakaṛma: - First of all, lubricate the anal region and the catheter attached to the enema-can, and advise the patient to breathe deeply. Then administer the bastidrava through the catheter and observe its returning.

Paścātkaṛma: - It is to be carried out in a similar way i.e. anuvasanabasti. Intake of light food (laghu bhojana) is advised after evacuation of the bastidrava.

Pūrvakaṛma (anuvasanabasti): - Here, the patient is instructed to take light food, walk for about 100 steps and to attend to the natural urges. Unctio with Kṣīrabalataila and sudation on abdomen, sacral region, buttocks, etc. are to be done.

Pradhānakaṛma: - Take 70 ml of liquified Cāṅgeryādi ghr̥ta heated in lukewarm water into the basti syringe connected with a rubber catheter (No. 12). Advise the patient to keep left lateral position with his left leg extended and right leg flexed resting on the left knee with his head supported by his left hand. Lubricate the anal region and the tip of the rubber catheter with a cotton swab dipped in Cāṅgeryādi ghr̥ta and introduce the catheter into the rectum parallel to the spinal cord. Then, gradually push the ghr̥ta into the rectum until a small quantity is retained inside the syringe; this is done to prevent the entry of air into rectum and colon. While introducing the ghr̥ta, instruct the patient to take deep breath and

remain relaxed. After removing the catheter, direct the patient to lie down in supine position.

Paścātkaṛma: - Massage the patient's abdomen gently from left to right i.e. in anti-clockwise direction; pat the buttocks gently and advise the patient to lift both his legs gently without bending the knees 4 times. After this, remove the pillow from his buttock and advise him to remain in the same position, and observe the returning of bastidrava. After evacuation of the bowel, instruct the patient to take bath and then light food. If evacuation has not taken place after 4 hours, the patient is advised to take food. Anuvāsanabasti is to be given according to the description of yogabasti i.e. on 1st, 3rd, 5th, 7th and 8th day i.e. total of 5 anuvāsana as mentioned by Cakṛapāṇi.

Probable mode of action

During the procedure of basti, the patient is advised to lay in left lateral position as the rectum, small intestine and duodenum are situated on this position; they are the basic sites of digestive fire and, also it is known that the absorption in the proximal colon is better than that in the distal colon¹⁰. In grahaṇiroga, digestive fire is vitiated and the pathology is seen in grahaṇi avayava, and by administering takṛa basti in this posture, drava may reach grahaṇi avayava by its penetrating property, which may correct the pathology of grahaṇi avayava. Cakṛapāṇi also upholds this view¹¹.

According to Parāśara, rectum is the basic site of the body, and the bastidrava given through rectum is absorbed through the capillaries or raktavāhīnis first, and then circulated all over the body¹². The rectum has a rich blood and lymph supply. So the drug can cross the rectal mucosa easily. The portion absorbed from the upper rectal mucosa is carried by the superior haemorrhoidal vein into the portal circulation,

whereas that which is absorbed from the lower rectum enters directly into the systemic circulation via middle and inferior haemorrhoidal veins. The proper volume of bastidrava helps in producing mechanical or pressure effect. Takṛabastidrava can go deep into gastrointestinal tract and produce widespread effects and is useful in various motility disorders.

Action of takṛabasti is due to the penetrating capacity of bastidravyas. Cāngeryādi ghr̥ta, which is used as snehadravya in takṛabasti, is credited with digestive, carminative and constipating properties. In this way, the bastidrava that enters into the minute channels of the body and nourishes the tissues. Takṛa given through basti reaches grahaṇi and by its penetrating capacity acts as digestive, carminative, tonic, anthelmintic, constipating and vata-pacifying. This mode of treatment roots out the disease.

Basti is the main treatment for vātadoṣa, and the intestine is the main seat of vātadoṣa. Takṛabasti controls the vāta, which is situated in the intestine, which in turn controls the other varieties of vāta. The action of takṛabasti is more on samānavāyu and apānavāyu, because it has got direct contact with their respective regions. It is observed that samānavāyu possesses control over the other aspect of vayus as well as on other doṣas¹³. Takṛa administered by basti comes into direct contact with grahaṇi. Takṛabasti eliminates the doṣas by pacification and they are administered into the region of apānavāyu. Both apānavāyu and samānavāyu are involved in grahaṇiroga, Caraka says that if samānavṛta apānavāta (apānavāyu shrouded by samānavāyu) causes occlusion then grahaṇi roga manifests¹⁴.

Grahaṇi and digestive fire have a close relationship. Bastikaṛma is effectual for strengthening of digestive fire. This can be

achieved when takṛabasti is administered; takṛa given through basti promotes strength, digestive fire, intellect, voice, colour and gives the person a better and long life¹⁵. Takṛabasti may enrich the normal bacterial flora of the intestine, because takṛa contains lactobacillus acidophilus which promotes the growth of sarcorlytic flora and inhibits the growth of pathogenesis¹⁶.

The drugs used in bastikaṛma spreads all over the body from intestine due to their potency through the appropriate channel in the same way as water that is poured at the root of the tree reaches all parts of the tree by its own specific property¹⁷. According to Caraka, fear, anxiety, grief, anger, etc. lead to vitiation of digestive fire and cause indigestion¹⁸. This indicates the importance of the mind in the process of digestion. Stress alters intestinal motility, whereas acute stress alters the colonic motility. By giving takṛabasti, samānavāta and apānavāta get corrected and the digestive secretions and intestinal motility are brought back to normal.

Nutritive value of takṛa (per 100 g)*

1. Calories	36 kcal
2. Proteins	1.8 g
3. Fat	2 g
4. Carbohydrates	2.8 g
5. Calcium	0.07 g
6. Phosphorus	0.07 g
7. Iron	0.2 mg
8. Vitamin C	0.9 mg
9. Riboflavin	0.11 mg
10. Thiamine	0.03 mg
11. Nicotinic acid	0.1 mg
12. Vitamin A	102 IU

* Food & Nutrition by Dr. M. Swaminathan

Wholesome and unwholesome articles (Pathyāpathya)

Wholesome: - Purānaśali (old rice), ṣaṣṭikaśali (a variety of rice), dhānyaka (*Coriandrum sativum*), mudga (*Vigna radiata*), ādhaki (*Cajanus cajan*), maśura (*Lens culinaris*), eṇa māmsa (meat of musk-deer), tittiri māmsa (meat of partridge), lava māmsa (meat of hairy animals), cāngeri (*Oxalis corniculata*), kuṭaja (*Holarrhena pubescens*), mahānimbha (*Melia azedarach*), dāḍima (*Punica granatum*), kapitha (*Limonia accidissima*), bilva (*Aegle marmelos*), jatīphala (*Myristica fragrans*), haritaki (*Terminalia chebula*) jambu (*Syzygium cumini*), dadhi (curd), ghrta (ghee), ajadugdha (goat's milk), takṛa (buttermilk), madhu (honey), lājamanda (nocake/parched rice water), etc. are the pathyāhāras. Sleep, emesis, fasting, etc. are wholesome actions (vihāras).

Unwholesome: - Incompatible, heavy and fatty food and drinks. Kālaya (*Pisum sativum*), yava (*Hordeum vulgare*), māṣa (*Vigna mungo*), niṣpāva (*Lablab purpureus*), kūśmāṇḍa (*Benincasa hispida*), badara (*Ziziphus mauritiana*), drākṣa (*Vitis vinifera*), rasona (*Allium sativum*), etc. are the unwholesomes. Night vigil (rātrijāgaraṇa), sudation (svedana), sexual action (strīsaṅga), errhine (nasya), suppression of the urges (veganigraha), exertion (śrama), sunning (ātapasevana), etc. are the actions (vihāras).

Conclusion

- Grahaṇīroga is a disorder in which impairment of digestive fire is essentially seen.
- Buttermilk is said to be nectar and used in the form of drink, with food and as additive
- Takṛabasti is very effective in the

management of grahaṇīroga.

- The absorption is more faster when given through the rectal route
- Takṛabasti helps for easy recovery, sustained relief and inhibit the relapse.

References:

1. रोगः सर्वेऽपि मन्देऽग्रौः (वाग्भट)
2. Carakasamhita, Cikitsāsthānam, 15
3. घोलम् (ससरं निर्जलं घोलम्), मथितम् (मथितं त्वसरोदकम्), तक्रम् (तक्रं पादजलम्), उद्विश्वित् (प्रोक्तं उद्विश्वित्त्वं वारिकम्), छच्छिका (छच्छिका सारहीनास्याद्), स्वच्छा (स्वच्छा प्रचुरवारिका)
- भावप्रकाश
- 3a Carakasamhita, cikitsāsthānam, 14
4. Carakasamhita (Amḷaskanda), Vimānasthānam 8/140
5. Carakasamhita, Sidhisthānam 10/44-45
6. Pharmacology by Satoskar
7. Kaśyapasamhita, Khilāsthānam 8/55
8. Bhāvaprakāśa, Vol. I
9. माक्षिकं लवणं स्नेहं कल्कं क्वाथं इति क्रमात् ।
(अ. ह.)
10. Carakasamhita, Sidhisthānam, 3/25
11. सुखं ग्रहणि भावयति इति । (च. सि. ३/२४)
12. Ibid - 4
13. Carakasamhita, cikitsāsthānam, 28/8
14. Ibid - 28/205
15. Carakasamhita, Sidhisthānam, 1/27
16. Pharmacology, Satoskar.
17. Suśrutāsamhita, Cikitsāsthānam, 35/23-25
18. Carakasamhita, Vimānasthānam, 2/9

PHARMACOGNOSTICAL STUDIES ON LEAVES OF *COMMIPHORA CAUDATA* (WIGHT & ARN.) ENGLOR

S. Varadaraju *et al**

Abstract: *Commiphora caudata* (Wight & Arn.) Englor belongs to the family Burseraceae. It possesses antispasmodic, cytotoxic and hypothermic activity. In view of its medicinal importance a study on pharmacognostical characters including macroscopic, microscopic and leaf constant have been made and presented.

Introduction

Commiphora caudata (Wight & Arn.) Englor (Burseraceae) is an unarmed tree, distributed through peninsula, Sri Lanka and India. It is known as pachaikiluvai in Tamil, konda mamidi in Telugu, kandamavu in Karnataka, and the synonym of this plant is *Protium caudatum* (Wight & Arn.) Prodr. The plant has anti spasmodic, cytotoxic and hypothermic activity¹.

Materials and Methods

The plant specimen for the proposed study was collected from a rural area of Tiruchengode, Namakkal District of Tamil Nadu and it was identified by Botanical Survey of India, Southern circle, Coimbatore zone. The macro, micro and quantitative analysis were carried out. For anatomical work the required sample of leaf fixed in FAA (Formalin-5ml + Acetic acid-5ml +70% ethyl alcohol - 90 ml). After 24 hrs of fixing, the specimens were dehydrated with

graded series of tertiary-butyl alcohol². Infiltration of the specimens was carried by gradual addition of paraffin wax (melting point 58-60°C) until TBA solution attained supersaturation. The specimens were cast into paraffin blocks.

The paraffin-embedded specimens were sectioned with the help of Rotary Microtome. The thickness of the sections was 10-12 µm. The sections were stained with Toluidine blue³. Since Toluidine blue is a polychromatic stain, the staining results were remarkably good; and some cytochemical reactions were also obtained: The dye rendered pink colour to the cellulose walls, blue to the lignified cells, dark green to suberin, violet to the mucilage and blue to the protein bodies.

The vein islet number, vein termination number, stomatal index and stomatal frequency were calculated^{4,5}. Stomatal index and stomatal

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frequency were calculated using sample treated in 5% KOH solution. For determining stomatal index, fresh leaves were taken for counting the number of stomata and epidermal cells in sq. mm. Stomatal index value is then calculated by using the formula $\frac{E}{E+S} \times 100$, where E and S stand for the number of epidermal cells and number of stomata for unit area respectively. The vein islet and vein termination number were calculated using the sample treated with chlorinated soda for bleaching and finally treated with chloral hydrate solution. The number of vein islets and vein termination present within one sq. mm of cleared leaf, sample taken from five different leaves and average number was calculated.

Photographs of different magnifications were taken with Nikon Labphot 2 Microscopic Unit. Bright field was used for normal observations. Polarized light was employed for the study of crystals, starch grains and lignified cells. Since these structures have birefringent property, they appear bright against dark background under polarized light. Magnifications of the figures indicated by the scale bars. Descriptive terms of the anatomical features were as per the standard anatomy books^{6,7}.

Macroscopical characters

Leaf

Leaves are alternative, 3 to 7 foliolate. The leaflets opposite; upper surface dark green and lower surface light green in colour, mucilaginous taste, ovate or elliptic in shape, Length 4.5 cm to 6.5 cm, width 2.2 to 3.5 cm. Entire margin, acute-acuminate apex, slightly asymmetric base. Reticulate pinnate venation, glabrous, glossy above, sub glabrous below. Pedicle length 3.5

to 6.2 cm length; vertical dimension of petiole 2020 μ m - 2550 μ m, horizontal dimension 1540-1800 μ m and diameter of petiolule 1450-1600 μ m.

Microscopical characters

Midrib

Midrib is a broad hemispherical hump of the adaxial side and broadly convex on the abaxial side. It consists of parenchymatous ground tissue, two vascular bundles and wide secretory canals.

The ground parenchyma cells possess tannin bodies and calcium oxalate druses of the two vascular bundles, one is larger and median in position, and broadly arc-shaped; thin bundle is the median bundle; with adaxial accessory bundle. There are wide circular secretory canals in the phloem part of the vascular bundles. The vascular bundles are collateral, with broad zone of phloem. The xylem elements are not in regular radial rows; they are random in distribution (Fig 1a&b).

Lamina

The adaxial epidermal layer of circular or squarish epidermal cells with thin cuticle. The abaxial epidermis fairly thin with rectangular to cubical cells and stomatiferous. The palisade tissue consists of a single row of cylindrical cells. Spongy parenchyma is aerenchymatous with small lobed cells. Fairly large druses of calcium oxalate are abundant in the mesophyll tissue. The vascular bundle of the lateral vein also has wide, circular secretory canal (Fig 1c&d).

Petiole

It is semicircular with adaxial flat or slight concavity. The surface is even and smooth. The epidermis is thin and consists of narrowly

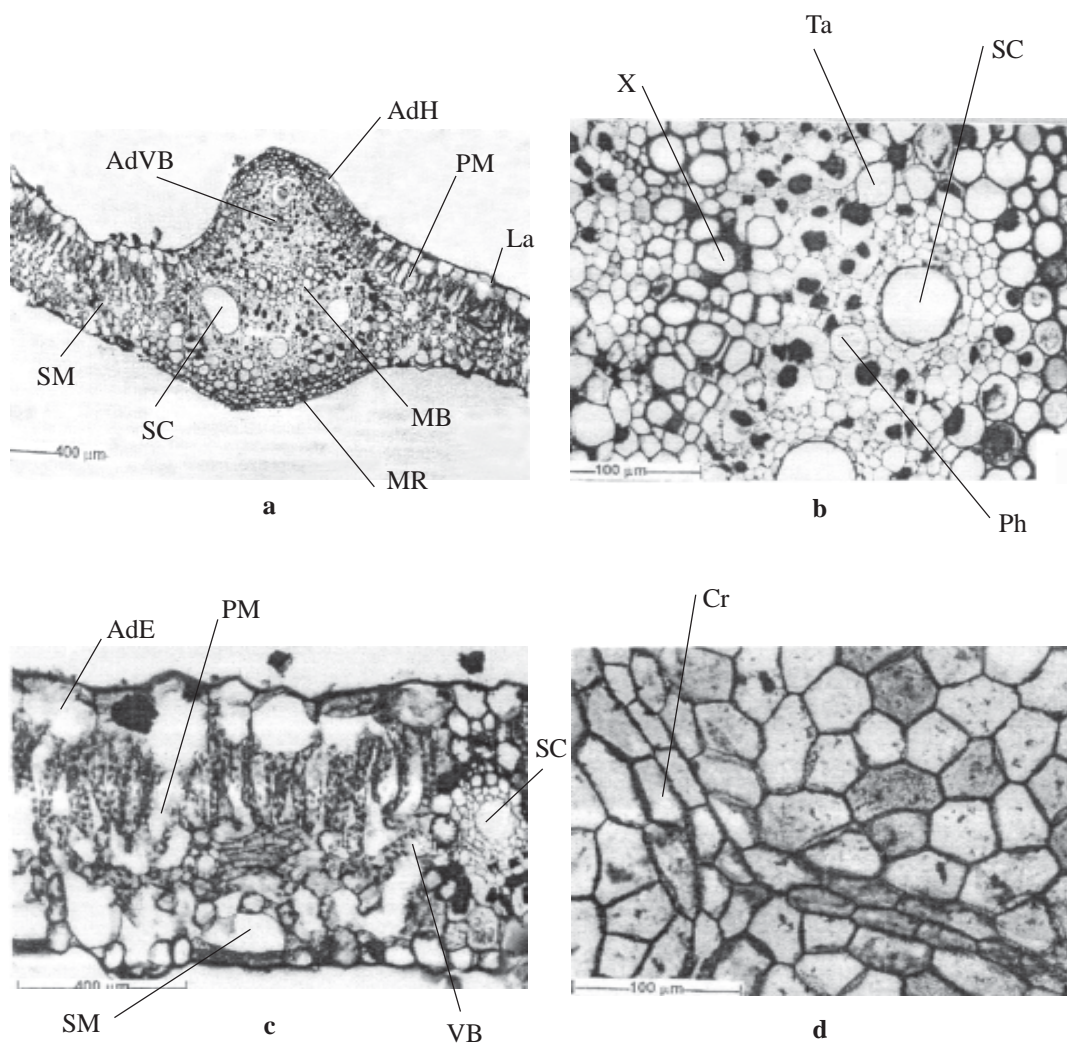


Fig. 1 **a-d** *Commiphora caudata* (Wight & Arn) Englor - Leaf
a T.S. of leaf **b** T.S. of midrib - a portion enlarged **c** T.S. of lamina - a portion enlarged
d T.S. of adaxial epidermis

AdH Adaxial hump **PM** Palisade mesophyll **La** Lamina
MB Median (main) Bundle **MR** Midrib **SC** Secretory canal **SM** Spongy mesophyll
AdVB Adaxial Vascular Bundle **X** Xylem **Ta** Tannin **Ph** Phloem
AdE Adaxial epidermis **VB** Vascular Bundle **Cr** Crystalein termination

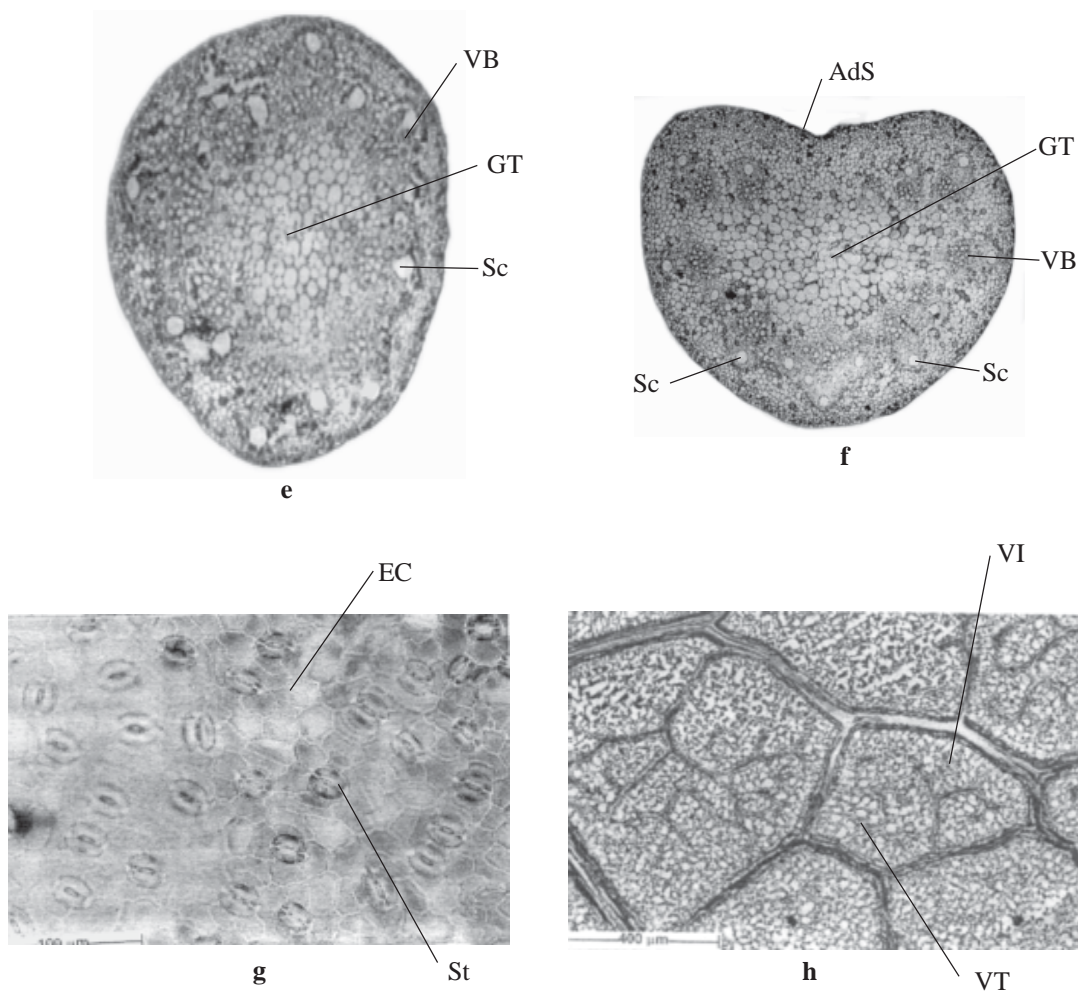


Fig. II **e-h** *Commiphora caudata* (Wight & Arn) Englor - Leaf
e T.S. Petiole **f** T.S. Petiolule **g** Stomal Morphology
h Vein islet and Vein termination

VB Vascular Bundle **GT** Ground tissue **Sc** Sclerenchyma ring
AdS Adaxial side **EC** Epidermal cells **St** Stomata
VI Vein islet **VT** Vein termination

oblong cells. The outer ground tissue has small, compact parenchyma cells. There are about fifteen discrete vascular bundles arranged in semicircular ring open on the adaxial side. The free ends of the ring are towards the adaxial in semicircular ring open on the adaxial side. The free ends of the ring are towards the adaxial side. The vascular bundles are mostly separate from each other; they are collateral. A thin band of sclerenchyma elements form a wavy chain running on the outer part of the vascular bundles. Each vascular bundle has a wide, circular secretory canal situated in the phloem region. Calcium oxalate crystals occur in the epidermal cells (Fig II E).

Petiolule

It is circular in outline, even and smooth with a thin epidermis, outer zone of ground tissue with small compact parenchyma cells and central fairly wide compact cells. The vascular bundles are discrete and collateral. There are about 13 vascular bundles that form a wavy ring. A thin cylinder of sclerenchyma cells encircles the ring. Wide, circular secretory canals are regularly associated with the phloem of each vascular bundle (Fig II f).

Quantitative values

The quantitative values of leaves indicated stomatal number 24/mm², stomatal index 15.48%, vein islet number 5/mm² and vein termination number 1.5/per islet (Fig II g&h).

Acknowledgement

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References

1. Gamble, J. S., *Flora of the presidency of Madras* (Bishen Singh Mahendrapal Singh, Dehra Dun), Vol. I., pp170-171, 1997.
2. Sass, J. E., *Elements of Botanical Microtechnique*, McGraw Hill Book Co, New York. 1940.
3. O'Brien, T. P., Feder, N. and Mc Cull, M. E., *Polychromatic Staining of Plant cell walls* by toluidine bule - O. Protoplasma; 59:364-373, 1964.
4. Khandelwel. K. R., *Practical Pharmacognosy*, Nirali Prakashan, Pune, pp143-145, 1997.
5. Kokate, C.K., *Practical Pharmacognosy*, 3rd Edn., Vallabh Prakashan, pp115-119, 1991.
6. Esau, K., *Plant Anatomy*, John Wiley and Sons, New York, 1965.
7. Iyengor, M.A. and Nayak, G. G. K., *Anatomy of crude drug*, 8th Edn.

CHILDHOOD OBESITY: A CONCEPTUAL STUDY

Sudha Sing, Chandan Mal Jain and Deepak S. Khawale*

Abstract: Obesity is a global nutritional concern. Recent urban Indian studies show that more than 30% of adults and 10% of children are over weight, and at least 3.5% children are obese. This paper briefly discusses childhood obesity, and the causes and pathogenesis of obesity with special reference to its management in āyurveda.

Introduction

Overweight and obesity are one of the most prevalent nutritional problems in the developed and developing countries. The problem of obesity is not only confined to adults but also children and adolescents. In many developing countries childhood obesity is associated with increased consumption of processed and fast food, dependence on television and computers for leisure and a less physically active lifestyle. So, hormonal and genetic factors are rarely the cause of childhood obesity.

Obesity has serious long-term consequences. Childhood obesity is not an immediate lethal disease itself, but it may cause serious non-communicable diseases in the adult hood. Hypertension, hypercholesterolemia, type-2 diabetes mellitus (NIDDM), gall bladder diseases, asthma, mental health concerns and orthopedic disorders have been linked to obesity. Most importantly, 50-80% of obese children become obese adults, and complica-

tions of adult obesity are much worse if the obesity begins in childhood. Treatment of obesity in adults is very wearisome for patients and physicians alike and it often meets with success in long term.

Thus, it is the need of the hour to address the problem and make efforts to prevent the epidemic of obesity and its associated health disasters. Therefore, evaluation of obesity from the childhood offers the best hope for preventing disease progression with its associated morbidities into adulthood.

Epidemiology

Obesity is a global nutritional concern. The increasing prevalence of overweight, obesity and its consequences has prompted the World Health Organization (WHO) to designate obesity as a global epidemic. It has been reported that at least 50% of adults and 20% children in UK and U.S.A. are currently overweight. Most developing countries too are now reporting unprecedented levels of obesity

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with trends that are substantially rising every year. Recent urban Indian studies show that more than 30% of adults and 10% of children are over weight, and at least 3.5% children are obese.

Patho-physiology

A person gains weight when the energy input (food) exceeds the energy output. Energy output comprises the basal metabolic rate, the thermal effect of food and activity. The thermal effect of food is the energy required to absorb and digest meals.

Energy intake and outflow is under the control of complex interactions between peripheral signaling and effector systems and neuro-endocrine systems. The hormone leptin is an important component of this complex system. Plasma level of leptin correlates with fat mass and are higher in females than males. Leptin acts centrally in the hypothalamus by modifying two effector systems. Low plasma concentrations of leptin and insulin increase the food intake and decrease the energy expenditure by stimulating neuropeptide, 'Y' synthesis and other. High leptin and insulin concentration (e.g. weight gain) decrease food intake and increase energy expenditure through release of corticotropin releasing hormonal etc.

Causes

In India there is a considerable demarcation between the lives of urban and rural population. The people in urban area being rich have much higher standard of life than the people in rural areas. The following are the main causes of obesity.

Changes in life style (urbanization): - With the improving standards of living and availability of food in plenty, the upper class societies of

India in recent years have urbanized to western levels.

Unhealthy eating patterns and wrong choices of food are another factor. Traditional diet has been replaced by energy dense highly processed micronutrient poor foods like high calorie snacks, junk food, cola, etc. Sedentary life is another component. TV and movie watching, video games, Internet gazing and telephone gossip, etc. are now important activities of children. Obesigenic schools and tuition classes have their own role in this issue. The intense competition for admission to schools and colleges with flourishing tuition classes right from nursery levels is one of the important factors for obesity in India. In many such institutions, games or physical training are restricted or not existing.

Genetic constitutional predisposition: - Parental obesity is one of the most important determinants of childhood obesity. The factors responsible could be:

- Familial pattern of eating, exercise and behavior;
- Modern environment may have unmasked previously silent obesigenic genes;
- High rate of gestational diabetes in pregnant woman causing higher birth weight in babies leading to intergenerational effects of obesity.

Other factors: - Prolonged and exclusive breast-feeding is associated with significantly low rate of obesity and hypertension in later life. Early introduction of energy dense supplements in infancy may contribute childhood obesity in India. The high glycemic index of our predominantly carbohydrate diet may be responsible for hyperinsulinism, weight gain and eventual type -2 diabetes are another factor.

Childhood obesity

Only a small percentage of childhood obesity (endogenous) is associated with a hormonal (e.g. hypothyroidism, etc.) or genetic defect (e.g. Down-syndrome, etc.) with the remainder being idiopathic in nature (Table 1)

Measurement

As per WHO's classification, measurement of obesity is the Body Mass Index [BMI=Weight (Kg.)/Weight² (M²)]. For adult BMI >25 = Over-weight and BMI >30 is obesity. Overweight in children or adolescents are not assessed in the same way as adult weight. A measurement called Percentile of Body Mass Index is used to know the obesity. Children with BMI >85 percentile for age and sex are considered at risk for obesity while those >95 percentile for age and sex are labeled obese.

The BMI has been subjected to fundamental criticism, as it ignores fat distribution in the body (central obesity) and the fat/muscle proportion in total body weight.

Other markers:

- Skin fold thickness (triceps and sub scapular): If triceps skin fold is >85 percentile considered at risk for obesity. It is more accurate measurement of obesity.

- Waist circumference (for central obesity) and waist hip ratios.
- Bioelectrical impedance analyses Dual Energy X-ray Absorptionmetry Analysis (DEXA) for actual fat percentage.

Of the above, none are standardized yet in children for routine clinical practice.

Management

Dietary regimen, physical activities, behavioural modification, etc. have prominent role in the management of obesity.

Diet

- Reduce intake of high caloric food
- Practice a healthy diet, with 30% or fewer calories derived from fat
- Include ample fibres, rich vegetable and fruits in children's diet
- Keep and follow a proper time schedule for lunch and dinner
- Do not offer sweets as a reward for a finished meal

Physical activity

- Encourage active play i.e. outdoor games and exercise

Behavior modification

- The will power of the child to reduce his

TABLE 1

The characteristics of idiopathic and endogenous obesity

Idiopathic obesity	Endogenous obesity
1. >90% of cases	1. <10% of cases
2. Tall stature (usually >50 percentile)	2. Short stature (usually <5 percentile)
3. Family history of obesity common	3. Family history of obesity uncommon
4. Mental function normal	4. Often mentally impaired
5. Normal or advanced bone age	5. Delayed bone age
6. Physical examination otherwise normal	6. Associated stigmata on physical examination

weight should be strengthened by constant encouragement.

Others

- Use of drugs to reduce appetites (like ephedrine, etc.) should be discouraged because of their side effects.
- Surgical methods are not recommended for children and should only be considered when obesity is life threatening.

Āyurvedic concept

Obesity is termed as sthaulyaroga in āyurveda. There are references to obesity in all most all āyurvedic classics like Carakasamhita, Suśrūta samhita, etc¹ and many formulations are described in them².

Nidāna

Āyurvedic classics describe various etiological factors of sthaulyaroga such as non-exercise, sweet and kapha increasing diets, etc. which have close resemblance with modern science³.

Samprāpti

Āyurveda describes the pathogenesis of sthaulya roga elaborately (Chart 1). The samprāptighāṭak mentioned are: a) doṣa (kapha pradhāna), b) dūṣya (meda), c) adhisthāna (sarvaśarīra, nitamba, udara, stana⁴), d) śrotas (medovaha) and d) vyādhi (santarpaṇajanya).

Lakṣaṇa

While describing the eight types of vilified

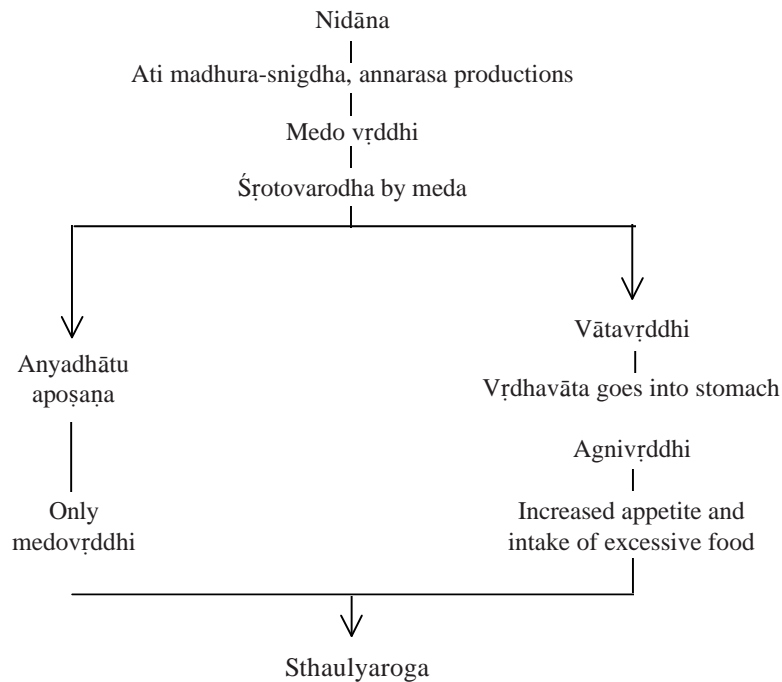


Chart 1
Samprapti of sthaulyaroga

persons (aṣṭanindita puruṣas), Caraka mentions atisthūla puruṣa. Āyurvedic classics describe the general signs and symptoms of sthaulya roga⁵ such as:

- Inability to work (aśakti saṛvakaṛmasu)
- Dyspnoea on exertion
- Thirst, faintness, sleep (Tṛiṣā, moha, nidra)
- Excessive appetite
- Sweating
- Foul body odour
- Low vitality
- Impotency

Āyurvedic management

The āyurvedic principle of treatment of obesity is apatarpaṇa cikitsa (depleting therapy), which includes specific regimen in food and activities (ahāra-vihāra) and medicines (auśadhi) that could control doṣas like vāta and kapha and fat, thereby check the aetio-pathogenesis of the disease. The following are the main treatment methods recommended by āyurveda:

- Nidānaparivarjana (avoidance of etiological factors)
- Sattvāvajaya (counseling)
- Upavāsa (fasting), etc. and laṅghanakaṛma (depleting therapy)
- Samśodhana and karśana (evacuating and reducing therapy) (e.g. lekhanavasti)
- Śoṣhaṇa āhāra (weight reducing diets) (e.g. yava, caṇa, kodrava, etc.)
- Vyāyāma (exercise) and yoga
- Auśadhis (formulations)

Samśodhana cikitsa: - Āyurvedic texts describe the efficacy of samāodhanacikitsa in the management of sthaulyaroga. According to which, administration of Bhadrādi āstāpana vasti and lekhanavasti (prepared with triphala

kvātha, cow's urine, honey, yavakṣāra and drugs described in Ūṣakādigaṇa) are very effective in the cases of sthaulyaroga.

Śamanackitsa:- Two types of śamanacikitsa are described in āyurvedic texts viz. bāhya (external) and āntarika (internal). Śirīṣādi praḡharṣa, harītakyaḍi aṅgrāg, patṛādi praḡdeha, etc. are indicated for lepa (external application), which help to get rid of excessive sweating and foul body smell. Agnimanthādi kvātha, Triphala kvātha, Viḍaṅgādi cūrṇa, Viḍaṅgādi lauha, Tṛyūṣaṇādi lauha, Navakaguggulu, Amṛtādyaguggulu, Tṛimūṛtirasa, badvagnirasa, Lohāriṣṭa, Tṛiphalādyataila (for intake, vasti and massage), Vyoṣādyā saktuka, Cavyadi saktuka, etc. are the formulations recommended for internal administration.

Dravyas of Varuṇādi, Sālasārādi, Rodhrādi, Aṛkādi, Ūṣakādi, Nyagrodhādi gaṇas, Tṛikaṭu and Lekhanīyamahākaṣāya (musta, haridra, etc.) are useful in the management of obesity as they are having kapha-medahara properties.

Yoga

Yoga has an important role in the treatment of obesity especially for teenagers and adults. Various yoga techniques like sūryanamaskāra, praṅṅyāma, etc. can be practiced effectively to reduce weight and achieve normal healthy condition of mind and body.

Sāryanamaskār:- It is very beneficial in management obesity. There are 12 āsanas included in it. Two rounds are sufficient in the starting. Doing this 12 times a day with a speed of 4 rounds in 1 minute gives great benefits.

Praṅṅyāma: - It is also very important technique in yoga, which controls praṅṅa or vital energy. It is classified in 2 types in terms of physiology

viz. hyperventilation (kapalbhati, bhastrika, etc.) and hypoventilation (bhramari). Kapalbhati, bhastrika and fast breathing are very effective in obesity. Prāṇāyāma increase the lung capacity and help for burning fats.

Other āsanās: - There are other āsanās also that help to manage obesity. Pavanamuktāsana, naukāsana and paścimottāsana are helpful to reduce abdominal fat. Uttānapādāsana is helpful to reduce abdominal fat as well as excess fat of hips. Ustrāsana helps to reduce fat on waist and abdomen. Dhanurāsana and halāsana are good to reduce excess fat of body.

Wholesomeness (pathya)

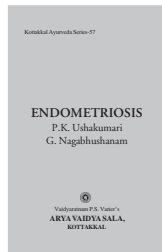
Drugs which are acrid, bitter and astringent tastes; śāli rice, mudga (*Vigna radiata*), kulattha (*Macrotyloma uniflorum*), caṇa (*Cicer arietinum*), maśūra (*Lens culinaris*), yava (*Hordeum vulgare*), kodrava (*Paspalum scrobiculatum*), madhu (honey), takṛa (buttermilk), sura (fermented liquids), mustard oil, sesame oil, leafy vegetable, warm water

for drinking (prefer before meal), etc. Honey 1 tola along with 4 tola warm water if taken regularly early in the morning in empty stomach is very effective.

References:

1. Carakasamhita, Sūtrāsthānam, 21; Suśrūtasamhita, Sūtrāsthānam 15; Aṣṭāṅgasamgraha, Sūtrāsthānam 24; Mādhavanidāna, 34.
2. Bhaiṣajyaratnāvali, 39; and Yogratnākara.
3. अव्यायाम दिवास्वप्न श्लेष्मलाहार सेविनः ।
मधुरोऽन्नरसः प्रायः स्नेहान्मेदः प्रवर्धयेत् ॥
(मा. नि. ३४/१)
4. Suśrūtasamhita, Śārīrasthānam, 21
5. मेदोमांसातिवृद्धत्वाच्चलस्फिगुदरस्तनः ।
(च.सू. २१)
मेदस्तु चीयते तस्मादशक्तः सर्वकर्मसु ।
क्षुद्धश्वास तृषामोह..... ॥ (मा. नि. ३४/२-५)

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ENDOMETRIOSIS

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Endometriosis is a gynecological problem occurring in some females during the fertility period. It is characterized by the formation of endometrium like cells on the ectopic parts of the body other than in the uterus, like ovaries, parts of viscera, appendix, or even remote places like lungs and brain. As per the influence of the female hormonal stimulation, it acts as bleeding spots, just like the endometrium and manifest a variety of symptoms, and is a real agony for the patient.

THE ROLE OF VIRECANA IN TAMAKAŚVĀSA - UNDERSTANDING IN ITS TRUE SENSE

Vasant C. Patil, M.S. Baghel and A.B. Thakar*

Abstract: There are several diseases, which can kill a patient, but none of these are as deadly or quick as śvāsa and hikkā. According to Carakasamhita, even if the patient has been suffering with many other diseases, ultimately, at the time of death, becomes the victim of hikkā and śvāsa that are very painful. Considering the pittasthāna origin, there have been many misinterpretations that purgation is the main line of treatment in the management of tamakaśvāsa. This paper re-evaluates the role of virecana in tamakaśvāsa.

Introduction

Tamakaśvāsa is a disease originating from the pittasthāna with the predominance of kapha and vāta¹. Considering its origin, there have been many interpretations that virecana is the prime and foremost line of treatment in tamakaśvāsa. Many such explanations are misinterpreted and misunderstood. The treatment told for a specific condition of the disease should not be generalized.

Pittasthāna has been described as the origin of tamakaśvāsa, which creates the misconception that virecana is the prime line of treatment in this disease. However, commenting on Caraka, Caṅṅapāṇi says that pitta has no role in the pathogenesis of tamakaśvāsa as vāta and kapha, and pittasthāna means the upper part of pittasthāna i.e. āmāśaya². Emphasized on

Caraka's version, some scholars opine that apart from āmāśaya, other seats of pitta should be considered as the seats of origin of śvāsaroga (Tripathi V.K. *et al*, 1981). Some others say that the exact nature of the involvement of pittasthāna in śvāsaroga seems less clear (G.R. Vastrada *et al*, 1983)³; also, they put forth a hypothesis that the study of liver and pancreatic enzymes may prove the relationship between pittasthāna and śvāsaroga, and also, there is an importance of pitta doṣa in the management of śvāsaroga as per the principles of sthānikadoṣa cikitsa. The result of their clinical study showed no significant changes in the levels of enzymes.

The above hypothesis does not have any scientific base, and there is no relationship between pittasthāna and pittadoṣa; Caraka and Caṅṅapāṇi uphold this in the nidāna and cikitsa

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of śvāsa. Commenting on Caraka's version, Chakrapāṇi upholds that vāta and kapha have independent role in the samprāpti of śvāsa and there is no need of interdependency in the pathogenesis⁴.

There are three types of āvaraṇas viz. a) vṛdha vāta with samadoṣa/dūṣya, b) sāmavāta with vṛdhadoṣa/dūṣya and c) vṛdhavāta with vṛdha doṣa/dūṣya; all these have to be taken into account for the better understanding of samprāpti of śvāsa.

The first two types of āvaraṇasamprāpti that takes place in śvāsaroga are: 1) vāta located in the chest after afflicting the pṛāṇāvahasṛotas, get aggravated and causes to move kapha in the pṛāṇāvahasṛotas and thereby get obstructed; this leads to śvāsa, and 2) if sāmavāta get aggravated due to āvaraṇa by vṛdhakapha in pṛāṇāvahasṛotas, then being obstructed itself, aggravates vāyu and thereby causes to śvāsa.

Treatment

Caraka advocates vamanakarma for the management of śvāsa⁵. According to him, virecana is not the prime line of treatment in the management of śvāsa⁶. Commenting on Caraka, acārya Gangadhar points out that vamaṇa is advocated in śvāsa associated with kāsa, and purgation with vāta and kapha-alleviating drugs is recommended in tamakaśvāsa associated with svarabheda.

Virecana is not the line of treatment in the management of śvāsa that is predominant with kapha, and in displacement of kapha from its position, as purgation gives only moderate cleansing of kaphadoṣa; and it (virecana) is

helpful in moderate increase of kaphadoṣa. When purgation is given in the case of displacement of kaphadoṣa, it induces vomiting instead of purgation.

Virecana is helpful in the condition of asthma, where there is inflammatory oedema in bronchi, bronchospasm and mucous secretion. Vamaṇa is helpful in inflammatory oedema of bronchi and increase mucus secretion.

Conclusion

From this large body of evidence, it is clear that virecana is not the prime line of treatment for śvāsaroga and it is advisable only there where the śvāsa is due to vāta predominance or moderate vitiation (madhyapṛakopa) of kapha; and when tamakaśvāsa associated with svarabheda and there is excess and displacement of kapha from its seat, then vamanakarma is the prime and foremost line of treatment; here, removal of kapha is the main aim without which vitiated kapha destruction is difficult⁸. In short, purgation is to be followed only after emesis.

References:

1. कफवातात्मकावेतौ पित्तस्थानसमुद्भवौ ।
(च. चि. १७/८)
2. पित्तस्थान समुद्भववित्यनेन पित्तस्य उर्ध्वस्थानसंबन्ध एव, न तु वातकफवत् आरम्भकत्वं दर्शयति, पित्तस्थान शब्देन आमाशयोऽभिप्रेतः ।
3. G.R. Vastrada, et al, Jamnagar, *Involvement of Pittasthana in the samprapti of śvāsaroga; Importance of Pittasthana in the management of śvāsaroga*, 1983.
4. रजसा धूमवाताभ्यां शीतस्थानाम्बुसेवनात् ।

.....प्रवर्तते गदाविमौ । रजसेत्यादिनां प्रायो वातप्रकोपगणो चिच्छिद्यक्तः प्रवर्तते गदाविमौ इत्यन्तेन, निष्पावेत्यादिना कफकारणतया....। तदनेन वातजनक कफ-जननकहेतुवर्गद्वय विच्छेद पाठेन वातकफयोःऽत्र स्वहेतु कुपितत्वेन स्वातन्त्र्यं दर्शयति न अनुबन्ध रूपत्वम् ॥

5. कफाधिके बलस्थे च वमनं सविरेचनम् ।
(च.चि. १७/८९)

निर्हते सुखमाप्नोति स कफे दुष्टविग्रहे ।

स्रोतःसु च विशुद्धेषु चरत्यविहतोऽनिलः ॥

(च.चि. १७/७६)

6. कासिने च्छर्दनं दद्यात् स्वरभङ्गे च बुद्धिमान् ।
वातश्लेष्महरैर्युक्तं तमके तु विरेचनम् ॥
(च.चि. १७/१२१)
7. श्वासवते कासिने छर्दनमौषधं दद्यात् । श्वासिनः
स्वरभेदे च बुद्धिमान् वातश्लेष्महरैःयुक्त दद्यात्,
तमके च श्वासे स्वरभेदे विरेचनं दद्यात् ।
8. कफसंरुद्धगतिप्राणप्रकोपजाः । (च.चि. १७/१२०)

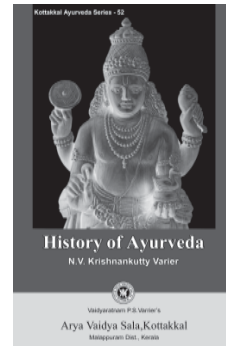
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HISTORY OF INDIAN MEDICINE

Basavaraj S Hadapad*

Abstract: History of Indian medicine is actually the history of the science of life (āyurveda) that was developed by the sages and latter systematized as one of the upavedas of Atharvaveda. This article briefly discusses the status of Indian Medicine; its eternity, roots in different vedas, chronological developments, etc. are also dealt with.

The Indian System of Medicine, which is said to be the beginning less (anādi), existed in the form of folklore prior to its documentation. It was in practice along with vedas as a major health science; that is why this is considered as the fifth veda. It is said that Lord Brhma created the science of life before he creates the universe¹. The essence of all these statements is that Indian System of Medicine is eternal. Trying to trace the origin and history of such a science, which is beginningless, very old and wonderful, is like searching something in the darkness.

‘Āyurveda’ is a typical word of ancient Indian culture. It is a sign of unique and practical based knowledge of life, and probably there is no other word in any other language that can express the same meaning. The term ‘āyurveda’ is a compound word, derived by combination of two words i.e. ‘āyus’ and ‘veda’ means life and to know respectively; in other words, it is the science of life. According to Caraka, āyurveda is the veda of āyus, or the source from which the knowledge of āyus is derived.

The contents of āyurveda, in a nutshell, are the descriptions of the causes, the manifestations and therapeutics of both the healthy and the unhealthy states of a person. It is called āyurveda because of the bank of the knowledge of all aspects of life i.e. unhealthy states of body, mind and senses. Āyurveda is comprised of eight divisions viz. 1) kāyacikitsa - internal medicine, 2) śalya - surgery, 3) śālakya - ENT, 4) bhūta vidya - psychiatry, 5) agadatantra - toxicology, 6) kaumārabhṛtya - pediatrics, 7) rasāyana - rejuvenation and 8) vājīkaraṇa - aphrodisiac. Āyurveda points out the ways and means to lead a meaningful life not only in this world but also the world after death (paraloka).¹

For the sake of convenience, the history of Indian Medicine has been divided into three phases i.e. pre-vedic, vedic and post-vedic periods. Pre-vedic periods cover the history from the antiquity to the times before the emergence of the vedas. This includes prehistory and proto-history including Indus

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Valley civilization. Vedic period contains the status of medicines as evidenced from the vedic literature in its various ramifications in Samhitas, Upaniṣads, etc. Post-vedic is the period when āyurveda emerged in its crystallized form as a result of discussion and serious thinking in the preceding age².

Man was a hunter in pre-vedic period or in the Stone Age. He used to collect food and other requirements from the surrounding nature, and later learnt cultivation and began to grow food crops. Probably he also identified plants, animals and minerals from which he derived medicinal substances. This culture continued for long, which resulted in composition of villages based on agriculture. In the Indus civilization, there are evidences of tree-worship, which indicates the importance given to the plants even in those days; also there are references to that people of this civilization used some cosmetics including collyrium for which metal rods, copper and bronze were used. This practice has been referred to in the later classical texts. Use of collyrium prevents eye diseases. The civilization of Harappa and Mohenjo-daro, the prehistoric cities, indicates the existence of a healthy life style. All these evidences documented by the historians conclude that during pre-vedic period itself people were using plants, animal products and minerals as source of medicines.

Vedic-medicine (2000 BC to 1000 BC): - The point that the Indian Medicine is more connected with the Vedas is evident from the fact that the former is regarded as a branch of the Atharvaveda². Tracing the invention of Indian Medicine, the samhitas of Caraka etc. say that Lord Brahma, the creator of this universe remembered and revealed āyurveda to Dakṣaprajāpati who handed it over to Aśvins from whom it was passed to Indra. Moved by

the afflictions of the people due to various physical and mental diseases, the sages Atri, Bharadvaja, etc, approached Indra and brought down āyurveda from heaven for prevention and cure of diseases.⁴ This story clearly demarcates the period of vedic medicine up to Indra from the past-vedic one, thereafter beginning from Ātreya or Bharadvāja.

The most popular and expert physicians in vedic period were twin Aśvins. Their wonderful medical and surgical treatments described in the Ṛgveda indicate the high status of the healing art in those days. They were also experts in plastic surgery, transplantation of organs, etc. There are references to their wonderful deeds in Ṛgveda that they made old Cyavana to quite young and blessed him with long life, gave eyes to the blind Kaṇva and fitted artificial limb to Vispala, the daughter of king Khela. Caraka also refers to some of their miracles that they restored the lost eye of Bhaga, fallen teeth of Puṣana, etc. Aśvins were not only the āyurvedic physicians of Vedic period but also the central link in the chain that brought down āyurveda from heaven to earth.

There are references to various diseases and their management in Ṛgveda; tuberculosis (yakṣma) which affects the whole body, jaundice (hariman), anemia (harita), heart diseases (hṛdroga) for which water has been mentioned as hṛdyota-bheṣaja, cough (kāsa), worms (kṛmi), ascitis (jalodara), vitiligo (kilāsa), etc. are few examples. Indian tradition had a deep-rooted faith in the supernatural powers and their role in the management of diseases from the very beginning. The diseases that were caused by unknown effect of natural agents treated by offerings and prayers to Gods and other natural agents, and the diseases caused by hereditary factors or improper diet

and behaviour were treated with external and internal administration of drugs. The post-vedic texts like Carakasamhita refer to these two methods of treatment termed as daivavyapāśraya and yuktivyapāśraya cikitsas respectively.⁵ Atharvaveda was regarded as the source of medicine in the post-vedic period, for it refers to increased number of diseases and drugs than Ṛgveda; this shows the gradual development of Indian medicine. There is no doubt that the supernatural aspect was more in practice in vedic period. But, at the same time, internal and external administration of drugs, mechanical intervention, surgical operation, etc. were also done. Also, there are sufficient references in Atharvaveda to the practices of plastic surgery, orthopedics and use of natural remedies like sunrays, fire and air, etc for the management of diseases. Physicians were highly respected in the society and gradually medicine became a profession.

Preventive medicine: - The people in the vedic period were very conscious about their physical, mental and spiritual health. Ṛgveda refers to many numbers of hymns for attaining longevity with normal functioning of all the senses and organs. The word 'śarad' is suggestive of 'autumn season'; after the rainy season, many dreadful epidemics used to break out killing many persons. To survive these epidemics people used to take preventive measures. Yajñas (sacrifices) were performed from time to time to purify the environment and thus prevent most of the epidemics effectively. A social code of conduct was also formulated to check transmittable diseases. This was given a concrete shape in later law texts and included in post-vedic texts like Carakasamhita in the form of 'sadvṛt' (good conduct).²

Apart from medicine and surgery, much work was done in obstetrics, pediatrics, toxicology,

aphrodisiac, rejuvenation and diseases of eye, ear, and animal poison and their treatment and microorganisms, etc. These formed the nucleus on which eight specialties of āyurveda were defined and developed.²

In vedic period, foundation of rational medicine was laid down which was consolidated after formulation of basic concepts in later period. Āyurveda emerged with a sound practical based knowledge, which was prepared during vedic period. The vedic sages had unique knowledge about diseases and drugs, which was taught from generation to generation. The word 'āyurveda' given to medicine in India proves its continuous link with vedic tradition. It is further evident from the fact that surprisingly a number of vedic hymns and treatments that are found in classical āyurveda, are practiced even in modern times.

Post-vedic medicine: - The basic concepts of āyurveda such as pañcamahābhūta and tridoṣa theory, mental and physical diseases and their management, noble conduct, daily and seasonal regimens, qualities of mind, dietary preparations, metal and minerals, medicinal plants, medical and surgical managements, etc. are referred to in Rāmāyaṇa, Mahābhārata and some important Purāṇās. The first great change noticed in the post-vedic period, particularly in Rāmāyaṇa, is the emergence of Lord Dhantari as a God of āyurveda and later on as a God of Health who replaced the vedic twin God physicians, Aśvins. It indicates the established position of āyurveda and the regard that the people had towards it.² It can be guessed that by this time the basic concepts of āyurveda were rationally established.

Educational centers: - The oldest and famous Nalanda university, established during the period of Kumāragupta (413-455 A.D.), was imparted medicine as one of the compulsory

subjects of teaching. The university of Takṣaśila was also quite famous where Ātreya was the great teacher and Jivaka went there to have medical education and got proficiency in medicine as well as surgery.

Travelers from other countries visited India from time to time to have knowledge of culture, business, etc. This indicates the high status of culture, practice of medicine, etc. prevailed in India in those days. The famous Chinese traveler Fahien, who came to India in 399 A.D., commenting on Pāṭalīputra (modern Patna) says: "The noble house holders of this country have founded hospitals within the city, to which the poor of all countries, the destitute, crippled, and diseased, may repair. They receive very kind of requisite help gratuitously. Physicians inspect their diseases, and according to their cases order them food and drink, medicine or decoctions, everything in fact that may contribute to their case. When cured they depart at their convenience."² By this description it is clear that the hospital at Pāṭalīputra was big and referral type where patients from all the corners of the country came for treatment.

Caraka, Suśruta and Vāgbhaṭa are commonly known as the great trio (bṛhatrayī) of āyurvedic literature. Carakasamhita and Suśrutasamhita represent the school of medicine and surgery respectively. Carakasamhita is superior in treatment; its major contributions are scientific symposia and seminars, fundamental doctrines, investigative attitude, psychosomatic concept, individual variation, expansion of ideas, concept of natural immunity and nature cure. In course of time, Carakasamhita earned great reputation, and became the most authoritative text representing the school of medicine and has maintained its status till today. It has been translated to Persian and Arabic languages.

Father of surgery Suśruta's Samhita is superior in anatomy; its major contributions are in the subjects of basic doctrine, description of seasonal regimen, surgical instruments, procedure of surgery, training methods, duties of the army surgeon, classification of diseases, properties of food materials and drugs, etc. Suśruta's most outstanding contribution is reconstructive surgery of mutilated nose (rhinoplasty), earlobe and lips. Apart from surgical knowledge and expertise in practical surgery, it is the first voluminous work that clearly recognizes and describes the six stages of manifestation of diseases in detail.

From the period of Caraka to 16th-17th century, many books on āyurveda like Mādhavanidāna, Caṅṅadatta, Yogaratnākāra, Bhāvaprakāśa, Bhaiṣajyaratnāvali, etc, came out based on practical experience by different scholars. On the review of history of Indian medicine, it can be concluded that this science is the essence of thousands of years of practical experience, based on natural law, a unique science of life. The traditional way of living, which is scientific, is appreciated by the historians of other countries. A famous British historian Dr. Arnold Toynbee (1889-1975) says: "It is already becoming clear that a chapter which had a Western beginning will have to have an Indian ending if it is not to end in the self destruction of the human race. At this supremely dangerous moment in history, the only way of salvation for man kind is the Indian way"

References

1. Carakasamhita, Sūtrasthānam, 1/43
2. P V Sharma, *History of Indian Medicine*
3. Carakasamhita, Sūtrasthānam 30 / 21
Suśrutasamhita, Sūtrasthānam 1/6
4. Carakasamhita, Sūtrasthānam 1/3-5
5. Ibid - 11/54

ANTIBACTERIAL SCREENING OF AERIAL PARTS OF *ANISOMELES MALABARICA* (L.) R. Br.

G. Babu* *et al*

Abstract: Aqueous and organic solvent extracts of *Anisomeles malabarica* (L.) R.Br. (Labiatae) were investigated for antibacterial activity on several microorganisms. The different extracts differed significantly in their antibacterial activity with the petroleum ether extract being more active, followed by hexane extract. Aqueous extract showed no antibacterial activity. The most susceptible test microorganism was *Staphylococcus aureus* to all the extracts except aqueous extract. The least susceptible bacterium was *Pseudomonas aeruginosa*. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined for petroleum ether and hexane extracts.

Introduction

Anisomeles malabarica (L.) R. Br. is a perennial herb belonging to the family Labiatae. It is commonly found in Western Ghats from Maharashtra to Karnataka, Andrapradesh, Kerala and Tamilnadu. The extract of this plant has been reported to have some medicinal value, for example, the leaf oil is used externally as an embrocation in rheumatoid arthritis. A decoction of the herb is used by the tribal in rheumatic pains; the fresh juice of the leaves or an infusion is given to children in colic, dyspepsia and fever due to teething¹. *A. malabarica* (L.) R. Br. is known to be a rich source of terpenoids. However, the plant has not been investigated for its antibacterial activity. The aim of this work was therefore, to

evaluate the antibacterial activity of extracts of aerial parts of this plant on several pathogenic microorganisms.

Materials and methods

Preparation of extracts

The aerial parts of the plant were collected from the Western Ghats in the Karnataka State, South India, and authenticated by Dr. P. Daniel, Director, Botanical Survey of India, Southern circle, Coimbatore, India, where a voucher specimen has been submitted.

Aqueous extract: - A total 500g of finely powdered plant material were infused in distilled water until completely saturated. The extract was then filtered using muslin and the filtrate was evaporated in vacuo and dried using

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freeze drier². The final dried material (AMA: 0.97% w/w) was stored in labeled sterile bottle and kept in freezer at -20°C.

Hexane, petroleum ether, benzene, chloroform and ethanol extracts: - 500g of dry powdered plant material was extracted with ethanol (95%) in a Soxhlet apparatus with in a period of 48 hours. The solvent was removed under vacuum; and the crude ethanol extract (AME: 4.25% w/w) obtained was dissolved in water and exhaustively extracted by consecutive liquid/liquid partition with hexane, petroleum ether, benzene and chloroform. The hexane, petroleum ether, benzene and chloroform fractions were evaporated under reduced pressure and dried using freeze drier, yielding respectively hexane extract (AMH: 0.95% w/w), petroleum ether extract (AMP: 0.84% w/w), benzene extract (AMB: 0.33% w/w) and chloroform extract (AMC: 0.37% w/w). Dried extracts were then stored in labeled sterile bottles and kept in the freezer at -20°C.

Antibacterial activity test

Microorganisms: - Six aerobic reference strains, *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus vulgaris*, *Salmonella typhimurium* and *Pseudomonas aeruginosa* were tested.

Screening for antibacterial activity: - The dried plant extracts were dissolved in dimethyl-formamide (DMF) to get a final concentration of 100 mg/ml and sterilized by filtration through a 0.45mm membrane filter. Antibacterial tests were then carried out by the disc diffusion method³ using an inoculum containing 10⁶ bacterial cells/ml to spread on Muller-Hinton agar plates. Extract impregnated discs with

100 µl of extract (10 mg disc) at a concentration of 100 mg/ml were placed on the inoculated agar and incubated at 37°C for 24 hours. On each plate an appropriate reference antibiotic disc was applied depending on the test microorganisms⁴. Ampicillin, ciprofloxacin, amikacin and gentamycin served as positive control for *S. aureus* and *E. coli*, *K. pneumoniae* and *P. vulgaris*, *S. typhimurium*, *P. aeruginosa* respectively. The reference antibiotic discs contained 10 mg antibiotic disc.

Minimum inhibitory concentration (MIC): - The broth dilution method³ was used. A stock solution (200 mg/ml) of each extract was prepared in DMF. An aliquot of this solution was serially diluted with DMF to give the following concentrations (mg/0.1 ml): 20, 10, 7.5, 5, 4, 3, 2.5, 2, 1.5, 1, 0.5 and 0.1. Fifteen broth tubes each containing 9.9 ml broth were prepared, and 0.1 ml of each of the above concentrations was added to one of the 12 broth tubes to obtain the following dilutions (µg/ml): 2000, 1000, 750, 500, 400, 300, 250, 200, 150, 100, 50 and 10. One of the remaining three tubes was used as a positive control by adding 0.1 ml of reference antibiotic solution (200 mg/ml), whereas the other two tubes were used as negative control by adding 0.1 ml of DMF to one tube and 0.1 ml of sterile water to the other. To each tube 10 ml of the test bacterial suspensions (10⁶ cfu/ml) was added. After careful mixing, the inoculated tubes were incubated at 37°C for 24 hours. After incubation the MIC of petroleum ether and hexane extract (showed activity in screening test) was determined by visual inspection of the tubes. The lowest concentration of the extract that

inhibited growth of the organisms, as detected by lack of visual turbidity (matching with the negative growth control) was designated the MIC⁵. The minimum bactericidal concentration (MBC) was determined by making subcultures from the clear tubes which did not show any growth after incubation during the MIC assays, on Muller-Hinton agar plates divided according to the number of clear tubes, MBC was interpreted as that tube showing no growth on agar plate⁶.

Results and discussion

The data were analyzed and treatments compared using Anova. The results of antibacterial activity tests of the plant extracts are shown in the Table (1). The most active extract was the petroleum ether (inhibition zone diameter 17.81 mm, P<0.001) followed by the hexane extract (15.73. mm, P<0.001). The other extracts, benzene, chloroform and ethanol showed a significant activity only against *S. aureus* (P<0.001). Aqueous extract showed no antibacterial activity. This result indicates that most of the active constituents (responsible for

exerting antibacterial action) in this plant are insoluble in water and are expected to be non-polar, hydrophobic organic compounds. In order to assess the statistical significance of in-between groups, Anova followed by multiple range test (Scheffe's) was worked out and it authenticates that all the tested microorganisms are susceptible to petroleum ether extract and the degree of susceptibility is given below in the decreasing order: *S. aureus* > *E. coli* > *K pneumoniae* > *P. vulgaris* > *S. typhimurium* > *P. aeruginosa*. On the other hand, the susceptibility to hexane extract is in the order: *S. aureus* > *K pneumoniae* > *E. coli* > *P. vulgaris* > *S. typhimurium* > *P. aeruginosa*.

Further more the MIC and MBC results in the present study reveal that *P. aeruginosa*, the least susceptible bacterium to petroleum ether and hexane extracts showed high MIC and MBC values of petroleum ether and hexane extracts (400 µg/ml and 500 µg/ml respectively), since it is known to be very resistant even to synthetic drugs⁷.

TABLE 1
Antibacterial activity of extracts of aerial parts of *A malabarica* (L.) R. Br.

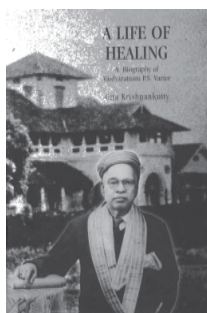
Extract discs ^a	Micro-organisms ^b					
	<i>S. aureus</i>	<i>E. coli</i>	<i>K. pneumoniae</i>	<i>P. vulgaris</i>	<i>S. typhimurium</i>	<i>P. aeruginosa</i>
Hexane	16.58 + 0.244	16.14 + 0.206	16.48 + 0.180	15.78 + 0.159	14.80 + 0.100	14.60 + 0.100
Pet. ether	26.38 + 0.267	18.64 + 0.227	17.06 + 0.093	16.18 + 0.218	14.70 + 0.141	13.94 + 0.075
Benzene	17.62 + 0.306	06.14 + 0.196	06.48 + 0.237	05.68 + 0.143	05.08 + 0.102	05.34 + 0.075
Chloroform	20.28 + 0.240	07.30 + 0.308	07.44 + 0.218	06.78 + 0.196	05.76 + 0.075	05.30 + 0.037
Ethanol	16.20 + 0.235	05.66 + 0.250	06.10 + 0.141	05.88 + 0.169	05.18 + 0.146	05.70 + 0.141
Ref. antibiotic	33.10 + 0.179	22.20 + 0.418	30.60 + 0.195	29.08 + 0.193	18.34 + 0.172	18.74 + 0.133

a. Concentration: 10 mg/disc; b. Mean zone of inhibition (in mm) + Standard Error Mean

Further study is needed to find out the constituent(s) responsible for the activity of this plant and their proportion in the plant essence. Both in vitro and in vivo works are needed to utilize the antibacterial property of the petroleum ether and hexane extracts of *A. malabarica* (L.) R. Br.

References

1. Kannabiran and Krishnamurthy, J. Res. Indian Med, 7(4), 43. 1972.
2. Kandil, O., Radwan, N.M., Hassan, A.B., Amer, A.M.M. and El-banna, H.A., *Extracts and fractions of Thymus capitatus exhibit antimicrobial activities*, J. of Ethnopharmacology, 44, 19-24. 1994.
3. Murray, P.R., Baron. E.J., Pfaller, M.A., Tenover. F.C. and Tenover, R.H., *Manual of Clinical Microbiology*, 6th Ed., Mosby Year Book, London, 1995.
4. Jawetz, E., Melnick, J.L., Adelberg. E.A., Brooks, G.F., Batel. J.S. and Omston, L.N., *Medical Microbiology*. 20th Ed., Appleton and Lang. Prentice-Hall, Englewood Cliff's. N. J., 1995.
5. Baron, E.J., Peterson, L.R. and Finegold, S.M., *Diagnostic Microbiology*, 9th Ed., In: Baily *et al.* (Eds.) Baily and Scotts, St. Louis, Missouri. M.O., 1994.
6. Irobi, O.N. and Daramala, S.O., *Bactericidal properties of crude extracts of Mitracarpus villosus*, Journal of Ethnopharmacology, 42, 39-43, 1994.
7. Panizzi, L., Flamini, G., Cioni, P.L. and Morelli, I., *Composition and antimicrobial properties of essential oils of four Mediterranean Lamiaceae*, Journal of Ethnopharmacology, 39, 167-170, 1993.



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EXCERPTS FROM CIKITSĀMAÑJARI - LI

P. Unnikrishnan*

Abstract: The causes, signs and symptoms of vātaśoṇita are explained here. The treatment method and some famous preparations like Balāgulūcyādi taila, Piṇḍataila, Tṛimisṛakataila, Kārāskara ghr̥ta, etc. are explained.

The passage of vitiated vāta is blocked by increased blood (rakta), and this, in turn vitiates blood tissue; this condition is termed as vātaśoṇita. Depending upon the combination of doṣa it is classified into five. The disease usually affects the roots of legs, but at times, it may engross the arms also; and in severe form, like toxic manifestations secondary to rat bite, it also engrosses the whole body. Vātaśoṇita with elevated edematous lesions resulting from the involvement of skin and muscle tissue is termed as uttāna. Later, it affects the whole body and lesions become deeper affecting and liquefying all dhātūs (tissues). The terms vātarakta and raktavāta are usually used as synonyms but there is a subtle variation. Vātarakta is a condition where lesions of vāta such as different types of pain are seen; whereas when burning sensation and similar symptoms of rakta or pitta take an upper hand, it is known as raktavāta.

Excessive indulgence in dry, alkaline and acidic foods, walking long distances, undertaking long journeys in vehicles and negligence in

answering to the calls of nature cause debility of feet and thereby vitiated blood tissue precipitates the disease.

In order to normalize the blood, the patient is to be subjected to unction and bloodletting. The bloodletting is to be done in small quantities so as to see that vāta does not derange. Also, the magnitude of doṣa and the status of the patient are to be born in mind. Bloodletting by the application of leeches is to be considered in the presence of pain, redness, warmth and edema. Horns or tumbi/alābu (instruments for bloodletting) can be made use of in the presence of feeling of wandering small insects in the body, itching, pricking pain and burning sensation. Bloodletting by pṛacchāna or venesection is performed when the above symptoms transit lesion from one spot to another. Dry edema and edema with predominant vitiation of vāta, deep seated edema and stagnated edema, and edema involving tendons, ligaments and veins should not be subjected to bloodletting as it may precipitate lethargy and other diseases caused by the derangement of vāta.

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Patients who suffer from vātaśoṇita with intense vitiation of vāta shall consume Śatāvāriḡṛta.

Sesame oil, milk and sugar boiled and cooled shall be consumed. Śatapāka (hundred times medicated) with Yaṣṭyāhva (*Glycyrrhiza glabra*) or Balātaila shall be consumed.

A kaṣāya prepared from śatāvāri (*Asparagus racemosus*) and amṛta (*Tinospora cordifolia*), mixed with milk shall be consumed in the morning. When pitta is vitiated, intake of a kaṣāya prepared from vari (*Asparagus racemosus*), tikta (*Andrographis paniculata*), patola (*Trichosanthes lobata*), ṭṛiphala (*Terminalia chebula*, *Emblica officinalis* and *Terminalia bellirica*) is effective. Consumption of Dhāṭṛyādi ḡṛta or Kārāskaragṛta is also effective.

At times, it may so happen that the vitiation of dosha is severe. Here, intake of castor oil mixed with milk is advised. Alternatively, a kaṣāya prepared from abhayā (*Terminalia chebula*) with ghee shall be consumed. The accumulated faecal matter has to be got rid off by the administration of Kṣīravasti (enema with medicated milk). There is nothing as effective as vasti in the treatment of Vātarakta.

The patients of vātaśoṇita presenting symptoms such as pain in the anus, sides of the trunk, thigh joints and abdomen, stiffness of the head and neck, numbness, fever, anorexia, blisters, sloughing, etc. should be treated with caution as the condition may turn fatal.

In the presence of excessive burning sensation, consumption of a kaṣāya prepared with amṛtu (*Tinospora cordifolia*) and vari (*Asparagus racemosus*), mixed with milk is effectual. Intake of Ṣaḡaṅgakaṣāya, excluding cukku (*Zingiber officinale*) and including amṛtu is preferred;

the drugs are given below:

Ghana	<i>Cyperus rotundus</i>
Candana	<i>Santalum album</i>
Ambu	<i>Plectranthus vettiveroides</i>
Paṛpaṭa	<i>Hedyotis corymbosa</i>
Uśīra	<i>Vetiveria zizanioides</i>

According to the severity of the disease, the above mentioned decoctions may be prepared in such a way that amṛtu ½ the quantity and other 5 drugs together ½ the quantity.

Another kaṣāya prepared from the following consumed with milk is also effective in relieving body ache.

Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>	4 parts
Amṛta	<i>Tinospora cordifolia</i>	6 parts
Dāru	<i>Cedrus deodara</i>	2 parts

Śatāvāryādi kaṣāya detailed below, consumed with milk is also effective in relieving pain arising from vātaśoṇita.

Śatāvāri	<i>Asparagus racemosus</i>
Cinnaruha	<i>Tinospora cordifolia</i>
Āmala	<i>Emblica officinalis</i>
Tvak	<i>Cinnamomum verum</i>
Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Ikṣu	<i>Saccharum officinarum</i>
Rāsna	<i>Alpinia galanga</i>

A decoction prepared from the following with the addition of ghee and gingily oil relieves pain and edema of the feet, thighs, sacral region, sides of the trunk and back.

Rās na	<i>Alpinia galanga</i>
Eraṅḡa	<i>Ricinus communis</i>
Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Sahacara	<i>Nilgiranthus ciliatus</i>
Vari	<i>Asparagus racemosus</i>
Duspaṛśa	<i>Tragia involucrata</i>
Vaśa	<i>Justicia beddomei</i>
Amṛta	<i>Tinospora cordifolia</i>

Devāhva	<i>Cedrus deodara</i>
Ativiṣa	<i>Aconitum heterophyllum</i>
Ghana	<i>Cyperus rotundus</i>
Ikṣura	<i>Hygrophyla auriculata</i>
Śaṭhī	<i>Kaempferia galanga</i>
Vilva	<i>Aegle marmelos</i>

Medicated milk prepared from the above drugs can also be used. A kaṣāya prepared from the following also relieve vātarakta.

Vārī	<i>Asparagus racemosus</i>
Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Amṛta	<i>Tinospora cordifolia</i>
Dāru	<i>Cedrus deodara</i>
Candana	<i>Santalum album</i>
Eraṇḍa	<i>Ricinus communis</i>
Gokṣura	<i>Tribulus terrestris</i>
Rāsna	<i>Alpinia galanga</i>
Sahacara	<i>Nilgiranthus ciliatus</i>

In vitiated vāta, the above drugs are to be taken in equal quantities. If pitta is vitiated, the following variant will be more effective.

Ciffamṛtu	<i>Tinospora cordifolia</i> - 3.5 parts
Śatāvārī	<i>Asparagus racemosus</i> - 3.5 parts
Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Dāru	<i>Cedrus deodara</i>
Candana	<i>Santalum album</i>
Eraṇḍa	<i>Ricinus communis</i>
Gokṣura	<i>Tribulus terrestris</i>
Rāsna	<i>Alpinia galanga</i>
Sahacara	<i>Nilgiranthus ciliatus</i> - 1 part each

Consumption of a kaṣāya prepared from ciffamṛtu is effective. Medicated oil prepared from the following components shall be applied on the head or used for irrigation on the affected parts.

Expressed juice from ciffamṛtu and an equal quantity of milk as liquid components, sesame oil as lipid component and fine powders of the following as solid component.

Koṭṭam	<i>Saussurea lappa</i>
Irattimadhuram	<i>Glycyrrhiza glabra</i>
Candanam	<i>Santalum album</i>
Kadaḷippazham	<i>Musa paradisiaca</i>

Application of butter mixed with fine powder of irattimadhuram on the vertex is effective. Candanādi taila can be used for irrigation of the head.

Medicated sesame oil prepared with the kaṣāya of bala, amṛta and śatāvārī and milk as liquid components and the following as solid component relieves vātarakta.

Candana	<i>Santalum album</i>
Uśīra	<i>Vetiveria zizanioides</i>
Kuṣṭha	<i>Saussurea lappa</i>
Abda	<i>Cyperus rotundus</i>

Another medicated oil prepared from the kaṣāya of bala and guḷūcī (*Tinospora cordifolia*) and milk as liquid components, and the following as solid components relieves vātarakta, raktapitta (bleeding disorders) and headache.

Candanam	<i>Santalum album</i>
Uśīra	<i>Vetiveria zizanioides</i>
Yaṣṭyāhva	<i>Glycyrrhiza glabra</i>
Musta	<i>Cyperus rotundus</i>

All diseases caused by deranged rakta and pitta are relieved by the application of this oil. A variation of this oil added with one-fourth or one-fifth ghee as lipid component may also be used.

Medicated oil prepared from the following relieves vātaśoṇita affected on the head, raktapitta, pittagulma, burning sensation, fever caused by deranged pitta, urinary calculi, diabetes, pain on female genitals and excessive vaginal bleeding. Kaṣāya prepared from amṛta as liquid component, and the following as solid

components:

Candana	<i>Santalum album</i>
Sāribā	<i>Hemidesmus indicus</i>
Uśīra	<i>Vetiveria zizanioides</i>
Kuṣṭha	<i>Saussurea lappa</i>
Abda	<i>Cyperus rotundus</i>
Dhātrī	<i>Embllica officinalis</i>
Utpala	<i>Kaempferia rotunda</i>
Taskara	<i>Kaempferia galanga</i>

Balāguḷūcyādi taila

Medicated sesame oil prepared from the kaṣāya of balā, guḷūci and surapādapa (*Cedrus deodara*) as liquid components, and the following as solid components relieves vātarakta with burning, pain and edema.

Jaṭa	<i>Nardostachys grandiflora</i>
Āmaya	<i>Saussurea lappa</i>
Candana	<i>Santalum album</i>
Kunturuṣka	<i>Boswellia serrata</i>
Natā	<i>Valeriana jatamansi</i>
Aśvagandha	<i>Withania somnifera</i>
Saraḷa	<i>Pinus roxburghii</i>
Rāsna	<i>Alpinia galanga</i>

The above oil can be applied on the affected joints. It can also be prepared added with milk in the liquid components; and ghee as lipid component. When the joint edema is painful, Piṇḍataila can be applied.

Piṇḍataila

Sesame oil medicated with the fine powder of sarjarasa (*Vetiveria indica*), sāribā (*Hemidesmus indicus*), mañcaṭṭi (*Rubia cordifolia*) and bee's wax as solid components, on application, relieves pain caused by vātarakta. An equal quantity of kāṭi (sour gruel) and curd can also be added. Alternatively, one-third quantity of lipid component in the above oil can be ghee. The preparation is used only for application on the body. This taila is to be melted and poured

into water and churned well. The supernatant part shall be retrieved; after removing the water content by warming it can be applied on the body. This application relieves stiffness of tendons and ligaments.

Trimiśṛaka taila

Medicated oil, prepared from the kaṣāya of śatāvārī, balāmūla, guḷūci and milk as liquid component, and fine powders of the following as solid component, is termed as Trimiśṛaka taila, which is worshipped by thirty gods. This is effective in vātarakta where pitta is deranged and in fever and burning sensation. It can be applied on the head and body.

Mustā	<i>Cyperus rotundus</i>
Dīpya	<i>Trachyspermum ammi</i>
Madhuka	<i>Glycyrrhiza glabra</i>
Aśvagandha	<i>Withania somnifera</i>

A variation of this oil where one-fourth of taila is replaced by ghee is also effective. Kārkuḷuṛ madhukośīrādi taila (Cross ref. Raktapitta cikitsa - 21) can be applied on the body.

Medicated oil prepared from the kaṣāya of balā, guḷūci, devāhva (*Cedrus deodara*) as liquid component, and fine paste of the following as solid component, is lauded in raktavāta; it relieves body aches and can be used for external application daily.

Corakadvaya	<i>Kaempferia galanga</i> <i>Hedychium spicatum</i>
Mañjiṣṭhā	<i>Rubia cordifolia</i>
Śāribā	<i>Hemidesmus indicus</i>
Tagara	<i>Valeriana jatamansi</i>
Āmaya	<i>Saussurea lappa</i>
Trijātaka	<i>Elettaria cardamomum</i> <i>Cinnamomum verum</i> <i>Cinnamomum tamala</i>
Vaca	<i>Acorus calamus</i>
Rāsna	<i>Alpinia galanga</i>

Nāgakesara	<i>Mesua nagassarium</i>
Rohiṇī	<i>Picrorhiza scrophulariiflora</i>
Nata	<i>Valeriana jatamansi</i>
Yaṣṭyāhva	<i>Glycyrrhiza glabra</i>
Śatapušpā	<i>Anethum graveolens</i>
Balā	<i>Sida rhombifolia</i> ssp. <i>retusa</i>

Boil sesame oil (taila) with 1 āḍhaka (3.073 l) of āraṇāḷa (sour gruel), and one-fourth of sarjarasa; and when it gets cold, mix with water and churn well. The oil so collected relieves burning caused by fever and pain.

A patient who suffers from raktavāta is to be consumed Kārāskaraḡṛta, applied Amṛtādi oil on the head and Piṇḍataila on the body. This is a commonly accepted treatment.

Ceriya kuṛuntoṭṭi (*Sida rhombifolia* ssp. *retusa*) ground in milk and mixed with four-fold sesame oil and boiled, on application relieves fever; it is good in vātarakta and according to Caraka, this promotes bone healing.

Kārāskara ḡṛtha

Parboil twenty-five seeds of kārāskara (*Strychnos nux-vomica*) with buttermilk, remove its outer covering and discard the thick inner septum. Cut the pulp to fine pieces, mix with two nāzhi¹ of ghee and eight nāzhi of milk; boil this mixture and keep aside for a full day.

On the next day, boil it again till the crackling of solid content subsides; and filter the mixture. Half plāvila² of this is to be molten in the hot water till liquefaction; consume this in the early morning. The therapy should not be continued for more than twenty-five days as it may precipitate vertigo - unilateral paralysis of facial muscles; it may cause unconsciousness also. To counter these untoward effects, consume buttermilk mixed with a small quantity of rock

salt and terminate the drug immediately. Buttermilk is the antidote capable of detoxifying the drug.

For those who suffer from knee joint edema, pain and swelling, cook the above drugs that are boiled with milk, mixed with butter and apply locally. Application of Amṛtāditaila with kadalippazham (*Musa paradisiaca*) as kalka on the head and Piṇḍataila on the body is effective.

Local application of the following medicines, cooked in milk, ground to a paste and mixed with ghee on elevated edematous lesions on the knee are prescribed.

Eḷḷu	<i>Sesamum indicum</i>
Niśa	<i>Curcuma longa</i>
Malaṛ	Parched rice
Kaṭukka	<i>Terminalia chebula</i>
Tuṭintapāla	<i>Costus speciosus</i>
Nannāṛi	<i>Hemidesmus indicus</i>
Nallamṛtu	<i>Tinospora cordifolia</i>
Sāraṇi	<i>Merremia tridentata</i> ssp. <i>tridentata</i>
Pūkkula	Inflorescence of coconut palm
Eraṇḍabija	<i>Ricinus communis</i> (seeds)
Catapuṣpa	<i>Anethum graveolens</i>

Boil expressed juice of tuṭinpālakkizhngu (*Costus speciosus*) with milk; application of this mixture on the knee is effective.

Local application of the following drugs ground to a paste in milk, with ghee is very effective.

Guḍūci	<i>Tinospora cordifolia</i>
Paṭṛa	<i>Cinnamomum tamala</i>
Yaṣṭyāhva	<i>Glycyrrhiza glabra</i>
Śatāhva	<i>Anethum graveolens</i>
Śāriba	<i>Hemidesmus indicus</i>
Tila	<i>Sesamum indicum</i>

Uluva (*Trigonella foenum-graecum*) cooked in milk or in coconut pulp juice, and ground to a

1. one nāzhi = 192 ml; 2. A conical liquid container prepared from jack tree leaf - about 25 ml

paste mixed with butter on local application relieves edema and pain.

A kaṣāya prepared from amṛtu - 10 parts, and suradruma (*Cedrus deodara*) and bala - 1 part each, on consumption with sugar relieves knee joint edema.

Eḷlumuzhunnadi (cross ref. Vātavyādicikitsa - 104), mixed with ciftamṛtu shall be applied on the edema to relieve pain and churning pain. Intake of a kaṣāya prepared from cinna (*Tinospora cordifolia*) added with sesame oil, ghee and honey is effective; consumption of milk medicated with kṣīrabala or Śuddhabala tailam is also good.

Oil medicated with kārkuḷurmadhukośśira shall be applied on the head. Intake of Vidāryādi kaṣāya is effectual. A kaṣāya prepared with the roots of kāñjira (*Strychnos nux-vomica*) mixed with equal quantity of milk on irrigation on affected parts relieves edema, redness, warmth and pain.

Abscesses that are caused by vātaśoṇita are curable. As the condition of the patient improves, intake of svāducatuṣka (cross ref. Tṛṣṇācikitsa, Aryavaidyan Vol. VII, No.1) medicated ghee is effective. A kaṣāya prepared from iratṭimadhuram can also be added to the above ghee at the time of preparation.

Ghee medicated with iratṭimadhuram as liquid component and as solid component can be taken. Intake of Vātāśanitaila mixed with one-third ghee is also effective. In brief, this is the treatment of vātarakta. All treatments that are of hot or warm potency are to be strictly avoided. Application of butter on the head, consumption of milk or consumption of kañji with butter or medicated with the expressed juice of śatāvāri, consumption of kaṣāyas earlier

mentioned as Amṛtum varyiyum or Rāsnai-raṇḍādi are also effective.

A kaṣāya prepared from the following relieves residual effects of vātarakta.

Bala	<i>Sida rhombifolia</i>	
	ssp. <i>retusa</i>	6 parts
Guḷūci	<i>Tinospora cordifolia</i>	4 parts
Sura-		
pādapa	<i>Cedrus deodara</i>	2 parts

The above kaṣāya is to be taken with the addition of milk. Purgation and repeated bloodletting by the application of leeches on consolidated areas of edema are advised; local application of the above medicines cooked in milk and ground to a paste mixed with butter, or a paste of the following cooked in milk with the addition of butter are prescribed. As the edema subsides, the above drugs fried and ground to a paste mixed with milk shall be applied locally.

Kaṭuku (*Brassica juncea*), āvaṇakku (*Ricinus communis*), kṛṣṇatilam (*Sesamum indicum*) and malaṛ (parched rice) shall be fried and mixed with milk and reduced to a paste that can be applied on edematous regions for the relief of pain.

In vātarakta where the prime doṣa vitiated is kapha, the earlier mentioned eḷlumniśādi paste is applied. As and when the edema is reduced, the same drugs cooked in milk are to be applied. Expressed juices of kaṛuka (*Cynodon dactylon*), kāñjirattila (leaves of *Strychnos nux-vomica*) and pacamañjal (*Curcuma longa*) mixed with butter can also be applied locally. Application of a medicated oil prepared from catuśśita (four fig trees) is effective. If the condition of the patient is not fatal, intake of ghee medicated with Kṣīrabala is prescribed. In order to purify

the blood, consume a kaṣāya prepared out of nālppāmara (the four fig trees), added to svāducatuṣka; consume potentially upgraded (āvaṛttana) Śuddhabala. In the cases of abscesses and ulcers, appropriate treatments detailed in the management of vṛaṇa such as bhedana (splitting), śodhana (purification), ropana (healing), etc. is to be followed.

Consume Śuddhabala in the case of vātarakta where the mainly vitiated doṣa is vāta; six nāzhi of the medicine is to be consumed within forty-one days; during the next forty-one days, Mahātikṭaka ghr̥ta or Svāducatuṣka ghr̥ta is to be given.

The ulcer is to be irrigated with the kaṣāya of kāṛaskara mixed with milk. Classical treatment of vṛaṇa is to be followed. Intake of expressed juice of the withered leaves of tumbi (*Lagenaria siceraria*) and cīrakam (*Cuminum cyminum*) mixed with ghee is effective. Drinking of finely powdered roots of āvaṇakku mixed with coconut water is prescribed. Consumption of Ajājyādi tablet in warm water is effective. Eḷḷumuzhunnādi (cross ref. Vātavyādhicikitsa-104) paste is to be applied locally. Application of the bark of nīṛmāṭala (*Cretaeva nurvala*), ground to a paste in kāṭi (first washing of rice) is also effective.

Finely powdered of the following mixed with sesame oil and ghee, moisture removed by warming, on local application relieves pain.

Uluva	<i>Trigonella foenum-graecum</i>
Kaṭuku	<i>Brassica juncea</i>
Cencillyam	<i>Shorea robusta</i>
Citṛabījam	<i>Ricinus communis</i>
Tilam	<i>Sesamum indicum</i>
Malaṛ	<i>Parched rice</i>

Candana (*Santalum album*) and mṛganābhi

(musk) powdered and ground to a paste can be applied. These drugs made to a paste in kāṭi can also be used. Application of muringāttoli (*Moringa oleifera*) made to a paste in kāṭi is good; application of śatakuppa (*Anethum graveolens*), cooked in milk is also effective.

Sesame oil medicated with the kaṣāya of the following as liquid component, and fine powders of the same drugs as solid component, on external application relieves edema, pain and burning.

Ketaki	<i>Pandanus odoratissimus</i>
Balāmūlam	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Gulūcī	<i>Tinospora cordifolia</i>
Śatāvārī	<i>Asparagus racemosus</i>

Sesame oil medicated with the juice of likuca (*Artocarpus hirsutus*) as liquid component and fine powders of the following as solid components relieve vitiated vāta situated in the knee joint and edema with severe pain; it arrests bleeding also.

Niśa	<i>Curcuma longa</i>
Misi	<i>Anethum graveolens</i>
Suradāru	<i>Cedrus deodara</i>
Devadhūpa	<i>Boswellia serrata</i>

A variation of the above oil, into which bee's wax and mañcaṭṭippoṭi (*Rubia cordifolia*) added as solid components, and curd as liquid component, is also effective. Sesame oil medicated with the expressed juice of ketakimūla (*Pandanus odoratissimus*) as liquid component, and powders of the following as solid components relieve vātarakta quickly.

Dāru	<i>Cedrus deodara</i>
Niśa	<i>Curcuma longa</i>
Āmaya	<i>Saussurea lappa</i>
Candana	<i>Santalum album</i>
Saṛjarasa	<i>Vetiveria indica</i>

Musta	<i>Cyperus rotundus</i>
Bala	<i>Sida rhombifolia</i> ssp. <i>retusa</i>
Atibala	<i>Sida rhombifolia</i>
Hayagandha	<i>Withania somnifera</i>

Expressed juice of pūkkaitaver (*Pandanus odoratissimus*), kāṭi and curd as liquid components, and powders of the following as solid components, applied on regions below the neck relieves pain and churning pain. It is also effective when vāta is vitiated in the bones.

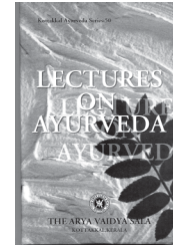
Mezhuku	Bee's wax
Nannāṛikkizhaṅgu	<i>Hemidesmus indicus</i>
Mañcaṭṭippoṭi	<i>Rubia cordifolia</i>

Vātarakta that belongs to uttāna type is to be treated with irrigation, external application of medicated pastes/oil; in the cases of gambhīra type, purgation, vasti and snehapāna are to be done. Rakta and pitta when vitiated cause ulcers and abscesses that contain pus; here, the treatment is on the lines of vṛaṇa (mentioned earlier) incorporating bhedana, śodhana and ropana. Treatments for raktapitta may have to be resorted to if necessary. Ghee termed Sukumāra is very effective. Amṛta is constipating and is effective in promoting digestion, and combined vitiation of vāta, kapha and rakta.

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