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सतताध्ययनं, वादः परतःत्रावलोकनम् ।

तद्विद्याचार्यसेवा च बुद्धिमेवाकरो गणः ॥

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

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7. Efficacious Oral-rehydration therapies based on medicated preparations need to be considered for promotion at a larger scale for management of diarrhoeas and dysenteries.
8. Efficacious practices of Polio-rehabilitation available in these systems need to be considered for promotion at larger scales.
9. There is a need to develop mass communication programmes for large scale awareness of selected regimens in prevention and promotion of specific diseases.
10. Joint study groups can be formed from both the practitioners of modern Immunology and Medicine as well as Indigenous Health Systems to conduct research on the above mentioned diseases and measures for raising the general immunity in order to develop a more holistic and integrated approach to their prophylaxis and management.
11. There is an urgent need to expand the rich resource base of our medicinal flora and encourage its usage through development of large number of "herbal" gardens throughout the country.
12. There is also an urgent need to expand decentralised production of quality herbal drugs under the close supervision of trained experts from locally available medicinal flora for their use in primary health care, particularly for mother and child care.
13. Training and Education Centres should be set up for health education and simple remedies for commonly prevalent diseases as known in ISM. Help and Co-operation should also be sought from voluntary organisations and other institutions for the same.
14. Expert committees will be constituted in consultation with all concerned :
 - (a) To identify selected regimens for the conditions mentioned above.
 - (b) To draw out elaborate programme/packages for their large scale use and
 - (c) For joint research programme.

Niskri Rnan Kutty Vaniar

FROM THE PAGES OF VAGBHATA—VI

N. V. K. VARIER

“उष्णशीतगुणोत्कर्षात् तत्रवीर्यं द्विधा स्मृतम् ।”

“Usna Sita gunolkarsat tarta Viryam
dvidha smrtam”

“Veerya (potentiality) is remembered two fold, as hot and cold exist more as properties”.

There are twenty gunas or properties for substances. They are given in the next verse. Out of these two properties, heat and cold, determine the action of the substance more than all others. All other properties converge to promote either of these two. Veerya is that which determines the action. Since heat and cold are determinatives, they are termed Veeryas.

“त्रिधा विपाको द्रव्यस्य स्वाद्वम्लकटुकात्मकः”

Tridha vipako dravyasya
svadvamlakatukatmakah

“Substances have three Vipakas, sweet, sour and acrid.”

We have already noted that tastes are six in number and how each of them acts for or against each dosha. But substances holding these rasas, when

consumed, undergo changes during digestion is or when digestive fire acts on them. The change that takes place during digestion termed as Vipaka. The six tastes after digestion become any of these three, sweet, sour and acrid. Sweet and salty become sweet, or do the action of sweetness which is building up the body, reducing Vata etc. Sour in Vipaka state also is sour. It acts against Vata, but increases Kapha and Pitta. Bitter, acrid and astringent after digestion or in the Vipaka state, act as pungent, which decreases Kapha but increases Vata. So the three Vipakas refer to the action of the tastes in effect.

“गुरुमन्दहिमन्निग्धशुष्णसान्द्रमृदुस्विराः ।

गुणाः समूक्षमविशदाः विशतिः सविपर्ययाः ॥”

gurumandahimasnigdhaslaksnasandra-
mrdusthirah
gunah sasuksmavisadah vimsathth
saviparyayah.

“Heavy, slow, cold, unctous, smooth, soild, soft, stable, subtle and transparent with their oppsites are the twenty properties.”

Ayurveda is a function-oriented science. We started from Tridoshas.

But these functions are based on the properties of matter. Dravya, the multi-fold universe, is constituted by material bhutas, the five elements, ether, air, fire, water and earth in various permutations and combinations. The properties of the constituting bhutas and the nature and proportion of combinations determine the property of dravya. Similarity in properties tend to increase and dissimilarities to decrease the doshas, which leads to their balanced or disturbed condition. The doshas are recognised by their actions. Hence, to control them with materials or actions, knowledge of the properties of each material and action is essential.

These properties are twenty in number, each property also having an opposite character. Heavy is opposed to light, slow to acute, cold to heat, unctous to dry, smooth to hard, solid to liquid, soft to rough, stable to flowing, subtle to gross and transparent to viscid. The power of a substance for nourishing action lies in its heaviness, and the power for reducing in its lightness. So quietness is in slowness, purification in acuteness, paralysing (स्तम्भनं) in cold, diaphoresis in heat, dampness in unctousness, drying in dryness, healing in smoothness, scraping in hardness, pellucing in solidity, stirring in liquidity, loosening in softness, tightening in hardness, bearing in stability, persuading in mobility, boring in subtlety, covering in grossness, washing in transparency and pasting in viscosity. Some times, we may come across mention of other properties also, as the properties for pervasiveness (व्यव्यापि), expanding (विकृति) quickness in action, clearness with good odour. But all such

properties are really included in the above twenty.

“कालार्थकर्मणां योगो हीनमिव्यातिमात्रकः ।
सम्यग्योगश्च विज्ञेयो रोगारोग्यैकारणम् ॥”

“Kalarthakarmanam yogo
hinamithyatimatrahah
Samyagyogasca vijneyo
rogavogaikakaranam”

“The important cause of diseases is due to the short, disorderly and excessive conjoints of Kala (time), sensations and actions and of health due to their proper conjoints.”

This aphorism, if expanded explains the causes of all diseases and of health. Kala or time refers to seasons as cold, hot, rainy etc. Artha refers to sensations due to seeing, hearing etc., (Arthas are perceptible sensations). Karmas or actions are performances by body, words and mind. If at the period of a season, due signs and states of other seasons also are experienced, it is an improper or irregular yoga --- conjoint --- a Mithyayoga. For example, if during the cold season i.e. Hemantha (early winter) or Sisira (late winter) no cold but heat is felt, or during a rainy season, snowing also is seen, are examples of irregular conjoints. Excess of rain in rainy season, excess of heat in hot season, or lack of rain in rainy season or heat in hot season are examples of Atiyoga (excessive conjoint) and Heenayoga (short conjoint). These conditions provoke and create diseases. On the contrary, if heat, rain or snow in the hot, rainy and cold seasons are in proper order. they are salubrious. Hearing discordant sound is an disorderly union of sensation. Hearing

excessively loud sounds is an Atiyoga (excessive conjoint) and giving ear to hardly audible sounds is a Heenayoga or short conjoint. Similarly, looking at an object far away or ugly or undesirable, are examples of disorderly conjoints and looking at minute objects is of short conjoint of sensation. Smelling strong and sharp smells is excessive sensation and only a little smelling is short sensation and smelling had odours as those of dead bodies and decayed things of disorderly sensation of nose. Enjoying any taste always and more than normal is an excessive conjoint (Atiyoga) of the organ of taste and less tasting is short conjoint. Tasting unpalatable, smoky or charred food is irregular conjoint. Exposition of skin to extremes of heat and cold is excessive conjoint and no exposition a short conjoint and contact of skin to putrid or impure objects is an example of disorderly conjoint.

Karmas or actions are by body, words and mind. Running with too much speed, talking very loudly, thinking too deeply are all excessive actions by body, words and mind respectively. On the other hand, if one does not walk at all, or keeps silent even when in need or has no sensitivity or thought at all, there is Heenayoga or less conjoint of actions of body, word and mind. Inhibiting of natural urges for urination, defecation, sneezing, coughing etc., or forcibly urging them are disorderly or improper conjoint of the body. They all create diseases. Talking unpleasant or offending words belong to the disorderly conjoint of words. Thinking of unholy or indecent ways and purpose is disorderly conjoint in thinking. All these unions or conjoints

are the root cause of the disease, while orderly conjoints of time, sensation and actions create and promote health.

The aim of Sastra, is to teach the disciple how to behave in the world to gain health and prosperity. The secret lies in our ability to co-ordinate in an orderly way the factors of time as season etc., to the sensations in a harmonious way and controlling our actions properly. All transgressions from orderliness lead to physical and mental diseases. So here is the prime reason for health and ill-health.

“रोगस्तु दोषवैषम्यं दोषसाम्यमरोगता”

Rogastu dosa Vaisamyam
dosasamyamarogata

“Roga (disease) is the inequilibrium of doshas, Arogatha (health) is the equilibrium of doshas.”

Roga, the term for disease, means that which creates pain. Disease is caused when the doshas, Vata, pitta or Kapha increase or decrease and create inequilibrium. The increase or decrease may be of one, two or three doshas, to create various conditions of diseases. In fact, an increase or decrease alone does not create diseases. The increased doshas may accumulate in the beginning, and afterwards may move from their seats, interfere in the functions of tissues and wastes (malas) and create diseases. Anyhow, there is no disease without the upsetting of doshas. So disease is explained as inequilibrium of doshas and health as their equilibrium.

“निजागन्तुविभागेन तत्र रोगा द्विधा स्मृताः”

Nijagantu Vibhagena tatra roga-
dvidha Smrtah.

"Diseases (Rogas) are remembered as of two classes, "Nijas and of Aganthukas."

The diseases are basically of two categories — Nijas that which originates from the body, due to the inequilibrium of doshas, caused by the wrong ways of life, diet and actions and Aganthukas, those caused by outside agents, like collisions, falls, phobias, demoniac attacks etc., In the latter, pain and discomfort is felt by the patient at the very start, and then the doshas are upset. But a diseased condition occurs only when the doshas are upset. In Nija or self originating diseases, the symptoms of upset doshas are discernable earlier, even before the disease is manifest. At this stage, the disease can be prevented by purificatory treatments. In Aganthuka diseases also, when the disease is established, treatment is for restoring the equilibrium of the dosha.

"तेषां कायमनोभेदादधिष्ठानमपि द्विधा"

"Tesam kayamanobhedadadhista-
namapi dvidha"

"Their seats also are two, as Kaya (body) and Manas (mind)."

The bases or seats of both types of diseases, Nijas (self originated) and Aganthukas (coming from outside agents) are two as the body and mind. For instance, diseases as fever, Raktapitta (Haemothermia), cough etc., are based on body and Mada (alcoholism), Moorcha (swooning), Sannyasa (Coma), Grahas and bhutas (demoniac affections), Unmada (Insanity), Apasmara (epilepsy) or Raga (affection) Dvesha (hostility) etc., have mind also as their base.

"रजस्तमश्च मनसो द्वौ च दाशवृदाहृतौ"

Rajastamsca manaso dvau ca
dosavudahrtaw

"Rajas and Tamas are also taken as two doshas of the mind."

Apart from these three doshas, Vata, Pitta and Kapha which affect body and mind. As Rajas and Tamas vitiate the mind, they are termed as doshas. It has to be noted that Satwa, Rajas and Tamas are the three "gunas" inherent in nature and in man. Here Rajas and Tamas, although gunas, like Vata, Pitta and Kapha when their proportions are altered become doshas. But Satwa even if increased only promotes mental health and so is not a dosha.

"सत्त्वं ह्यविकारि गुण एव न दोषसंज्ञां ब्रह्मतीति"

Satvam hyavikariguna eva
na dosasamjnam a rhatiti

"Satwa is not liable to vitiation: so the term dosha is not applicable to it (Sidhanta Nidhana)."

Bhavaprakasam describes a man of *satwik*, nature as one with faith, taking ordered diet, free from anger, committed to truth, with the faculty of understanding, wisdom, courage, patience, compassion, knowledge of self unpretentious, with noble deeds, selfless, humble and performing virtuous deeds with regards.

A man with Rajas in mind has excessive anger, is inclined to tormenting others, and has excessive sorrow and is desirous of pleasures and is erotic. He speaks lies, lacks courage, is proud arrogant and excessively pretentious of

one's own happiness and is always roaming about. Faithlessness, sorrow excessive lethargy, wickedness, tendency to be upset by pleasures and sorrows, day and night sleep, ignorance, always possessed with anger, and foolishness are the signs of one with Tamas. From the foregoing it is clear that *satwa* is not a guna liable to vitiation, while Rajas and Tamas although considered as gunas are by their very nature states that can be mislead to create disturbances.

Doshas, Vata, Pitta and Kapha, also vitiate the mind. Unmada (insanity) and Apasmara (epilepsy) are classified as due to Vata, Pitta, Kapha and others. Mental affections due to Raga (attachment), Dvesha (hostility) etc., also create not only diseases of the mind but also of the body by provoking their doshas. Kama (erotic excitement), Soka (sorrow) and Bhaya (fear) provoke Vata, anger provokes Pitta. Mental diseases also are to be treated as physical diseases.

“दर्शनस्पर्शनप्रश्नैः परीक्षेत च रोगिणम्”

“Darsanasprsanprasnaih parikheta
ca roginam”

“The sick is to be examined by sight, touch and questions.”

After describing what a disease is how they are classified and what their bases are and the mental doshas in addition to the three doshas, the methods of examining the patient are described. Briefly three methods are described. Changes in colour, emaciation, swelling and similar abnormalities can be clearly diagnosed by sight. Heat, coolness, the pulse-beat etc., are recognised by touch. Appetite, pains tolerance, aptitude etc.,

are to be inferred by questioning. In Ayurveda, understanding the patient rather than the disease has first preference. Two people may have the same disease. But, if their Prakriti (genetic type) and the nature of the disturbed doshas are different, then basing on the doshas, treatment also may differ. So, here, examination of the sick is suggested. Although, here, the instruction is for a three-media examination according Susruta, usage of other sense organs also is suggested. In discharging wounds, Vayu may create sounds also. In examining such cases, use of eyes and ears is necessary. In diabetes, to test the taste of urine, tongue also would have to be used. Easily curable and obstinate wounds and also other states are often differentiated by smell. Thus examining with five sense organs together with questioning, make the number of examination methods as six.

There are eight seats centres called Astha sthanas, to be examined according to other texts—pulse, touch, form, voice, faeces, eyes, urine and tongue. They are examined by the above said six agents.

To come to conclusions, Pratyaksha (direct evidence), Anumana (inferenc) and Agama or aptopadesam—the testimonies of scriptures or ancient seers—are to be relied upon. The conditions of the doshas, mental attitudes, and strength, the state of the digestive fire, capacity to exert or exercise, age, adaptiveness, the state of various organs, are all to be thoroughly examined,

रोगं निदानब्राह्मणपलक्षणोपशयाप्तिभिः

Rogam nidanapragrupalakshano-
pasayaptibhih

"Disease is to be diagnosed by causes (nidana), Pragrupam (pre-monitory signs), Lakshanas (symptoms), Upasaya (response) and Samprapti (course including prognosis). Having presented the rules and ways of examining the patient, the factors of disease to be examined for diagnosis are enlisted. There are five factors, together designated as Pancha-nidana. Nidana is cause—as eating unwhole-some foods, over-exertion, exposition to sun or rain, over-indulgence in sex etc. These are brought to light by questioning or by other evidence. Pragrupa is premonitory symptoms. For instance, before the onset of fever, one may feel lassitude, headache etc. Lakshanas are symptoms, as fever, diarrhoea, cough, haemothermia, etc. Upasaya—response to treatment—by medicines, or diet or methods as sweating etc., If it increases, that also helps diagnosis. Apti or Samprapti is knowledge of how the disease has developed, the stage of the disease, parts affected the changes effected and how it has spread i. e. correct knowledge of the exact nature of disease as to its seat, mode of advent, course, and form. Samprapti is five branched (1) Samkhya (number) the number of the forms of the particular diseases (2) Vikalpa (analysis) i. e. accurate analysis of differentiation of relative action of doshas along with quantitative analysis. (relative action upon the system). (3) pradhanya (importance)—whether the disease is primary or secondary one; (4) Bala — the strength of the disease and (5) Kala—time, i.e. influence of the seasons duration of the disease and other related factors. Some others consider "Vidhi" also as a factor. They group time and strength together

and add "Vidhi" as another factor. Vidhi is to define the state of the disease and prognosis, by judging the form of the disease as self-generated (Nija) or by outside agents, (aganthukas), the state of the doshas and its progress.

"भूमिदेहप्रभेदेन देशमाहुरिह द्विधा ।"

"Bhumidehaprabhedena
desamahuriha dvidha."

"Desa (place) is said to be separated into two, as Bbumi (land) and Deha (body). In diagnosis, the site of the disease and the environmental factors are also of importance. So here, in Ayurveda, Desa — site of disease — has to be taken corresponding to both body and also to the land. In other contexts, the term desa is applicable to place alone and not to body. 'Dehadesa' means parts of the body as head, hand etc., Place is again classified into three types — Jangala, Anooa and Sadharana.

जाङ्गलं वातभूयिष्ठमनुपं तु कफोत्वणम्
साधारणं सममलं त्रिधा भूदेशमादिशेत् ।

Jangalam Vata bhuyishthamanupam tu Kapholbanam Sadharanam Samamalam tridha bhudesamadiset

"Bhudesa (earthly place) is again said as three, Jangala, with excess of Vata, Anooa with excess of Kapha, and Sadharana, where all malas (doshas) are in equal order."

Jangala is a place where Vata is predominant. This place provokes Vata. It is a plateau, like a region where water, trees and hills are scarce. Herbs, birds, and animals found in these areas are predominantly of Vata nature. Vata

has the properties of dryness, lightness, coldness, hardness, subtlety and motion; so the herbs and animals of these places excel in these properties. Although it is pointed out that these places are with excess of vata, they also provoke Pitta to a lesser degree. But predominance is for Vata. An *anoopa* place increases Kapha. Places around water resources or damp places recovered from watery areas etc., belong to Anooopa, where water and trees are in abundance and heat from Sun's rays is very scarce. The medicines and animal flesh in those areas are more unctous. But being cold, Vata also may accompany Kapha. A Sadharana place is a location where all doshas are more or less in equilibrium—beautiful places, where trees, creepers and pure water are as required, neither a plateau nor a mountain, but ordinary high and low place, with little hills and meadows. Here heat, cold, rain and air are all moderate. This is termed Sadharana or ordinary.

Bhavaprakasam describes Jangala, Anooopa and Sadharana places in the following way. "Clear as the sky and high, trees and water resources, scarce

plants as *Aegle marmelos* (Bael tree) grown and animals as stag, bear, spotted deers, asses are seen and where trees giving sweet fruits is known as Jangala." Anooopa place is one where rivers, small water beds, mountains, Plants like *Monochoria hastata*, and birds as swans and animals as hares, pigs, buffaloes and with abundance of trees and flowers, where blue plants and fruits are grown and with fields growing varieties of paddy, plantains and sugar-cane. A Sadharana place is one with a mixture of both characteristics. The last one mentioned is the best, since, there heat, cold, rain and doshas as Vata, Pitta and Kapha, are in a balanced state.

One who attends to the rules of diet, sleep and sex need not be afraid of the demerits of a place. So the routine has to be adjusted looking into the specialities of a particular place. Generally, the medicine that is grown in a place where one is born and is acquainted with, may be good for him. When one goes to another place also, the medicine equal to the one which he is acquainted with in his native place may do good.

"TEEKA" — THE VACCINATION PRACTISED IN INDIA*

M. S. VALIATHAN

On the eve of independence, Smallpox was a very dreadful infectious disease in India. Many concocted tales, speedy contagion, the disfigured form of the patient, and thousands of deaths, all these made Smallpox a nightmare. But today nowhere in the world is there Smallpox. It is 8 years since Smallpox was eradicated. There is a great history behind this success.

We all know that Smallpox disappeared due to the inoculation or vaccination for it. The word Vaccination is derived from the term "Vacca," for "Cow" in latin. The originator of vaccination is Dr. Jenner, who lived in England in the 18th century. Then he was working at Gloucestershire. At that time smallpox was a very serious problem in England. Dr. Jenner could understand that common milkmaids who milked cows developed cowpox boils on their hands, and seldom had Smallpox later on. Based on this information, Jenner started vaccination in 1796 and it got universal recognition. This story is now known even to school boys. But there is another story not known to anybody lying hidden in the dark pages of history. That is the story of "Teeka."

"Teeka" is a process of an indigenous form of inoculation that was in vogue in many parts of India, particularly in Bengal. Although this was a popular custom, we have no records of it of our own. There is nothing to be wondered at in it. Where was Kalidasa born? When did Charaka live? Leave aside these. We have no reliable records even for determining the real name of Thunjeth Ezhuthachan. In this background of the indifference of Indians in producing and preserving historical records, there is nothing to be wondered about the absence of records of "Teeka."

But fortunately, even today we have a clear study of it which is not yet lost. It was prepared by Mr. Holwell, a British Scientist and doctor. Being a Fellow of the Royal Society he was a recognised scientist in Britain. His observations are important as he had done medical service in Bengal for about 20 years. Holwell was one of the scholars who were deputed by the Royal Society to study and report on all branches of knowledge and custom that were prevailing in all parts of the world. His letter was in the year of 1767, i. e. 29 years earlier to the origin of Jenner's

* Based on a broadcast by Dr. M. S. Valiathan, Director, Sree Chitra Thirunal Institute for Medical Science & Technology, Trivandrum-695 011.

vaccination and ten years after the Plazi war. The origin of the letter was Calcutta and it was addressed to the President of the Royal college of the physicians. It was his desire to make "Teeka" not only beneficial to Indians alone but for the entire humanity that persuaded Holwell to record his observations of "Teeka."

Smallpox in Bengal:

The Smallpox observed by Holwell had some special characteristics. Lying low for 5 or 6 years, it was in the 7th year that Smallpox showed its full form. This pestilence, which glowed in the months of March, April and May, killed thousands of people. It calmed only with the beginning of rainy season. Its symptoms like anorexia, excessive weakness, sleeplessness, dryness of the mouth, fever and other premonitory symptoms were taken by most patients as the unpleasant effects of the summer season. After three or four days only when the fever became severe, they could realise that there was something seriously wrong with the body and it was necessary to approach a doctor. Holwell observed that many patients excessively tired died on the 5th or 7th day. He recorded how boils were appearing on the forehead, face, neck and breast and urine was getting discoloured and turbid. In all stages of the disease men had to struggle with death.

The aim of "Teeka" was to prevent this ill-fate. Its operators were members of the priest-class who lived in various parts of the province which is now known as Uttar Pradesh. They used to come in teams of 4 or 5 to Bengal by the month of February. For a month

before their expected arrival the people had to undergo a regimen of restricted diet avoiding fish, milk and ghee. The strict rule was to prohibit inoculation to those who had not undergone these restrictions.

When the team of priests arrived at the doorstep of the house, the members of the house who had observed these restrictions came before them, ready to take inoculation. One priest cleansed the part of the skin where the inoculation was to be done by massaging with a piece of fresh cloth for 8 or 10 minutes. Usually the inoculation to women was done above the elbow joint of the hand and for men below the knee joint. After this purification of the skin, the priest handles the needle. The needle was $4\frac{1}{2}$ inches long and its central portion was coiled as that of a screw. One inch behind the portion of the needle for inoculation, the needle expanded to $\frac{1}{8}$ of an inch. The striking end had two pricking points while the other end had the form of a ear-scraper. With the needle points the priest pricked for 15-16 times very speedily while being careful about two aspects. (i) The striking area must not be more than that of a silver coin and (ii) the depth of the strikes should not be more than for producing smears of blood. When the pinpricks were over, the priest took some cotton from a bag suspended on his waist kept safe by two coverings. That cotton would have been soaked in the boils of the patients of the previous year and kept safe. Under all circumstances, it was strictly forbidden to soak the cotton in the boils of the patients of the current year. This cotton was soaked in one or two drops of Ganga water and placed

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THE SILVER LINING

The workshop at Ahmedabad, on Traditional Medicine and Immunology conducted on 23rd to 25th September, 1988 is a significant event in our way. We welcome and congratulate the sponsors of this timely step. It is note-worthy that the initiative was taken by Technology Mission of the Government of India and was hosted by the Gujarat Ayurveda University with the co-ordination of the Lok Swasthya Parampara Samvardhan Samity of Coimbatore. This workshop which undertook serious deliberations in its three days sitting was inaugurated by Sam Pitroda, adviser to premier on technological affairs welcomed by Sri V.R. Mehta, Vice-chancellor of Gujarat Ayurveda University and lead by esteemed doctors and professors as Dr. K. N. Udappa, Pandey, Kasture, Nanal and others had the lively participation of about 100-120 members equally important authoratative personalities representing all relevant government and non government institutions, universities movements and bodies in the field of research and health activities, modern and indigenous alike. So it had an authoratative air in its exchange of ideas for formulating plans to pool and conserve all energies to promote a national policy for a better programme in the popularisation and execution of immunity work. The fourteen resolutions adopted by the workshop and submitted to the government of India carry recommendations which if accepted and worked out seriously with timely feed backs will be the beginning of a turning point in our health programme with a realistic and more fruitful approach and with far reaching significance in promoting mutual respect and co-operation in the various fields of health disciplines in our mother land and also for emerging a new vision, true to the needs of the times and the advancing world wide movements reflected in the declaration and programmes of the W. H. O.

We are hopeful. We see atleast a silver lining to the clouds of this darkness.

Resolutions adopted at the Workshop on "Traditional Medicine and Immunology" organised by Gujarat Ayurveda University in collaboration with Lok Swasthya Parampara Samvardhan Samity under the auspices of offices of Technology Mission on Immunisation, held at Ahmedabad on September 23-25, 1988.

It is recognised that :

1. Both the Indian Systems as well as modern Systems of Medicine and Health have an understanding of human body's capacity to resist the onslaught of infection. It is also recognised that there is a definite difference in their approach

to understanding of this "resistance" to and "immunity" from infection which basically emerges from the differences in their theoretical foundations and of their world views including that on "health" and "disease".

2. While a lot of research is going on

the world over on modern immunology, there is an urgent need to conduct in depth research into these foundations of immunity and resistance as understood by our Indigenous Systems of Health, according to their own framework using scientific methodologies. There is also a need to have a serious dialogue on these aspects between the two systems not only to have a "holistic" understanding of the processes of "health" and "disease" conditions but also to tackle several of these conditions in a more "holistic" manner to help provide better health care particularly to the vulnerable populations. Comparative research on selected few diseases conditions is urgently required to initiate work in this direction.

3. Our Indigenous systems of health have a rich repertoire of promising interventions to raise innate/natural immunity and prophylactic as well as therapeutic regimens against several disease conditions of concern to mortality and morbidity of pregnant and lactating mothers as well as children.

This house therefore resolves that :

Resources Self-reliance

1. There is an urgent need to undertake thorough documentation (and its simultaneous analysis) of this rich repertoire not only in the organised indigenous health systems but also in the local health traditions through out the country.
2. There is also urgent need to establish advanced centres of excellence

to conduct research on these issues according to Indigenous traditions, following scientific methodologies and to develop collaborative research programmes with advanced centres of modern Immunology and medicine to evolve a "holistic" understanding through comparative research which can be initiated on a few list of selected disease conditions, mutually agreed upon.

3. Effective interventions available in these systems to raise general immunity through practices of Dinacharya, Ritucharya, Panchakarma and use of Rasayanas need to be considered for promotion through organised programmes for the same.
4. Garbhini Paricharya and Jata-Matra Paricharya (for neonates) to raise general immunity/resistance of pregnant mothers and infants, respectively needs to be considered for promotion on a larger scale.
5. Efficacious and cost effective prophylactic regimens based on indigenous resources available in these systems particularly to tackle upper-respiratory infections, measles, Poliomyelitis and whooping cough need to be considered for promotion at a large scale.
6. Efficacious and cost-effective therapeutic regimens based on indigenous resources, available in these systems particularly to tackle conditions of Bala atisar (infantile diarrhoea), Kamala (Hepatitis), Vishamjwar (Malaria), Romantika (Measles) and Vatika Kasa (Whooping cough) need to be given large scale field trials.

over the skin where the pricks had been made. A bandage with a piece of cloth was tied which was instructed to be removed after six nazhikas. Thus ended the "Teeka." Panegyrics to goddess were recited by the priests at the beginning and their faces always bore a serious expression.

After this inoculations, the priest used to give a number of instructions. To continue the restrictions for a month. To take bath in cold water both in the morning and evening. To stop taking bath on the 6th day when there would be onset of fever. On the ninth day when more than 50 boils appeared baths were to be restricted. When these appeared they should spend their time in open places with light and air. Before the boils matured, they were to be broken with a thorn. When the burst boils dried up, to the ordinary routine were to be started. These were the instructions.

After this inoculation the "Dakshina" (xenium) to the priest was a small bagful of cowry shells. Holwell calculated its value as equal to that of a penny in those days.

After inoculating 8 or 10 members of a house, the team of priests entered the next house. This work of the mission, which started early in the morning was often completed by the night. According to Holwell's experience, amongst those who had taken this inoculation and followed the strict regimen, even one out of ten lakhs did not die due to Smallpox.

The first impression of Holwell to this inoculation of the priests was one of

aversion and apprehension. It was after a few years of observation and study, he could accept the merit of "Teeka." He realised that many patients who died without taking "Teeka" would have survived if they had taken it in due time. Without being satisfied by observations alone, Holwell discussed with the priests who were generally misers at letting out any knowledge on the fundamentals of "Teeka." Although they gave explanations of the restrictions and other formalities of the treatment, what impressed him more was the causes of Smallpox as enunciated by the Indian priests. It was like this. There are two causes for Smallpox. In one way human beings have in their own organs an innate tendency or weakness to get afflicted. This may vary from one to the other. At the same time what matters immediately is the invisible and swimming crores and crores of minute living beings in the atmosphere. Although all infectious diseases are due to these living beings, they have a special role in the origin of Smallpox. These living beings which are invisible to the human eyes may be holding in them spirits and ghosts, the priests suspected. They enter in all mediums and objects. In the air we breathe and in the food, and along with them they invade in flocks all the internal organs, blood, marrow etc. This is how, they appear as eruptive boils on the skin and have their deadly dance. The severity of Smallpox will be proportional to the number of organisms entering through food and air.

Even though the fluid for inoculation, was taken from boils of a Smallpox patient, they produced no serious side effects because it had aged. On the contrary, when the disease organisms

from the atmosphere entered directly, their attack would be many times more strong and dangerous. Our living cells, when they had encountered them once through "Teeka," would be better prepared to resist a second attack. While discussing these ancient principles they did not forget also to criticise the main features of western treatment.

The history of "Teeka" is only an example of the technical procedures that were in vogue in India in the 18th century. In the construction of the plough and the boat, in smelting of iron to make steel and in many other fields, our ancestors had a science and technology of their own. Due to various reasons, all of them were declining by the 18th century. The heavy impact of western science pushed these old principles and knowledge of science from decline to ruin. To get any information regarding them we have today to search for western observers like Holwell.

Is there any relevance today for an ancient practice like "Teeka"? Is it simply one more instance for us to boast about our glorious tradition? Is it a futile attempt to search for the sources of the scientific and technical knowledge of ancient India? The positive answer to these questions is that the history of "Teeka" holds relevance even today. Let us imagine that Indian culture, as Nehru imagined, takes its source from the height of a peak unreachable by our eyes and is ever flowing to the future of a vast ocean. On its way, many canals and tributaries flow to it. But if the main source dries up, in spite of the vast number of tributaries the current

of the river must inevitably slow down. "Teeka," Kayachikitsa (treatment of body), smelting of iron, construction of boats, the smoothness and glow of "Aranmula mirror," the discovery of "Zero"—there are hundreds and hundreds of such achievements to be listed—are our common heritage and the source of the current of our scientific knowledge. Instead of increasing and expanding them by research, refinement and re-examination, we completely forgot them and mistook the tributary that reached us from the western countries as the original source of scientific knowledge. Here was our real failure of the 18th century. We still suffer from its undesirable effects. If we take the various branches of science and technology, we can find few instances where India's achievements created a global impact. Today we have no choice but to go to a foreign country for advanced training in any subject or to get any special treatment. We cannot but depend upon other countries to start any new industry or to renew an old industry. Our failure in the 18th century in the field of science and technology has been many times more costly than our defeat in the Plazi war.

While the followers of Jenner, who churned vaccination from the folklore of the Gloucestershire milkmaids, built up and illumined the sciences of Virology and Vaccinology we not only forgot "Teeka" but abandoned independent thinking in scientific matters. No wonder we are still punished for this crime and so far as we are forced to depend on the countries for the production of vaccines. ●

IMPORTANCE AND SCOPE OF STANDARDISATION OF DRUGS IN SIDDHA MEDICINE

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Introduction :

The history of drugs is the history of man from his earliest struggle against pain and premature deaths.

In recent years / Indigenous System of Medicine particularly Siddha and Ayurveda are attracting the modern scientists in finding out solutions for many challenging diseases.

Siddha system of medicine flourished in South India, Tamil Nadu in particular. Siddha System follows Saiva Sampradhyam and it is attributed to Agasthiar. Eighteen important Siddhars are mentioned in this system who attained "Siddhi" or "Perfection" through birth, drugs, mantram, austerities and samadhi.

A science is said to be progressed only when it is developed to suit and satisfy the demands and necessities of changing time and living conditions. So also is the Siddha system of medicine. This is obvious from the research conducted recently, which points to the revival of this ancient system of medicine in order to restore its place of pride.

India has vast resources of naturally occurring medicaments. These are to be developed in order to evaluate their safe use with maximum activity.

Standardisation of drugs is one of the important measures in view of various practical problems encountered from time to time in the field of Siddha. Since sufficient methods are lacking to assess the standards of method of preparation and the final product, some unethical persons and pharmacies are exploiting the situation. As a sequel, the patient, the practitioner, and the society are victimised, subsequently leading to the unpopularity of the system itself. It is an accepted fact that the success of the treatment depends upon the genuineness, quality of drugs and method of preparation. However, it needs a thorough revision in the wake of development of the modern science. Hence, there is an imperative need to standardise the drugs right from the stage of procurement to the stage of final product. In order to achieve this goal, the studies are to be carried out on the lines of

- (i) Raw drug standardisation
- (ii) Standardisation of finished products
- (iii) Periodical studies for shelf live (expiry date study)

Raw drug Standardisation :

In Siddha System of medicine, there are more than 1,000 raw drugs of vegetable and mineral origin described¹. About 40% of herbs are used in the preparation now-a-days. Out of 40% about 10% of the herbs are controversial and their identification is yet to be established. The various factors involved in the standardisation of raw drugs are: identification, source, collection and storage.

Identification :

At present many of the Siddha physicians and pharmaceutical concerns engaged in the manufacture of medicines are depending upon traditional collectors for crude drugs. Knowingly or unknowingly many times and in many cases a crude drug employed in the preparation may be entirely different from the genuine one which in turn has a direct bearing on the efficacy of the finished product in particular and on the whole system in general. The entire process may be attributed to:

1. The gradual loss of contact of the physicians with the plants/minerals in their natural habitat.
2. Discontinuation of Gurukula Vaidya system and lack of workable morphological description of the drugs in the classics.

3. The usage of Paribhashi (paryaya pada) and non-availability of their Thiravukol (Keys) cause more confusion in the identification of the drugs.

To solve this, it is suggested to evolve a common nomenclature acceptable to all introducing a standard specimen with Tamil and Latin nomenclature of all drugs on the basis of method existing in botanical/geological science. Pharmacognostical (Macro & Microscopic) studies will play a vital role in identifying the crude drugs and to distinguish them from adulterants.

Source, time of collection and storage of drugs which play an equally important role in the efficacy of the finished product, forms another important step in standardisation. For these studies, detailed chemical analysis have to be carried out at different stages for all the medicinal plants/minerals. The collection of the part of the drug to be used in the preparation at a suitable period i. e. season, time and stage are to be fixed which are important parameters. After collection, the expiry time and the mode of storage are to be specified and implemented after extensive study.

The chemical standardisation of raw drugs with the help of precise instruments like Spectrophotometers, Infrared rays, Nuclear Magnetic Resonance (NMR), Mass spectra and Chromatographic techniques will help to a great extent to estimate the important chemical constituents.

Standardisation of finished products :

At present various texts are followed by the physicians in their preparations resulting in varied efficacy of the pre-

paration. In order to overcome this it is suggested that all the preparations should conform to be methods laid down by the Siddha formulary² which is envisaged by the Government of India. This formulary contains many of the preparations of the Siddha System.

There are already conventional standards like appearance, touch, taste etc., mentioned for the finished products.^{3, 4, 5} In the view of adulteration and modern technology which has influenced the drug trade of Siddha, new parameters and standards in all respects are needed. Hence, there is an urgency to evolve the standards to suit the present day need in order to enforce the quality control. Attention is to be given in the following directions for laying down the standards for different types of preparations like Ennai (Oil), Ilagam (avalehya), Parpam (bhasmam), Chenduram (Sindooram) etc., in which the amount of heat, time to be given cannot be standardised strictly under the classical methods, unless they are studied under the light of modern technology. For example, the temperature required at different stages and depths in putams should be ascertained with the help of pyrometer and same be provided in the muffle furnace for different parpams. It is also suggested that some of the parpam are to be identified purely from Siddha point of view, for example Muthuparpam, Muthuchippi parpam, Palagarai parpam, Sirungi parpam where in mere estimation of certain common minerals qualitatively and quantitatively may not have much significance to arrive at proper identification. Since these contain mainly Calcium oxide and Calcium carbonate. Similarly, the group of iron preparations

like Ayaparpam, Kantha chenduram, Mandoora chenduram, Annabhedhi chenduram which contain largely ferric oxide are also to be identified. Hence, the particular preparation is to be identified by evolving suitable tests for these.

Periodical studies for shelf life:

Raw drugs and prepared medicines lose their potency or power of action on account of numerous factors like light, time, temperature, packing aid, moisture to mention a few. It is also a well-known factor that the quality of the drug cannot alter normally without a change in its chemical contents and organoleptic characters. Available literature reveals that choornam, vadagam, vennai can be safely used for 3 months. Manappagu (syrup), Nei (ghrita), Rasayana, Ilagam (avalehya) to be used within 6 months. Ennai (oils), Mathirai (pills) Theeneer (arka) to be used, for a 1 year etc.,⁶ in corresponding with propa containers. Therefore, shelf life is to be calibrated suiting to the present type of containers available in the market.

Summary:

In all branches of commerce, exploitation by the antisocial elements is a common feature nowadays. Siddha drug trade is no exception to this.

In this paper important guidelines for standardisation of Siddha drugs have been discussed briefly in the wake of Drug Act. The source, identification, season of collection of herbs, means and methods of manufacture and pre-

servation with the help of modern technology are critically dealt, which will ultimately help in laying down in Pharmacopoeial standards at the national levels.

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"I declare, however, that we ought not to reject the ancient art as non-existent, or on the ground that its method of enquiry is faulty, just because it has not attained exactness in every detail, but much rather, because it has been able by reasoning to rise from deep ignorance to approximately perfect accuracy, I think we ought to admire the discoveries as the work, not of chance, but of enquiry rightly and Correctly Conducted"

— HIPPOCRATES, on Ancient Medicine
Jones edition, Vol I 1923, p 33

THE AYURVEDIC TREATMENT OF CANCER

A. LAKSHMIPATHI*

The word "cancer" is literally translated into Sanskrit as Karkaataka in order to signify the definite disease as it is understood by modern medicine. The word 'karkaataka' also implies that the disease cancer has deep roots in the tissues and that it is a disease indicated symbolically by the legs of the crab which have a strong hold.

Definition

According to modern medicine, cancer is classified under malignant tumours. There are two groups, carci-

noma and sarcoma. The difference between carcinoma and sarcoma are given in the following table.

General Characters-Carcinoma: The Carcinomata are malignant epithelial cytomata (Kroora Kavacha Kana Vriddhi) They are essentially composed of Epithelium (Kavacha Kana) but the fibrous stroma (Tantu Dhaatu) also forms an important element. This is due to the fact that the epithelial cells are not held together by supporting

Sarcoma	Carcinoma
Mesoblastic in origin.	Epiblastic in origin, stroma from mesoblast.
Stroma present between individual cells.	Stroma present round many cells forming the alveoli.
Blood vessels present in between the cells and are ill-defined.	There are no blood vessels in between the cells; if present it is in the wall of the alveoli.
Wall of blood vessels deficient.	Wall of blood vessels normal.
The alveoli are full of round or spindle cells.	The cells are epithelial in nature and often shrink during fixing and staining.
Origin from connective tissue.	Epithelial origin is found on microscopic examination.
Spread by local infiltration and by blood vessels.	Spread by local infiltration and by lymphatics.

* Late Dr. A. Lakshmi pathi, Honorary Principal, Ayurvedic College, Trivandrum. By the Courtesy of the Publishers of the Souvenir on "Cancer: Ayurvedic Research" (Chardramouleeswara Cancer Research Institute) on 25-10-1957.

frame-work thus producing the alveolar arrangements so characteristic of Cancer.

Seat of occurrence: Cancer originates from any tissue containing epithelium and no tissue is exempted from the secondary growth. Thus it occurs as a primary growth in the skin, breast, uterus, penis, labia, oesophagus, pylorus, larynx, pancreas and other epithelial tissues.

According to Ayurveda, we find that cancer may be identified as several diseases such as Arbuda, Valmeeka, some kinds of Rakta Pradara, some kinds of Rakta Gulma, Antar Vidradhi, Dushta Vrana etc.

Definition of Arbuda

Arbuda may be defined as a big tumour characterised by little or no tendency to ripen unless there is predominance of blood whose food supply is cut off. (Vag-Uttara-29-16.17)

Difference between Grandhi & Arbuda

Grandhi means a knot and Arbuda means a bubble. Grandhi is described as a hard knotty swelling and it may be fairly small to begin with and grows later. An Arbuda has properties similar to a Grandhi but is bigger than a Grandhi. (Mahat Thu Grandhitah Arbudam). Arbuda is generally more predominated by Medas and Kapha and therefore it is more firm and it suppurates less often.

"Mahat Thu Grandhitah Arbudam
Tallakshanamtu
Praayah Medah Kaphaadhyatwaat
Stiratwaat Cha Na Putchyate."

Signs & symptoms of Arbuda

Owing to the vitiation of one or more of the doshas, interaction sometimes takes place between the vitiated doshas, muscle and blood in some localities of the body (Sammoochita) which gives rise to very big growths.

These growths are generally round (Vritta) and steady (Sthiram). They cause very little pain. They are sometimes very huge (Mahaantam). The root or base may be inconsiderable (Analpa Moolam). They take generally a very long time to mature or never mature at all (Chira Vriddhyapaakam). Their origin is sometimes very deep (Agaadha) and they may give rise to a tremendous growth of fleshy tissue.

Malignant Arbudaas

There is no doubt that malignancy of certain tumours was recognised. In Raktaarbuda, probably a malignant tumour, the three doshas vitiate the blood in its ducts, when their flow is obstructed and the Paaka, i. e., the biological reactions that take place, are such as to create a tumour filled with shoots of muscle-like tissue which grow very rapidly. The tumour constantly exudes vitiated blood and is called Sonitaarbuda or Raktaarduda.

Raktaarbuda

"Doshah pradushto ruddhiram siraascha
Sankuchya sampeedya tatah tu apaakam
Saasraava munnahyati maamsapindam
Maamsaamkuraiah aachita maasu
vridhim
Karothyajasram rudhira pravrittim
Asaadhya metat rudhiraatmakastu

Rakta kshayopadrava peeditatwaat
Paandurbhavet arbuda peeditastu."

(Maadhava Nidaana—Chap—38.20—22).

This mass grows very quickly and constantly exudes blood. This tumour which is called Raktaarbuda is incurable, because it is attended with complications arising from loss of blood, and because the patient suffers from anaemia.

Maamsaarbuda

"Avedanam snighda mananya varnam
Apaakam asmopamam aprachaalyam
Maamsaarbudamtu etat asaadhya
muktam."

A painless tumour, which has an oily shining in the skin which looks quite normal, which is hard like a stone, which is immovable and which does not mature is called Maamsaarbuda and it is incurable. The above description suggests that the tumour described is most probably a hard immovable sarcoma. This requires further study.

Sarkaraarbuda

When vitiated Kapha and Vata have their seat in Maamsa, Sira (Blood vessels) and Snaayu (Tendons or nerve trunks), they cause a tumour which, when matured bursts and exudes a discharge like honey, ghee and fat. When Vata predominates still further, it dries up the muscle and causes a hard stone like tumour. When this bursts, a foul smelling rotten multi-coloured discharge exudes from the blood vessels. This is called Sarkaraarbuda (Madhava Nidaana—Kshudra Roga Nidaana). This description may refer to a Sarcoma of the fibrous type or to a scirrhus cancer.

Valmeeka

A mole-hill like tumour with elevations and holes sometimes appears in the neck, shoulders, axilla, hands or feet or in any joint or inside the throat. Such a tumour resembling the elevation in the centre of a lotus flower with numerous pustules in its top (Padmakar-nihaavat) is called Indraviddha.

A round elevated red tumour covered with many pustules and giving pain is called Gardhabhikaa.

A stone-like tumour at the junction of the jaws, with an oily shine and attended with moderate pain is called Pashaana Gardhabha.

Indraviddha, Gardhabhika and Pashaana Gardhabha may also be of the malignant type.

Treatment

A great opportunity has been lost by not treating cancer from the early stages. This was due to the belief that cancer can be treated only by surgery.

Subsequently many cases have been cured by ayurvedic treatment. Compounds of Copper, Mercury and Arsenic, are described in the treatment of dushta vanaas, which may be used in the treatment of cancer because it also is a constitutional disease. The equilibrium of the Tridhaatus, which were disturbed prior to the attack of cancer may be restored by proper constitutional treatment. The pathological processes that give rise to disease will be resisted by this process and normality will be restored. Langhana or Starvation may help to some extent in certain diseases but in the case of cancer, Langhana

treatment is not enough because the toxins or malaas created by the carcinomatous tissue cannot be removed by Langhana alone. A good quantity of these toxins may be got rid of by the natural excretory channels. Nature cure treatment by the use of fresh sweet grapes helps a great deal in this process. Bhallaathaka in the treatment of some inoperable cases of cancer has succeeded. A short note of the treatment of cancer is given below. This treatment is based upon the following lines of Charaka.

"Bhallaathaka is one of the drugs, which in the hands of certain physicians produces extraordinarily beneficial results. The process of treatment by the drugs are heroic and the results are in some cases miraculous. Bhallaathaka is one Charaka's most favourite Rasaayanas. "Kaphajo na sa Rogosthi, Na Vibandhosti Kaschana, Yam na Bhallathakam Hanyaath Seeghramagnibalapradam" Charaka.

1. Take Bhallaathaka (marking nut seeds-Semicarpus anacardium).
2. Take one teaspoonful of tila gingelly seeds-free from sand particles.
3. Carefully crush the Bhallaathaka seeds and the gingelly seeds in a mortar into a mass. If not careful, the oil from the seed may spurt into the eyes.
4. Add one ounce of jaggery (Gudam) and make the whole into a mass.
5. Prepare 6 masses like this—or take 24 seeds and 6 times the

quantity of the others—gingelly and jaggery—and divide the prepared medicine into 6 masses.

6. Boil one mass with 8 oz of water and reduce it into 2 or 3 ounces—filter—add one teaspoonful of ghee in one dose.
7. Add 3 or 4 ounces of warm milk and give it to the patient to drink.
8. Give one dose in the morning and one dose in the evening.
9. *Diet*:—Diet is most important. Only fresh juice of grapes is given for one to two months. 24 to 48 grapes are to be crushed with the hand along with 4 ozs. of water and filtered.
10. If the grapes are sour, a teaspoonful or two of honey may be add. Give this 4 to 6 times a day. If possible, give no other food. If the patient has good appetite and digestion, 20 to 40 ozs. of milk with sugar or Butter-milk may be given per day. If the patient does not press for it, do not give any food. Elimination of toxins (malas) is the secret of the success of the treatment of cancer.
11. *Oil Massage*:—As long as the patient, is under treatment, two ounces of gingelly oil is to be rubbed to the whole body and massaged with pressure upwards. The patient may have a bath in hot water daily after massage. If the oil massage is not done, there may be severe itching of the skin. This is due to the

toxic effect of Bhallaathaka. If and when this appears, the medicine has to be stopped for one or two days and it will disappear of its own accord. Massage with oil should be done, even of no bath is given. The oil may be wiped off with a cloth dipped in hot water.

12. The patient should not take salt, tamarind or chillies until definite cure is established. It may take some months.
13. This treatment may be given in any stage. In early cases the chances of cure are very great. In late cases also favourable results are definitely seen.

Sri. Thrikkovil Achutha Warier, a famous physician has given some notes on certain cases of cancer treated by him which are informative.

1. "Malignant Tumours"

BRAIN TUMOUR

Patient:—Mrs.....Thomas,
Gothuruthy, Age: 46, year: 1953.

History:—The patient had very severe head-ache combined with facial paralysis. She could not close one eye and its sight was almost lost. After treatment at the hands of ayurvedic and allopathic practitioners, she was taken to the General Hospital, Ernakulam, where her disease was diagnosed as Brain tumour. She was advised to be taken to Vellore, and Dr. Marar, the eye specialist, diagnosed that the tumour had affected the Optic nerve.

Treatment:—Dr. Warier was consulted and he advised the patient to use a decoction for 7 days. There was relief for the head-ache and the patient could sleep for 3 to 4 hours without drugs. After 7 days she was allowed to be treated at home at Gothuruthy. Sivagulika and Nimbaamrithaadi thailam were given internally for three months and a medicated oil was applied on the head. The intensity of the head-ache became less and less and appetite and motions became regular. Her facial paralysis also disappeared and eye sight was regained completely though gradually. She was given the "Gulguluthikthaka Ghritam" and Nasyam was done every week. Again after three months the X-ray photo was taken and Dr. Marar was surprised that the tumour had completely disappeared. To remove the after effects of the trouble a "Sirovasthi" was done early in 1954 and all the troubles disappeared completely.

2. Cancer-Throat.

Patient:—Smt. P.....Amma,
Pullanappilly Veedu, Chendamangalam,
Age: 53, Year: 1952.

History:—The patient had difficulty in swallowing food. She was admitted in the General Hospital at Parur and the disease was diagnosed as cancer of the tonsils. She was advised to go to Madras or Vellore immediately.

Treatment: "Rasnaadi Powder" was made into a paste with a juice of "Muringa pterigosperma" leaves and applied on the head twice. This made her capable of swallowing liquids within 24 hours; the same was continued for 4

days, when she was able to take solid food and open her mouth freely. On examination, it was found that the cancer was on the palate and it had grown to a size of 3" x 2" and it was about 1½" thick. "Siva gulika," the specific for cancer was given for 7 days with milk diet. It was continued without restrictions for three months along with "Nimbaamrithaadi thailam" as a laxative. In about a month the cancerous portion began to disintegrate slowly. Furrows appeared in between and they began to widen and in three months she had absolutely no pain and the cancer had disintegrated to half the original size. Medicines were however continued for 8 months and cancer had disintegrated almost completely. In this condition, she had to go to Ooty in connection with her daughter's confinement. There, an American doctor gave some Homoeopathic medicines due to which she lost all appetite and glands began to swell in the neck. She did not recover from it.

3. Cancer-Uterus

Patient:-Mrs....., Grant Road, Bombay. Age: 53 Year: 1945.

History:-The patient was having cancer of the Uterus. She was admitted in the Cancer Hospital at Bombay. Radium application gave the temporary relief. After 5 months she again went to the Cancer Hospital in a worse state. She was discharged saying the case was hopeless.

Treatment:-The patient was rolling about in pain day and night. Blood mixed with pus was being discharged continuously from the Uterus with a

foul smell and the temperature was 105° throughout. The attending doctors Amson and Gokhale whom Dr. Warier contacted, said she would collapse within 6 hours. "Ksheerabala" (101 times repeated) was given internally when the pain was relieved and the temperature came down. 'Gulguluthikhthaka ghritham' was then given. The patient was apparently quite alright in a month's time and she went to attend her daughter's marriage at Poona.

4. Another patient, Mrs....., Kunnath house, Kolencherry, aged 65 was treated in 1956.

History:- The discharge of pus and blood from the uterus took place and this took her to the General Hospital at Ernakulam where it was diagnosed as cancer of the uterus. Removal of the uterus was advised. But she was unfit for the operation.

Treatment:-"Siva gulika" and Gulguluthikhthaka ghritham were given for three months. Discharge stopped and there was no trouble for three months. The same medicines were continued for another two months and she was free from the trouble for about a year.

5.Amma, of 1/250, Telang Road, Matunga, Bombay aged 33, was treated in 1956.

Even in her 16th year, periods became more frequent. Ayurvedic treatment including "pizhichil" made her alright. First confinement was in the 21st year and then bleeding was in excess. Her second confinement was in

the 23rd year and bleeding was in excess then also. In the 25th year she became pregnant again and after the third confinement also bleeding was in excess. Ayurvedic treatment was then done and it gave great relief; the fourth confinement was normal. In her 31st year she became pregnant for the 5th time. Delivery was normal, though delayed. On the sixth day after the 5th confinement she got septic fever. That was controlled by Allopathic treatment. Bleeding started in the 5th month and she was bedridden. Complete rest was advised as displacement of uterus was diagnosed, Mrs. H. Jerrad and Dr. Purandhare, the eminent gynaecologists of Bombay were treating her. During the sixth pregnancy there was occasional bleeding and due to complete rest and constant attention, the delivery was normal. But the child was only weighing 4lbs. She was sterilized on the 3rd day and bleeding was profuse for 8 days. Again after 15 days there was profuse bleeding. After 60 days, menses started every 22nd day, with profuse bleeding. Tonics and injections did no good. Homeopathic treatment was also tried without effect. She was then treated in the Universal Health Hospital at Bombay. There was same relief and she came back to Ernakulam. Dr. Rebecca of Ernakulam Hospital did a D & C operation, but this worsened the condition. Dr. Rosa Amma of Trichur was consulted. She did another D & C and advised Radium treatment.

History:—She went to the Cancer Hospital, Bombay after her sixth pregnancy with profuse bleeding. Dr. Paymaster diagnosed ulcer in the cervix of the uterus and advised either removal of the uterus or deep-Xray. The treatment was

not done due to the extreme weakness of the patient.

Treatment:—“Dasamoolahareethaki” was given along with “Siva gulika” for 10 days when motions began to float in water. “Indukaantha ghritam” was given for 7 days in increased doses ($\frac{1}{2}$ to 3 oz) to stimulate the liver. “Bhadradarvaadi Vidaryaadi ghritam” and “Chyavana-praasam” were given for 10 months. Then Dhaanvantharam Oil was given internally for another month.

Result:— Weight increased by 4 lbs. There is no gas trouble. Motions have become free and periods have become regular and the bleeding is normal. There has been practically no trouble after that till now.

6. Cancer—Penis

Patient:— S. K....., Portuguese Church Road, Bombay.

Age:—56, year: 1945.

History:— He was admitted in the Cancer Hospital, Bombay, in 1944. The penis was cut off and after treatment he was discharged. He returned to the hospital after six months when he was declared to be in a hopeless condition. He had high fever and five glands had appeared enlarged in and around a region of the penis. The colour of the skin throughout the whole body had turned yellowish and he returned from the hospital in a desperate state of mind.

Treatment:— A Snehapaanam with Gulguluthiktaka ghritam was done and in about a fortnight, pain, temperature and the glands subsided. He went back

in a perfect state of health to Ratnagiri. But after one year he got the trouble again. Before he could come to Bombay for treatment again, he collapsed.

Concluding Remarks

The clinical material described above is proof to show that it is possible to cure cancer by the Ayurvedic methods of treatment. A large number of cases should be treated according to Ayurveda, so that a reliable statistical analysis can be done.

Influence of faith in the cure of disease

It is also found that many diseases are rapidly cured under the influence of faith. Alexis Carrel says that he noticed a case of cancer lick itself before his eyes, under the influence of prayer. The cultivation of a peaceful and hopeful frame of mind, quickens the process of regeneration of the tissues. Prayer with devotion soothes the entire nervous system, relieves pain and induces sleep. It also develops the brain power and the spiritual faculties and the capacity for

the enjoyment of life. The patients are made to repeat some devotional songs on Krishna such as

“Kastooree Tilakam Lalaata Phalake
Vakshastale Koushtubham”

or

“Narasimha Nee Divya, Naamamanthramu
Cheta-Bavarogamula Nella Bayavachu”

Serious research should be conducted to see whether cancer can be cured by faith. India is the place for research in this Aadhyaatimic field.

Saatvika Food

Starvation combined with fresh fruit diet which is classed as Saatvika food according to Ayurveda may not only help elimination of toxins but also develop spiritual faculties, peace of mind and also regenerative power of the brain. Further, while singing melodious songs with deep devotion, the patients forget pain and go to sleep, without the necessity of sedative drugs which are really harmful to the patient in the long run.

PATHOLOGY (SAMPRAPTI) OF KAMALA ROGA IN AYURVEDA

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The specific treatment of a disease is possible only after having the knowledge of the "Anshansha-Kalpna" of the Doshas, Vyadhi-Bal (Acuteness or Mildness of the disease), and the relationship of the seasonal and day-night periods of time with the disease. Hence a detailed study of the Samprapti is necessary.

यथा दुष्टेन दोषेण यथा चानुविसर्पता ।
निवृत्तिरामयस्यासौ सम्प्राप्तिर्जातिरागतिः ॥

आ. ह. नि. 1/8

The mechanism of how doshas are vitiated by their nidana and how they are spread in the body to produce a disease, is called Samprapti. Jati and Agati are its synonyms.

All the changes occurring in the body from the intake of nidana to the manifestation of a disease, come under Samprapti. Dosha vikriti means Dosha-Vridhi because ksheena Doshas are not capable of causing Dhatu dusti and only Vridha doshas can produce Vikriti. Therefore only Vridha-Doshas take part

in "Samprapti Sanghatana" and can be compared to the pathogenesis, of the diseases, in modern science.

Samprapti of Kamala Roga:-

Charaka has described the Samprapti of Kosthashrita and Shakhshrita Kamla in Ch. Chi. 16/34 and Ch. Chi. 16/125 respectively as follows:-

"वाण्डुरो गी तु योऽत्यर्थं पित्तलानि निषेवते ।
तस्य पित्तममृक्मांसं दग्ध्वा रोगाय कल्पते ॥"

(चरक चिकित्सा 16/34)

When a patient, suffering from Pandu Roga, takes Pitta vardhaka nidana in excess, too much vitiation of his Pitta produces Kamala Roga by causing rakta and Mamsa Dhatu Dusti.

In the above shloka, the word 'Tu' is noteworthy. Perhaps, it is used to denote that Kamala may occur with the use of various Pitta Vardhaka Nidana by patients suffering from Pandu or by the Pitta dominant persons even without Pandu.

Acharya Dalhana has clarified it further by explaining "यो ह्यामयन्ते" written in the Samprapti of Kamala Roga by Susruta, as "पाण्डुरोगान्ते अन्यरोगान्ते च". Although Sushruta has enumerated Kamala in the synonyms of Pandu Roga, it is obvious from the explanation, given by Dalhan, that Pandu should be considered as a "Nidanarthkara Roga" of Kamala just like other paittika diseases and not as its synonym.

Vagbhata has accepted the occurrence of Kamala Roga as an independent disease without Pandu by describing "भवेत् पित्तोत्सृज्यस्यसौ पाण्डुरोगादपि च ।" and said that Kamala may occur independently as well as a complication of Pandu Roga just like the Prameha pidika which occurs independently and as a complication of Prameha roga. The word "तस्य" in the Samprapti given by Charaka is used to denote the patients suffering from Pandu or other Paittika diseases or Pitta dominant persons who suffer from Kamala roga after excessive intake of Paittika Nidana.

The word "दग्ध्वा" in "पित्तम् असृक् मांसं दग्ध्वा" denotes Rakta and Mamsa dhatu dusti and the excessive "Kshaya of Somyansha of the body due to the vitiation of the Ushna and Teekshna Guna of Vridha Pitta. रोगाय कल्पते should be considered as कामलारोगाय कल्पते Charaka has called Kosthashrita Kamala as "Bahupittaisha. (2) Although it is clear from Pittalani Nishevata that there is direct Pitta Vridhi in this type of Kamala, yet the word Bahupittaisha is used to denote clear cut differentiation of Kosthashrita Kamala from 'Alpapittatmaka' Shakhaskrita Kamala, which is also clarified by Chakrapani in the following Commentary.

"यातु केवलं शाखाश्रया अल्पपित्ता च वक्तव्या सा स्वतन्त्रापि भवतीति । बहुपित्तत्वेनेन केवलम् शाखाश्रया या अल्पपित्तत्वम् सूचयति ।"

The Samprapti of Shakhashrita Kamala, is described separately by Charaka (3) as under:- In Shakhashrita Kamala, the mutual Sammurchhana of Kapha and Vata, vitiated by the use of Ruksha, Sheeta, Guru, Madhur Ahar, Ativyayam, Vega-Vidharana and Viharaja Nidana, obstructs the normal pathway of Pitta. So Pitta cannot reach the Kostha and the vitiated vata spreads from the site of its Sanchaya into the Shakhas. Therefore the patient excretes 'Tilpishti Sannibha Varchasa' and his eyes, skin and urine becomes yellow just like Haridra.

It is clear from the above description that in Shakhashrita Kamala there is "Ek Deshiya Kashaya" of Pitta in the Kostha and "Apar Deshiya Vridhi" in the Shakhas which is not Vridhi in reality but is only "Vimarga gamana" of Pitta due to "Srotus-Sanga."

Mechanism of Samprapti Samrachana of Kosthashrita Kamala

All the Acharyas have described the Nidana of Kosthashrita Kamala as Pitta Vardhaka. Of these Aharaj nidana contains mainly Ushna and Teekshna. Pitta vardhaka Gunja produces Teekshna-agni and a state of Vidagdha-ajjerna; so Amavish is formed which also contains Ushna and Teekshna Guna in it. This Amavish on reaching the Rakta Dhatu via Ras Dhatu through the Rasayanis causes excessive Pitta Vridhi and Kshaya of Poshya Rakta Dhatu by its Ushna and Teekshna Guna. Pitta vitiated by Bhaya, Shoka, Irshya and particularly by Krodha,

also causes Raktha dusti. Likewise excessive exercise, coitus and contact with sun-light also causes it. Of these, Pitta again causes Rakta dusti and excessive Pitta Vridhi. Vata vitiated by Viharaj and Mansika Nidana leads to Vishmagni and Amotpatti resulting in the formation of Sama Rakta Dhatu and Pitta vridhi.

The excessive Pitta Vridhi due to all the above mechanisms, Produces abnormality in the Rakta-Vaha-Srotus and Rakta-Vaha-Srotus mool, Yakrit in which Dosh-dushya-Sammurchhana also occurs. Then Ati-Pravriti (excessive flow) of Pitta occurs through Pitta vaha srotus into the Kostha, resulting in the dark yellow colouration of the Purisha. Vata (Particularly Vyana Vayu, vitiated by Dhatu kshaya and Mansika and Viharaja Nidana, also caused Ati-Pravriti of Pitta in Ras-Rakta Dhatus. When this vridha Pitta reaches the sites of Kamala Roga, it produces yellow colouration just like that of Haridra, in eyes, skin, mouth, nails, urine etc., which is the cardinal symptom of Kamala Roga.

Mechanism of the Samprapti Samrachana of Shakhshita Kamala

Ruksha, Sheeta' Guru, Madhur, excessive exercise and Vega-Vidharan are the Nidana of Shakhshrita Kamala as described by Charaka and Vagbhata. These Nidana vitiates Kapha and Vata, which leads to the production of Ama

in the Amashaya by causing Manda and Vishma-agni respectively. This Ama, containing Guru, Sheeta, Manda and Ruksha. Dosh vitiating Guna in it, reaches the Ras Dhatu through Rasayaniyan and takes part in the formation of Sama Ras Dhatu and excessive Kapha Vridhi. on reaching Rakta Dhatu, it also cause Pitta Vridhi in Sama Rakta Dhatu to some extent. These Vridha Doshas produce abnormality in the Rakta Vaha srotus and its srotus mool Yakrit and take part in the Dosh-Dushya Sammurchhana there. Due to Sangocha in the Prakrita Pitta Vaha Srotus caused by Ruksha Guna of vitiated Vata and Manda and Guru Guna of vitiated Kapha results in Srotus-Sanga in the Pitta Vaha Srotus. Therefore Pitta cannot reach into the Kostha through its normal pathway and the Purisha is not coloured there; due to absence of Pitta; so the patient excretes Tilpishti Sannibha Shweta Varchasa which is the cardinal and differentiating symptom of Shakhshrita Kamala. Due to obstruction in Pitta Vaha srotus, Pitta begins to accumulate in Yakrit from where it is sent to the eyes, skin, nails and buccal cavity and results in the yellow colouration of these sites just like Haridra.

Samprapti Ghatak of Kamala Roga

Thus, it is clear that the following components take part in the Samprapti Samrachana of Kamala Roga:-

- | | | |
|--------------------|---|---|
| (1) Udbhava-Sthana | : | Amashaya |
| (2) Sanchar | : | Rasayaniyan |
| (3) Adhistan | : | Yakrit |
| (4) Agni-Dusti | : | Jatharagni-Mandya Dhatvagni mandya-Mainly Rasagni and Rakta-agni. |

- (5) Ama : Produced due to Jatharagni Mandya
 " " " Dhatwagni Mandya.
- (6) Doshha : 1. Pitta, Pachaka Pitta, Ranjaka Pitta, Sadhaka Pitta,
 Alochaka Pitta and Bhrajaka Pitta
 2. Kapha:—Kledaka Kapha
 3. Vata:—Vyana Vayu, Samana Vayu and Apana Vayu
- (7) Dushya : Ras Dhatu, Rakta Dhatu, Mamsa Dhatu
- (8) Srotus : Ras vaha and Rakta vaha Srotus
- (9) Vyakti-Sthana : Netra, Twak, Mukha, Nakha; Mala, Mutra etc.,
- (10) Bhedavastha : Occurance of Shotha etc., Lakshana indicating its Asadhyata

(1) Udbhava-Sthana

The first site at which abnormality is produced is known as the Udbhava-Sthana of that disease. All diseases are divided into two according to their Udbhava-Sthana.

1. Amashaya Samuttha, 2. Pakvashaya Samuttha.

Chakrapani has called all the diseases caused by Kapha and Pitta as Amashaya Samuttha and those caused by Vata as Pakvashaya Samuttha.⁽⁶⁾ Kamala is an Amashaya samuttha disease. Koshashrita Kamala is produced directly by Pitta Vridhi and Shakhashrita Kamala by the obstruction of the Prakrita Pitta vaha srotus by Vridha Kapha.

(2) Sanchar

The circulation pathway of Vikrita Doshha and Dushya from Udbhava-Sthana to the Adhithana of a disease is called Sanchar marg. Rasayaniyan are the sanchar marg in Kamala Roga also as is clarified by the Vagbhata in

प्रतिरोगमिति ऋद्धा रोगाधिष्ठानगामिनीः ।

रसायनीः प्रपद्याशु दोषा देहे विकुर्वन्ते ॥

अ. ह. नि. 1/23

With special reference to Kamala Roga the word Rasayani, should be used for Rakta Vaha Srotus because Vikrita Pitta is circulated all over the body through them.

(3) Adhithana:-

Adhithana denote the place where the Vikrita Doshas, after being established at the site of Sroto-Vaigunya, causes Dhatu dusti resulting in the occurrence of the disease. In other words, Doshha-Dushya Sammurchhana takes place at the Adhithana of a disease. Vitiated Pitta quickly produces abnormality in Rakta and Rakta-Vaha-Srotus mool. The defected Yakrit cells can not separate the abnormal Pitta from Ras-Rakta properly as a result of which the level of Vikrita Pitta rises in the blood.

In Shakhashrita Kamala also, Pitta is not excreted properly due to the obstruction in the normal pathways of Pitta, leading to the defects in the Yakrit cells caused by the accumulation of Pitta in them. This accumulated Pitta regurgitates in the Rakta from there causing Rakta, dusti and thus

results in the production of Kamala Roga.

(4) Agni-Dusti:-

Agni-mandya is described as the causative factor in almost all the diseases enumerated in Ayurveda. In Kamala Roga, there is mainly Jatharagni mandya, Rasa-agni mandya and Rakta-agni mandya.

Jatharagni-mandya:-

In Kosthashrita Kamala, the vitiated Ushna and Teekshna Guna of Pitta lead to the improper digestion of the ingested food and the state of Vidagdha-ajeerna. It occurs due to the Pachaka Pitta Vridhi. So Avipaka Lakshna is found in the patient.

In Shakhashrita Kamala, there is Kapha Vridhi particularly of Kledak Kapha, resulting in the inadequate secretion of the digestive juices which leads to Jatharagni mandya and Amotpatti. Therefore Amajeerna occurs and Alpagni and Aruchi appear in the patient. Due to the Vata aggravating causes of Shakhashrita Kamala like Ruksha, Sheeta etc. the digestive secretions become deficient. So digestion is delayed or is inadequate and a state of Vishtabdha jeerna, occurs and the patient suffers from Adhmana and Atopa Lakshanas.

Dhavagni-mandya:-

There is Dhatvagni mandya mainly Rasagni and Rakta-agni mandya in Kamala Roga. Jatharagni is considered as the originator of all the Agnis, because its Vridhi leads to the Vridhi of other Agnis and mandyata to mandyata of others.⁽⁶⁾ So the patient suffers from

Aruchi, Anga-shaithilya, Hridya Gaurava, Tandra and Jwara due to Rasa-agni mandya and from Alpagni, Avipaka, Trisha, Daha, Hikka and Shwasa. Lakshana due to Rakta-agni mandya.

(5) Ama:-

The Apakva Anna Rasa and Dhatu, due to inadequate digestion of food and the Adya Dhatu, as a result of Jatharagni mandya and Dhatvagni mandya respectively is called Ama.⁽⁷⁾ Ama takes part in the production of diseases after combining with Dosha and Dushya. Jatharagni mandya, Rasa-agni mandya and Rakta-agni mandya are responsible for the production of this Ama in Kamala Roga. When this Ama combines with pitta in Kosthashrita Kamala, there is appearance of Daha, Mamsa daha and yellow colouration in the eyes, skin, urine, stool etc. In Shakhashrita Kamala it combines with Kapha and produces Hridya gaurava, Aruchi, Avipaka, Srotorodha in the patient.

(6) Dosha:-

Sharir and Manas diseases occur due to the vitiation of the Sharir Dosha (Vata, Pitta and Kapha) and Manas Doshas (Raja and Tama) respectively. Kamala is a disease of the body. Although Vata, Pitta and Kapha are present in the whole of the body, each of them is divided into 5 types because of their specific actions and Adhithana. The diseases of a particular Adhithana occur mainly due to the vitiation of the specific type of the Dosha. All the three Doshas take part in the Samprapti Samrachana of Kamala Roga even if it is a Pitta dominant disease.

The Vikriti of the following Doshas take part in the Samprapti Samrachana of Kamala Roga.

(a) Pitta Dosha Vikriti:-

Kamala is a Pitta Dosha dominant disease in which all the 5 types of Pitta after being vitiated take part in its production.

Pachaka Pitta:-

The main site of Pachaka Pitta lies in between Amashaya and Pakvashaya (i. e. Pachyamanashaya) where it does its normal function of digestion of food and provides strength to the remaining types of Pitta. Pachaka Pitta is also known as Jathara-agni or Pachakaagni. The ushna and teekshna guna of Pachaka Pitta vitiated by the use of Paittik Nidana in Kamala Roga is responsible for the occurrence of Vidagdha ajeerna. So the patient suffers from Avipaka, Trishna and Alpagni.

Ranjaka Pitta:

Yakrit and Pliha are the sites of Ranjaka Pitta. It is also known as Ranjaka-agni and it colours the Anna Ras produced after digestion. It becomes deranged, when it does not get its Poshakansha due to vitiation of Pachaka Pitta and Rakta is not formed adequately. So the increase of the Vikrita Pitta in blood is responsible for the symptoms of Kamala Roga like Haridra Netrata.

Sadhaka Pitta:-

The usual site of Sadhaka Pitta is Hridya and it is also known as Sadhaka-agni. When Pitta vitiated by its Nidana, combines with Sadhaka Pitta present in

Hridya, Sadhaka Pitta also gets deranged and becomes incapable of doing its normal functions. There is Hatendriya, Tandra and Hridya gaurava Lakshanas.

Alochaka Pitta Vikriti :-

Present in the Netra, Alochak Pitta's normal function is the perception of Roopa.⁽¹³⁾ In the chronic stage of Kamala Roga, when Vridha Pitta combines with Alochak Pitta, everything looks yellow to the patient.

Bhrajaka Pitta Vikriti:-

It absorbs and digests all the Dravya used in Abhyanga, Avagaha and lepa and keeps the skin bright and lustrous. It is also called Bhrajakaagni.⁽¹⁴⁾ The Vridha Pitta in Kamala Roga reaches the skin via blood and also vitiated Bhrajaka Pitta due to which the skin, nails and the mucous membranes of the eyes and mouth becomes yellow.

(b) Vata Dosha Vikriti:-

There is also vitiation of Vata particularly Vyana Vayu, Samana Vayu and Apana Vayu in Kamala Roga. Hridya is the site of Vyan Vayu from where it is spread through out the Body and takes part in Ras circulation. Vyana Vayu contracts the Pitta Vaha srotus by its contracting property, resulting in sroto-rodha. So Pitta cannot reach the Grahani but it is circulated all over the body via Ras-Rakta Dhatus and results in the production of Haridra Netrata. The vitiated Samana Vayu causes indigestion and Apana Vayu Vishtambh.

(c) Kapha dosha Vikriti: -

Out of the 5 types of Kapha, dosha, Kledaka Kapha is mainly vitiated in

Kamala. The site of Kledaka Kapha is Amashya. The vitiation of Kledaka kapha causes Jathara-agni mandya and Amot-patty due to improper digestion of food. The manda guna of Kapha reduces the fluidity of Rakta while its Pichchhal and Sthira guna obstructs the Pitta Vaha srotus. So Pitta cannot go into the Koshta through its normal pathway and the patient excretes white colour stools just like 'Tilpishti.'

(7) Dushya-Vikriti

Dhatu and Mala are called Dushya as they are vitiated by the Vridha Doshas. In Kamala, there is abnormality mainly in Ras, Rakta and Mamsa Dhatus.

Ras-Dhatu Dusti

Amotpatti occurs in almost all the diseases due to Agni-mandya and the Ama-Anna Ras, thus produced contains the aggravating guna of the Doshas vitiated by their respective Nidana.

This Dusta-Rasa Dhatu, during its circulation in the body by Vyana Vayu, stop at the site of Sroto-Vaigunya and takes part in the production of diseases there.⁽¹⁵⁾ In Kamala, Aruchi, Hridya gaurava, Avipaka, Trisha and Jwara etc. Lakshana occur due to Ras-dusti.

Rakta-Dhatu-Dusti

Because of the similarity in the Guna of Pitta and Rakta, Rakta gets quickly vitiated by the vitiated ushna and Teekshna guna of Vikriti Pitta, resulting in the appearance of bluish or yellowish discolouration in Rakta. That is why there is yellow discolouration in the eyes, skin etc. and the patient also suffers from thirst, burning sensation, cough, hicough and dyspnoea also due to Rakta Dusti.

Mamsa-Dhatu-Dusti

Due to Vridha ushna, Veekshna guna of vitiated Pitta in Rakta, the next Dhatu Mamsa also becomes abnormal. Yellow discolouration of the skin appears due to abnormality in the Mamsa-Dhara-Kala caused by vitiated Pitta. The Lakshanas of Mamsa dusti like loss of strength, Dryness, Weakness, burning sensation, prostration etc. are also found in Kamala.⁽¹⁷⁾

(8) Sroto-Dusti

The word srotus is used by Charaka in a general way. All the channels in the body which are responsible for the secretion and circulation of the Ras-Rakta. Poshaka Dhatus are called srotus. Charaka and Sushruta has described 13 and 11 types of the Sthula srotus and the number of Sukshama srotus is innumerable. In Kamala Roga, there is abnormality mainly in Ras-vaha, Rakta-vaha and Mamsa vaha srotus.

Ras-vaha-sroto-dusti

Charaka has described Hridya and Dash Dhamniyan has the mool of Ras-vaha srotus. Sushruta has accepted two Ras-vaha srotus and their mool as Hridya and Ras-Vahini Dhamniyam. The various Rasaja Vikar occur due to Ras-vaha sroto dusti caused by the aggravated guna of vitiate Doshas coming in contact with Ras-Dhatu. The various Lakshanas of Ras Dhatu Dusti like Anga marda, Hridya Gaurava, Daurbalya, Jwara, Tandra and Sadana are also manifested in Kamala.

Rakta-Vaha-Sroto-Dusti

Charaka has described Yakriti and Pliha as the Rakta vaha srotus mool while according to Sushruta, there are two Rakta vaha srotus and their mool is

Yakriti, Pliha and Rakta Vahini Dhamniyan. All the channels in the body like veins arteries and capillaries through which Rakta Dhatu is circulated and the sites of Blood formation like Liver and Spleen should be considered as Rakta vaha srotus.

Rakta is the site of Pitta according to Charaka.⁽²⁰⁾ So Pitta vaha srota-dusti should also be understood from Rakta-vaha-srota-dusti. Blood is the site of Pitta and Yakrit and Pliha being the sites of Rakta should also be considered as the sites of Pitta. So Pitta after being vitiated by its Nidana in Kamala Roga causes Rakta dusti very quickly. The Rakta-vaha-srotus also becomes defective due to Rakta dusti and the patient suffers from the various lakshanas of Rakta Dhatu Dusti⁽²¹⁾ like fever, burning sensation, excessive thirst and yellow discolouration in Kamala.

Type of Srota-dusti in Kamala Roga

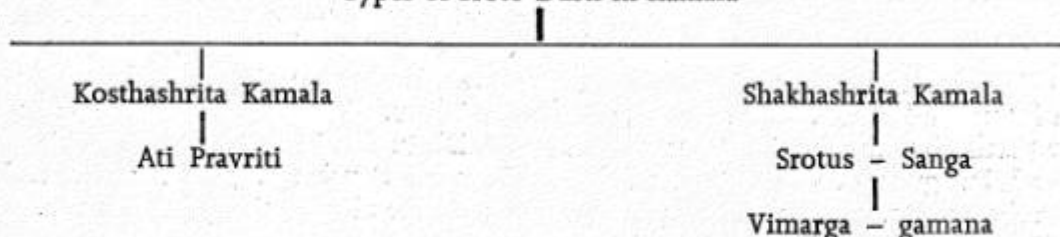
The Ahar-Vihar having similar properties like those of the Doshas, vitiates the respective Dosha and causes abnormality in the Dhatus because their

properties are opposite to those of the Dhatus. In other words, the Nidana which vitiates Doshas and cause abnormalities in Dhatus, also produce srota-vaigunya. The Samanya Lakshanas of Srota-dusti are Ati Pravriti (excessive flow of the Ras-Rakta etc. Dhatus circulating through the srotus), Srotus-Sanga (obstruction in the srotus) Sira-granthi and Vimarga-gamana (Diversion of the circulating Dhatus from their normal pathways to the other channels⁽²³⁾).

The Nidana of Shakhashrita Kamala are mainly Kapha and Vata vitiating. So the Vridha Manda Guna of vitiated Kapha and Ruksha etc. Guna of vitiated Vata causes obstruction in Pitta vaha srotus. So Pitta cannot reach the Kostha through its normal pathway and accumulated Pitta forcibly spreads throughout the body and the patient excretes "Tilpishti Sannibha" white stool.

Due to Vimarga-gaman of Pitta into Ras Rakta Dhatus by vitiated Vata, there is appearance of Haridra like yellow colouration of the eyes, skin, urine and nails in patients suffering from Shakhashrita Kamala.

Types of Srota-Dusti in Kamala



(9) Vyakti-Sthana

The Vyakti-Sthana of Kamala Roga are the eyes, skin, nails, mouth, urine and stool. Vridha Pitta after doing Rakta-

dusti reaches these during circulation through the Rasayaniyan and results in the manifestation of the symptoms of Kamala Roga like Haridra Varnata. The patient also feels burning sensation all

over the body and Prostration and weakness due to inadequate Poshana. In Sakhasrita Kamala, Pitta cannot reach into the Kosta due to obstruction and the patient excretes white stools and suffers from cough, Hicough and Dyspnoea due to vitiation of Kapha and Vata Doshas.

(10) Bhedavastha

Every disease advances into Bheda-

vastha i.e. becomes chronic if not properly treated. If not treated properly in this stage also, it becomes Asadhya. The appearance of Rukshata in the Dhatus Shotha and Parva-Bheda of Kamala indicate Bhedavastha. The red colouration of the eyes, mouth, vomitted matter, urine and stool of the patient and the appearance of Tandra, Moha and Nashtagni shows asadhya Stage.⁽²⁴⁾

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3. Ch. Chi. 16/125-128
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कफपित्तजा सर्वे गदान् गृह्णन्ते,
पक्वाशयसमुत्थग्रहेण सर्वे वातजाः ।
(Ch. Vi. 6/3 Chakrapani Commentary)
6. Ch. Chi. 15/39
7. (i) जाठरानल दौर्बल्यादविपक्वस्तु यो रसः ।
स आमसंज्ञको देहे सर्वदोषप्रकोपणः ॥
(Madhu Kosha)
(ii) Ast. Hri. Su. 13
8. Ch. Chi. 15/46-47
9. Ch. Chi. 15/48
10. Su. Su. 21/10, Ast. Hri. Su. 12/10-12
11. Su. Su. 21/10, Ast. Hri. Su. 12/13
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13. Ast. Hri. Sut. 12/14, Su. Su. 21/10
14. Ast. Hri. Sut. 12/14, Su. Su. 21/10
15. क्षिप्यमाणः वैगुण्यद्रसः सज्जति यत्र सः ।
करोति विकृति तत्र खे वर्षामिव तोयदः ॥
(Ch. Chi. 15/37)
16. Sha. Uttar-Khand 12/39, Su. Su. 15/13
17. Ast. Hri. Su. 11/18
18. Ch. Vi. 5, Su. Sha. 8
19. Ch. Su. 28/9-10
20. Ch. Su. 20/8
21. Ch. Su. 28/11
22. Ch. Vi. 5/23
23. Ch. Vi. 5/24
24. Ch. Chi. 16/38-39

PHARMACOGNOSTICAL STUDIES OF "MURVA"

Choenmorpha fragrans (Moon) Alston

(APOCYNACEAE) — PART I

Z. MARY, SARASWATY PASUPATY, K. GOPAKUMR and
K. VASUDEVAN NAIR*

ABSTRACT

Pharmacognostical studies on stem of *Choenmorpha fragrans* (Moon) Alston have been carried out along with its numerical values, fluorescence characteristics and also phytochemical studies.

Introduction:

Murva is a crude drug of the indigenous system of medicine and is included in the groups like Aragwad-hadi, Patoladi (Sastri A.D. 1968) Sthanya sodhana, Triphighna (Sastri K. V. and Chaturvedi 1970) and Madanadi (Gupta A. D. 1972). Murva possesses Tikta Kashaya rasa, Gururooksha guna, Ushna Veerya and katu vipaka as therapeutic properties (Sharma P. V. 1983). Murva is used in the Ayurvedic preparations like Sudarsana churna, Dhadhika ghrita, Ayaskriti and Kumaryasava which are used for the major diseases like kasa (cough), arsa (piles) pandu (anaemia) prameha (diabetes mellitus) and asmari (stone in bladder). In Kerala, a drug under the name Perumkurumba (in Malayalam) is used in the place of

Murva. This drug was identified as the stem of *Choenmorpha fragrans* (Moon) Alston of Apocynaceae. Detailed pharmacognostical studies on this drug materials are carried out i. e. micro and macroscopical characters along with fluorescence and phytochemical studies.

Materials and methods:

The drug material Murva was collected from the Konni market and was identified as *Choenmorpha fragrans* (Gamble 1967). Macroscopical and microscopical studies were carried out following the scheme of Johansen (1940), Kay (1938) and wallis (1967). Chromatographic and fluorescence studies were carried out following Block et. al, (1968) and Chase and pratt (1949) respectively.

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physical constants have been determined as per Indian pharmacopoeia (1966).

Morphology :

Large spreading laticiferous twiner with rusty brown bark. Leaves large broadly ovate to orbicular, fulvous pubescent beneath. The flowers whitish to cream yellow fruits of long follicular mericarps 6 to 13 inches in thickness. Seeds many, large with long white silky coma (Plate I. A.)

Distribution :

In moist forests through out India.

Macro and microscopic characters of Stem :

Stems slender, cylindrical about 15 to 25 cm in length and about 8 to 9mm in thickness. Colour ash grey to black. The surface of the stem is longitudinally wrinkled and distinctly rough. The transverse surface shows thin layer of brown cork, fairly wide whitish cortex with dark latex canals in its inner layer, circular vascular bundle with yellowish xylem separated by medullary rays. Odour, characterisitc. Taste bitter (Plate I. B.).

Transverse section of stem is circular in outline. Outer layer of phellem consists of 4 to 6 layered rectangular cells. Phellogen is single layered. phelloderm consists of thin walled parenchymatous cells. Beneath the phelloderm a well developed collenchymatous tissue and a broad zone of ground tissue in which number of stone cell groups are present. stone cells are thick walled varying in size and shape. Some are rounded and others oval with wide lumen (plate II 3, Sc.). Cryst-

als of Calcium oxalate and simple starch grains are also present in many cells of ground tissue (plate II. 2). Endodermis is single layered and consists of thin walled elongated cells. Latex cells are present in the inner layer. The elements of secondary xylem are thickened and lignified. The vessels are cylindrical having oblique perforations. They show simple thickenings and

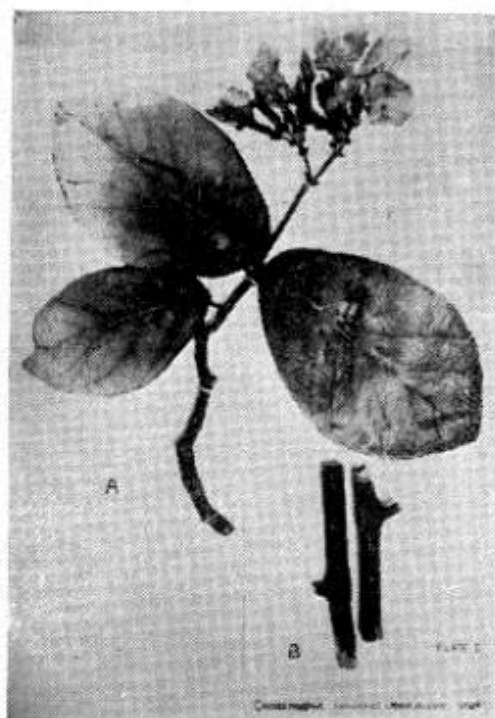


Plate I A & B

tracheids with bordered pits. Xylem fibres long with narrow lumen. The phloem is composed of strands of sieve of tubes, companion cells and phloem parenchyma. The medullary rays are uniseriate with parenchyma cells. Simple starch grains are present in medullary

ray (Plate II 3 Rc.). Pith is parenchymatous (Plate II. 2).

Cells contents:

Laticiferous canals coloured yellow occurs in the phloem. Small fatty acid droplets showing red with sudan III are found in the phloem. Calcium oxalate crystals are observed in the collenchyma (Plate II 2.)

Powder analysis:

The powder is brown with bitter taste. The powder filtered through 60 mm mesh sieve and mounted in chloral hydrate shows the presence of parenchyma cells, ray cells, fibres, stone cells, vessels and tracheids (Plate II 4).

The cells measurements of different tissues are provided in Table I.

TABLE-I

Cork	
Measurement of different tissues & cells (μ)	
Phellem T	15 — 20 — 25 \times 5 — 8 — 13 μ
Phellogen T	25 — 35 — 45 \times 13 — 15 — 18 μ
Phelloderm T	12 — 18 — 23 \times 4 — 6 — 8 μ
Collenchyma T	21 — 25 — 35 \times 13 — 15 — 25 μ
Parenchyma T	36 — 41 — 52 \times 20 — 25 — 32 μ
Stone cells M	20 — 25 — 35 \times 8 — 10 — 13 μ
Phloem cells T	13 — 15 — 24 \times 5 — 10 μ
Xylem cells T. S.	12 — 15 — 20 \times 10 — 13 μ
Pith cells T	17 — 23 — 25 \times 10 — 15 — 20 μ
Vessel M	145 — 180 — 360 \times 36 — 72 — 90 μ
Tracheids M	185 — 274 — 365 \times 15 — 17 μ
Fibre M	325 — 365 — 560 \times 12 — 13 — 15 μ
Parenchyma M	36 — 72 — 90 \times 35 \times 45 μ
Ray Parenchyma M	30 — 35 — 40 \times 20 — 25 μ
T.	Measurement across
M	.. of macerate

Phytochemical studies :

Approximately 500 grams of the crude drug is dried, coarsely powdered

and used for extraction was done by Soxhlet extraction method using solvents of increasing polarity i. e. Petroleum ether 60-80°C. benzene, chloroform and ethyl alcohol respectively. All the extracts were collected in different weighed flasks, solvents removed and dried in a vacuum desiccator. The extracts were separately weighed and it was found that solubility of the drug is more in petroleum ether and Ethyl alcohol.

TLC Patterns:

All the four extracts were put in TLC with different solvents system as developer and ceric sulphate in 50% sulphuric acid as spraying agent and it is represented in Plate III. Plate III shows the TLC pattern of petroleum, ether, benzene and chloroform extracts in full

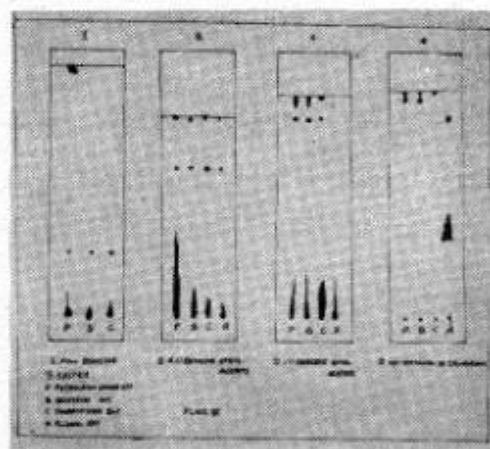


Plate III

benzene as developer. All the three extracts show similar spots. But in the case of petroleum ether extract, most of the extract has moved to the solvent

front showing the presence of mere wax and oily matter. Plate III 2 shows the TLC pattern of all the four extracts in 4:1 benzene:ethyl acetate as developer. Except ethyl alcohol extract all the other three extracts have moved showing similar spots. These spots showed blue colour when sprayed with ceric sulphate showing the presence of steroids.

Plate III 4 shows the TLC pattern of all the four extracts in 10% chloro-form; Methanol as developer and sprayed with Dragendroff's re-agent Petroleum ether, benzene and chloroform extracts show to orange red spots, one on the solvent front and the other one little below the solvent front. Chloro-form extract show a very mild spot on the solvent front. Alcohol extract showed a very bright orange red elongated spot in the midled and other spot near the solvent front. So the presence of alkaloid in the drug is confirmed.

The ash of the drug is analysed for the inorganic constituents and found to contain carbonate, chloride, sulphate, phosphate, iron, calcium, magnesium, silica and sodium.

Physical constants :

The physical constants determined by standard methods (1966) are provided in table 2:

Physico-chemical tests:

Organic constituents were identified by colour tests and are provided in table 3.

Fluorescence analysis:

The fine powder of the drug is examined the same wave length of ultra violet light and the results are given in table 4.

TABLE-II

Physical constants (Protinate analysis)

% Loss on drying	
at 110°C	10.87
% Total ash	4.64
% Water soluble ash	0.61
% Alkalinity of Water	
soluble ash	0.485 (as sodium carbonate)
% acid insoluble ash	0.10

Extractive Principles

% Petroleum ether	7.94
% Benzene	1.66
% Chloroform	0.45
% Ethyl alcohol	2.62
% Water	5.60

Solubility

% Ethyl alcohol	2.26
% Water	6.23

Summary:

Detailed Pharmacognostic study of the drug Murva (*Chonemorpha fragrans*) is carried out including macro and microscopical studies along with its numerical values, fluorescence characteristics and phyto-chemical studies.

Acknowledgments:

The authors are indebted to the Director C. C. R. A. S., New Delhi and Dr. B. V. Holla of R. R. C., Bangalore for evincing interest in this work.

Abbreviations:

C - Cambium; Col - Collenchyma; CR - Calcium Oxalate Crystals; EN - Endodermis; F - Fibre; LC - Latex cells; MR - Medullary rays; OG - Oil globules; P - Parenchyma; PX - Primary xylem; Pem - Phyllem; P. EN - Phellogen; P. ERM - Phello-derm; P. Th. IIp - Secondary phloem; RC - Ray cells; SC - Starch grains; SC - stone cells; T - Tracheids; VE - vessel; IIX secondary xylem.

TABLE-III
Physico chemical test

	Petroleum ether (60-80)	Benzene	Chloroform	Ethyl alcohol	Water
Total % by weight	7.94	1.66	0.45	2.62	5.60
Physical appearance	light yellow	yellow mas	Dark yellow sticky mass	Dark brown sticky mass	Dark brown thick syrup
consistency	oil & waxy liquid				
Steroids	positive	positive	positive	negative	negative
triterpenes	-do-	-do-	-do-	-do-	-do-
Sugars	negative	negative	negative	positive	positive
Alkaloid	positive	positive	positive	-do-	-do-
Phenol	negative	negative	negative	-do-	-do-
Flavones	-do-	-do-	-do-	-do-	negative
Saponia	-do-	-do-	-do-	negative	positive
Tannins	-do-	-do-	-do-	positive	-do-

TABLE - IV
Fluorescence analysis

Treatment	Ordinary light	Ultraviolet rays	
		short wave 254 mu	Long wave 365 mu
Powder as much	green	grey	light grey
Powder + in NAOH in Methanol	Light green	grey	brownish black
Powder + in NAOH in water	Green with black tinge	brown	dark brown
Powder + in HCL	green	brown	voilet
Powder + 50% HNO ₃	green with black	brown	brown

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PLANTS USED IN SIDDHA SYSTEM OF MEDICINE FROM KARNATAKA SERIES I. NEERIZHIVU (Diabetes mellitus)

R. SUDHA and K. R. KESAVA MURTHY*

Introduction:

The Siddha system of medicine is considered as one of the efficacious traditional system in treating many diseases. In contrast to the Ayurvedic and Unani system of medicine which involve more herbal preparations, the Siddha system of medicine consists of more mineral preparations. The Siddha system which is of Dravidian origin is confined mostly to the Tamil speaking areas and the language used in the classics is Tamil. Due to the importance gained by the system attempts have been made in recent times to translate the classics into other languages which has enabled this system to establish itself in the adjacent regions of the country.

Many plants occur in the flora of Karnataka which have a mention in the Siddha formulation used in the treatment of important diseases. This paper is the first in the series detailing the plants with reference to Neerizhivu (Diabetes mellitus.)

Diabetes is equated in Siddha System of medicine with "Mega Neer" or "Neerizhivu." The cause of the disease is attributed to the vitiation of doshas. A number of formulations are provided in the Siddha classics to treat this chronic disease. A number of drugs of plant origin are used in these formulations either as single drug or as one of the ingredients of compound preparations.

In view of the fact that this system is gradually establishing in Karnataka, an attempt has been made in this paper to enumerate these plants which will be helpful to the physicians for meeting their drug requirements.

Materials and Methods:

Various classics of the Siddha system of medicine and other relevant literature, were scanned to ascertain the different plants that are used in the treatment of *Neerizhivu*. For Siddha names and their botanical equivalents, the Siddha formulary, Govt. of India has been taken as

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the basis in most of the cases. Kannada and Ayurvedic name (in Sanskrit) are also provided. The botanical name, family and a brief description of the plant are mentioned to facilitate the easy identification along with their district-wise occurrence in Karnataka. The name of the compound preparation and the mode of administration (in case of single drugs only) are also provided.

Enumeration of plants:

1. *Acacia nilotica* (L.) Willd ex Delile ssp. *indica* (Benth.)
Brenan (= *A. arabica* auct. non (Lam.) Willd. var. *indica* Benth. (Mimosaceae) Karuvel (T); Karijaali (K); Babbula (S).
Armed trees with pinnate leaves, yellow flowers and moniliform fruits.
Common in Bangalore, Bellary, Hassan, Kolar and Mysore. Decoction of stem bark.
Mahamegarajangam.
2. *Agave americana* L. (Agavaceae)
Yana Kathralai Bhootaale (K);
Short stemmed woody plants bearing rosette of elongate leaves and greenish-white flowers.
Commonly cultivated throughout the state as an hedge plant.
Mucilage with sugar.
3. *Alangium salvifolium* (L. f.) Wang. (Alangiaceae) Kadalazhingil (T); Ankola mara (K); Ankola (S);
Small deciduous trees with 3-nerved leaves, white flowers and fruits having persistent calyx-limb.
Common in most of the districts.
Decoction of stem bark.

Avaraikudineer, Kadalazhingil legiyam and Amrudathy legiyam (Stem bark); Mahamegarajangam (Seeds).

4. *Allium sativum* L. (Liliaceae) Vellai-poondu (T); Bellulli (K).
Common garlic.
Commonly cultivated in some of the districts.
Lingathilam.
5. *Anacardium occidentale* L. (Anacardiaceae) Mundri (T); Godambi (K); Kajutaka (S).
Small tree with yellowish flowers and reniform nuts.
Commonly cultivated.
Decoction of root bark.
Mahamegarajangam.
6. *Aristolochia bracteolata* Lamk. (Aristolochiaceae) Aadutheendapalay (T); Kattikirubanagida (K) Prostrate herbs with thick root-stock. Flowers with large orbicular bract.
Common in Bangalore, Bellary, Bijapur, Coorg, Dharwar, Mysore, North Kanara and Raichur districts. Whole plant made into a fine paste with seeds of *Syzygium cumini* (L) Skeels (Naval - T. Jambunerale - K).
7. *Asparagus racemosus* Willd. (Liliaceae) Thanneervittan (T); Ashadaballi, Shatamooli (K); Shatavari (S).
Armed woody climbers with tuberous roots, scaly leaves and small white, flowers.
Common in Bijapur, Hassan, North Kanara, Shimoga, Coorg and Bangalore.
Decoction of choornam (powdered form) of roots.

- Thettran vithai kudineer and Mahamegarajangam.
8. *Azadirachta indica* A. Juss. (Meliaceae) Vembu (T); Bevu (K); Nimba (S).
Tree with pinnate leaves and white flowers.
Widely cultivated throughout the state.
Powdered stem bark.
Mixture consisting of leaves, stem, flowers, fruits and roots in powdered form—"Vembupanchangam") Mahamegarajangam (Gum).
9. *Bauhina tomentosa* L. (Caesalpiniaceae) Kaattathy (T); Aanepaada (K); Shrubs with deeply emarginate leaves and yellow flowers having spathaceous calyx.
Common ornamental shrubs of gardens, often running wild in Mysore, North Kanara and Shimoga districts.
Jambugrudam (flowers)
10. *Cassia auriculata* L. (Caesalpiniaceae) Aavarai (T); Aavarike, Ollethangadi (K).
Shrubs with pinnate leaves, yellow flowers in corymbs and flat pods.
Common in Banagalore, Bellary, Bijapur, Gulbarga, Mysore and Tumkur districts.
Decoction or "Panchangachuranam" (powdered form of five plant parts i. e. leaves, roots, stem, flowers and fruits) of whole plant or syrup of the whole plant mixed with cardomum, pepper, palm jaggery.
Aavarai kudineer, Vilaver kudineer, Thettran Vithai kudineer, Amrudathy
- legiyam, Aavaraigrudam, Kadalazhingil legiyam.
11. *Cassia fistula* L. (Caesalpiniaceae) Sarakkondrai (T); Kakke (K); Aragwadha (S);
Deciduous trees with pinnate leaves, yellow flowers in elongate racemose and cylindrical pods.
Common in all the districts.
Decoction of flowers and fruits with tamarind extract. Aavarai Kudineer and Vegumoothira kiyagham (roots) Mahamegarajangam (seeds).
12. *Centella asiatica* (L.) Urban (Apiaceae) Vallarai (T); ondelaga (K); Mandookaparni (S);
Prostrate herbs with orbicular/reniform leaves and small white flowers in umbels.
Common in wet and moderate climatic districts.
Leaf juice with milk and powdered stem of *Glycyrrhiza glabra* L. Athimadhuram (T); Atimadura (K); Yashtimadhu (S); Mahamegarajangam.
13. *Cocculus birsutus* (L) Diels (Menispermaceae) Kattukodi (T); Dhagadi balli (K); Paatalagarudi (S).
Climbing herbs with greenish yellow flowers in paniced cymes.
Common in scrub and dry deciduous forests in most of the districts.
Decoction of roots along with Thippalichoornam (*Piper longum* L.)
14. *Cocos nucifera* L. (Araceae) (Thengu T & K) Narikela (S). Commonly cultivated coconut tree.

- Coconut jaggery along with stem bark decoction of *Stereospermum suaveolens* DC. (Pathiri T; Paadri-mara (K); Patala (S);
Spadix in powdered form mixed with choornam consisting whole plant of *Gymnema sylvestre* (Retz.) Schultes Sirikurinjan (T); Madhu-nashini (K & S); Avaraigrudam and Madhumejarajangam.
15. *Coccinea grandis* (L) Voigt (Cucurbi-taceae) Kovai (T); Thondekaayi (K); Bimba (S);
Climbing herbs with angular stem, lilac flowers and cylindrical fruits striped with green and white.
Common in dry parts of Bangalore, Belgaum, Bellary, Bijapur, Chitra-durga and Mysore.
Juice of plant along with coconut milk and cumin seeds.
16. *Costus speciosus* (Koenig) Smith (Costaceae) Kottam (T); Changala-koshta (K); Kemuka (S);
Tuberous perennial herbs having flowers with red calyx and white corolla.
Common in Chikmagalur, Coorg, Hassan, Mysore, North Kanara, South Kanara and Shimoga.
Aavarai kudineer, Amrudathy legi-yam, Vegumoothira Kiyazham (Roots).
17. *Curculigo orchoides* Gaertn. (Hypo-xidaceae) Nilappanai (T); Nelathengu (K); Talamuli (S); Acaulescent herbs with yellow flowers.
In almost all the districts.
Decoction of roots.
Amrudathy legiyam and Mahamega-rajangam.
18. *Cyperus rotundus* L. (Cyperaceae) Koray (T); Abdahullu (K); Mustaka (S);
Rhizomatous sedges with green spikelets.
Common weed of most districts.
Madhumeja thailam, Aavarai kudi-neer, Thiraatchadi choornam and Mahamegarajangam.
19. *Diospyros occarpa* Thw. (Ebenaceae) Vellaikarunkali (T); Kaadubeedi-mara (K);
Trees with flowers in axillary or sessile clusters and fruits having persistent truncate calyx.
Occasional in Coorg, North Kanara, Shimoga and South Kanara.
Mahamegarajangam.
Decoction of roots.
20. *Enicostemma hyssopifolium* (Willd.) Verdoorn (Gentianaceae) Vellarugu (T); Chikkachirayuta (K);
Herbs with linear oblong, 3-nerved leaves and white flowers in dense clusters.
Common in Bellary, Bijapur, Chitra-durga, Dharwar, Raichur, Mysore and North Kanara.
Decoction of whole plant.
Mahamegarajangam.
21. *Excoecaria agallocha* L. (Euphorbia-ceae) Thillai (T); Thila, Harogida (K); Agar (S);
Small herbs with milky acrid juice and unisexual flowers.
Occasional in South Kanara (Kumta).
Aavarai kudineer.
22. *Ficus bengalensis* L. (Moraceae) Ala-maram (T);

- Aladamara (K); Vatavriksha (S);
Large tree with aerial roots and figs in axillary pairs. Common in all the districts; often grown as avenue trees.
Decoction of stem bark.
Mahamegarajangam.
23. *Ficus racemosa* L. (Moraceae)
Atthimaram (T); Atthimara (K); Udumbara (S);
Trees with 3-nerved leaves and figs on leafless shoots arising from older branches.
Common in all districts.
Mature fruits in the form of powder or syrup.
Latex with butter or sugar.
Kadalazhingil legiyam (juvenile figs) and Mahamegarajangam. (mature fruits).
24. *Gossypium arboreum* L. (Malvaceae)
Paruthy (T); Hathi (K); Udyana Kaarpara, Maghani (S);
Shrubs with peltate, lobed leaves, yellow flowers and cottony seeds.
Commonly cultivated in districts with black cotton soil.
Leaves and fruits (in paste form) with milk.
Kadalazhingil legiyam, Madhumega legiyam, Madhumegarajangam (seeds).
25. *Gymnema sylvestre* (Retz.) R. Br. ex Schultes (Asclepiadaceae) Sarkkarai-kolli, Sirikurinjan (T); Madhunashaballi (K); Meshashringi (S);
Herbaceous climber with pale yellow flowers in corymbose cymes. Common throughout the state in drier localities.
Chooranam of the whole plant.
26. *Helicteres isora* L. (Sterculiaceae)
Valamburi (T); Yedamuri (K); Aavartini (S);
Shrubs with red flowers and spirally twisted follicles. Common in all districts.
Roots in the form of decoction or choornam.
Mahamegarajangam.
27. *Hemidesmus indicus* (L.) R. Br. (Asclepiadaceae) Nannari (T); Sogadeberu (K); Saariva (S);
Slender twining herbs with few to many yellowish flowers crowded in subsessile cymes.
In most districts.
Syrup made from roots and sugar.
Mahamegarajangam.
28. *Holarrhena antidysenterica* (Roxb. ex Flemming) A. DC. (Apocynaceae)
Kudasappallai (T); Kudasalu (K); Kutaja (S).
Shrubs/small trees with tubular white flowers and paired follicles.
Common in most parts of the state.
Bark and seeds in choornam form.
29. *Ipomoea aquatica* Forsk. (Convolvulaceae) Vallaikodi (T); Neeruhambu (K).
Aquatic herbs rooting at nodes with pale purple flowers.
Common in Bangalore, Bellary, Chikmagalur, Coorg, Gulbarga, Hassan, Mysore, North Kanara and Shimoga.
Whole plant is taken in cooked form for 40 days.

30. *Lawsonia inermis* L. (Lythraceae) Maruthrdri (T); Goranti gida (K); Madayantika (S).
Much branched shrubs/small trees with small white flowers, in panicle cymes.
Commonly cultivated throughout the state.
Leaf ground with milk and administered internally.
Madhumegarajangam (seeds).
31. *Limonia acidissima* L. (Rutaceae) Vila (T); Belada mara (K); Kapittha (S).
Armed trees with pinnate leaves, greenish-yellow flowers and woody berries.
Common in scrub forests throughout the state and often grown for its edible fruits.
Vilaver kudineer, Thettran vithai kudineer, Mahamegarajangam, Thiraatchathy churnam (root); Jambu gradam,
Madhumegathilam (gum).
32. *Madhuca longifolia* (L) Macbride (Sapotaceae) Iluppai (T); Ippe mara (K); Madhuca (S).
Laticiferous trees with leaves crowded at the ends of branchlets and with yellowish white flowers.
Common in deciduous forests of Karnataka.
Root decoction is administered orally.
Madhumege rajangam (latex)
33. *Marselia quadrifida* L. (Marseliaceae) Aaraikkeerai (T); Chitiganasoppu (K) Rhizomatous herbs with quadrifoliate leaves and bean shaped sporangia.
Common throughout the state.
Whole plant in the form of decoction or cooked food.
34. *Merremia gangetica* (L) Cufod. (Convolvulaceae)
Ellikadhilai (T); Mooshakaparni (K).
Slender prostrate herbs rooting at nodes with solitary yellow tubular flowers.
Frequent in Bidar, Bijapur and Chitradurga districts.
Decoction of whole plant.
35. *Mimosa pudica* L. (Mimosaceae) Thottarchinungi (T); Muttidaremuni, Lajjavati (K); Lajjalu (S).
Prickly herbs with pinnate, sensitive leaves and pink/red flowers in globose heads.
Common weed in all the districts.
Powdered leaves and roots with milk.
36. *Moringa oleifera* Lamk. (Moringaceae) Murungai (T); Nuggemara (K); Siguru (S).
Tree with pinnate leaves, white flowers and elongate capsules.
Commonly grown throughout the state for its capsules.
Powdered gum.
Mahamegarajangam (roots).
37. *Nymphaea nouchali* Burm. f. (Nymphaeaceae) Vellalli (T); Nelathaayare

Note:-*M. longifolia* (L.) Mac. bride var. *latifolia* (Roxb.) Chev., is also used as substitute.

- (K); Kumuda (S).
Aquatic herbs with solitary white/pale blue/red flowers and glabrous leaves.
Common in almost all the districts.
Mahamegarajangam (whole plant)
38. *Nymphaea pubescens* Willd. (Nymphaeaceae) Sevalli (T); Kannaidile (K); Kumudabedha (S).
Aquatic herbs with solitary, pink/white flowers and leaves having brown hairs beneath.
Common in almost all the districts.
Distilled water obtained after boiling water with flowers.
Mahamegarajangam (Whole plant).
39. *Phoenix sylvestris* (L) Roxb. (Arecaceae) Sitreechu (T) Eachalmara (K); Kharjura (S).
Trees with pinnate leaves and axillary spadix.
Common throughout the state in drier parts.
Toddy is administered orally.
Mahamegarajangam and Thiratchat choornam (Fruits).
40. *Phyllanthus amarus* Schum. & Thonn. (=P. niruri auct. non L.) (Euphorbiaceae) Keezhanellai (T); Nelanelli (K); Bhoomyamalaki (S).
Herbs with distichous leaves and small flowers.
Common throughout the state in moist places.
Paste made from the whole plant with milk or butter milk Mahamegarajangam (Whole plant).
41. *Santalum album* L. (Santalaceae) Sandhanam (T); Sreegandha (K); Candana (S).
Tree with purplish-brown flowers, in paniculate racemes.
Common in deciduous forests in most of the districts.
Heart wood is taken internally in powdered form.
Sandhana manappagu, Madhumege thailam, Amurdathy legiyam and Thiraatchathy choornam (heart wood).
42. *Saraca asoca* (Roxb.) de Wilde (Caesalpiniaceae). Asagu (T); Ashoka (K & S).
Trees with pinnate leaves and yellow to orange flowers.
Common in Shimoga, Hassan, Chikmagalur, S. Kanara, N. Kanara districts; also cultivated.
Leaf and bark in powder form taken orally.
43. *Sesbania grandiflora* (L) Poir. (Caesalpiniaceae), Agath (T); Agase mara (K); Jayanti (S).
Trees with pinnate leaves and white flowers.
Commonly cultivated throughout the estates and gardens as shade trees.
Decoction of root bark.
Mahamega rajangam (leaf juice).
44. *Smilax zeylanica* L. (Smilacaceae). Parangi chakkai (T); Kaadu hambu taavare (K); Madhusnuhi (S).
Climbing shrubs with 3-7-ribbed leaves and greenish-white flowers in umbels.
Common in Chikmagalur, Coorg, Hassan, Mysore, N. Kanara, S. Kanara and Shimoga districts.

- Root powder.
Madhumeḡa legiyam, Amrudhathy legiyam, Mahameḡa rajangam.
45. *Stereospermum colais* (Dillw.) Mabbely (Bignoniaceae).
(=S. personatum (Hassk.) Chatterjee). Padiri (T); Aadri (K); Patala (S).
Tree with pinnate leaves and yellow flowers.
Fairly common in Bidar, Chikmagalur, Coorg, Mysore, N. Kanara, Hassan, Shimoga districts.
Root in powder form.
46. *Syzygium cumini* (L.) Skeels (Myrtaceae). Naval (T); Jambu nerale (K); Jambu (S).
Large trees having pink flowers with yellow throat.
Common in state forests and often cultivated as avenue trees,
Fruit in the form of juice or syrup; roots and seeds in the form of decoction or choornam.
Jambu grudam, Avarai kudineer, Loha bhasma (stem bark) and vegumoothra kiyazham (seeds).
47. *Terminalia arjuna* (Roxb. ex DC.) W. & A. (Combretaceae). Marudham pattai (T); Bilimathi (K); Arjuna (S). Deciduous trees with white or pale yellow flowers and 5-angled winged fruits.
Occasional along stream in Belgaum, Bellary, Chikmagalur, Gulbarga, Mysore, N. Kanara and Tumkur districts. Decoction of stem bark.
Vegumoothira kiyazham, Avarai kudineer (stem bark).
48. *Terminalia chebula* (Gaertn.) Retz. (Combretaceae). Kadukkai (T); Alale kayi (K); Haritaki (S). Trees with white/pale yellow flowers in spikes and ovoid fruits.
Common in dry deciduous forests of Bangalore, Bellary, Chikmagalur, Hassan, Mysore, N. Kanara, Shimoga and Tumkur. Decoction of fruit.
Thettaran vithai kudineer, Amurdhathy legiyam (fruit).
49. *Tinospora cordifolia* (Willd.) Hk. f. & Thoms. (Menispermaceae). Seenthil (T); Amrutha balli (K); Guduci (S).
Climbing shrubs with unisexual, yellow flowers. Common in scrub and dry deciduous forests and often cultivated for its medicinal value.
Amrudathy legiyam, Mahameḡa rajangam, Seenthil choornam, Seenthil Kayakarpam, Thiraatchathy churnam.
50. *Tragia involucrata* L. (Urticaceae). Kanchori (T); Turike balli (K); Vrsicali, Dusparsa (S).
Stinging, twining herbs with unisexual, greenish-white flowers. Common in Bangalore, Coorg, Gulbarga, N. Kanara, Hassan, S. Kanara, Tumkur districts.
Decoction of root.
51. *Withania somnifera* (L.) Dunal (Solanaceae). Amukkara (T); Ashwagandha (K. & S.).
Erect herbs with greenish-yellow flowers and globose berries in enlarged calyx.

Common in wastelands in most of the districts.

Madhumeaga thailam, Mahamega rajangam, Avarai grudam (root).

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Summary

In this paper 51 plants occurring in Karnataka and which are used in the Siddha system of Medicine for the treatment of *Neerizhivu (Diabetes mellitus)* are enumerated with relevant details. Out of these, 13 are used as single drug preparations, 9 as compound preparations exclusively and 29 as both single and compound drug preparations.

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OUTLINES OF RASAVAISESIKA

K. MURALI *

Introduction

Rasavaisesika, a treatise written in sutra style, mainly deals with theoretical aspects of dravyagunasastra. The term "rasa" connotes the other properties of dravya also viz., guna, virya, vipaka, karma and their base, dravya.¹ "Visesa" means variations. The name of the book appears nowhere in the text, but is evident from the colophon at the end of each chapter.² The introductory stanza written by the commentator refers the book as "Rasabhaidika." Bheda and Visesa mean the same. There are four chapters and 486 sutras altogether. Sutras bring out the idea comprehensively with the minimum number of words. These are well explained by the commentary of Narasimha. Rasavaisesika is written in the style of questions and answers.

The author, Bhadanta nagarjuna is supposed to be a Buddhist monk.

Mention of "प्रव्रजितस्य" indicates renunciation.² Bhadanta which means "having star-like shiny teeth" denotes that he eschewed chewing as a part of renunciation. Chewing is enjoined by Acaryas in dinacharya and the habit was prevalent at that time. The palm-leaf on which the first edition of Rasavaisesika was written was found with the Astavaidya family (Cirattamon Illam which originally settled in Shertalla, Kottayam Taluk, Kerala). Shertalla is considered to be an ancient Buddhist centre. The commentator Narasimha seems to be the author's disciple.

It is difficult to reach a definite conclusion on the date of the work. It is noteworthy that Narasimha has not quoted even a single line from Astanga Hridaya. So it can be assumed that the author lived in a period earlier than Vagbhata, i. e. about 400 A. D.

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In scientific approach he is near to Susruta. Rasavaisesika seems to have had an esteemed reputation among the scholars all over India. Even Dalhana had quoted from this book while commenting on Susruta.³ Hridayabodhika of Dasapandita, a scholarly commentary on Ashtanga Hridaya relied on Rasavaisesika on several occasions. Explaining the padarthas Dasapandita quotes the third *sutra* from Rasavaisesika.⁴

Rasavaisesika was first published by the Government of Travancore State edited by Dr. K. Sankara Menon under "Sree Vanchi Setu Lakshmi" series in 1928. A second edition was published in 1976. Two Malayalam commentaries were also published—one by vaidyabhushanam K. Raghavan Tirumulpad (1977) and other by V. Bhargavan Vaidyan (1982).

The subject matter of Rasavaisesika is well-introduced by the first five sutras. In the first *sutra*, the author promises to expound arogyasastra. Here, Ayurveda is termed as arogyasastra since it teaches the ways to maintain health in the healthy and to recover health in the sick (svastaturaparayana). The second and third sutras introduce four aspects pertaining to arogya and anarogya. In both they are definitions, its lakshanas (indications), its sadhana (ways to achieve and its prayojana (utility). Arogya is defined as dosasamyam. Ruchi (relish for food), pakti (digestive power), bala (strength) indicate arogya. A life style with suitable and restricted diet and habits (hitaharavihara) is the way to achieve arogya. Attainment of purusarthas (dharma, artha, kama and moksha) is the aim of arogya. Anarogya is

dosavaisamyam. Aruchi (anorexia), apakti (indigestion) are its indications. Anarogya is caused by unwholesome and unrestricted ahara and vihara. Anarogya results in the inability to achieve purusarthas.

The cause of both arogya and anarogya is the same i. e. dravya, rasa, guna, virya, vipaka and karma as put by the fourth *sutra*. The next *sutra* clears a doubt how one and the same thing can cause diametrically opposite effects. The answer is that the wholesome use (samyagyoga) will cause arogya and unwholesome use (mithyayoga) will result in anarogya. These are the six padarthas which includes everything described in Ayurveda.⁶ Thus, the first five sutras beautifully introduce the subject matter of the text showing its relevance in svasthavritta and aturavritta.

The sixth *sutra* gives thirtythree matters to be considered to determine samyagyoga and mithyayoga. Some of them on which clarification is essential are dealt with in detail. Prakriti is one among them. Three views are postulated in prakriti. According to dosochrayapaksa, prakriti is caused by the aggravation (uchraya) of any particular dosa. But uchraya is dosavaisamyam, hence roga. Prakriti means type of body constitution and it is not roga. Prakriti is not changable throughout one's life. Dosavaisamyam or roga can be treated and normalised.

Gunavimisravikarapaksa is another view on Prakriti. There are some vikalaksanas (physical abnormalities) found associated with Prakriti. Sputitacarana (crepitus) is an example. There are gunas

also as for e. g. Bāhupralapa (talkativeness). This theory is not accepted because vikriti cannot be prakriti.

The discussion concludes in dosabahulyapaksa. Prakriti is a natural predominance of a particular dosa or dosas in the constitution of bija from which the embryo is developed. This predominance is not the result of any nidana, but it is physiological. It is stable till the death of the person. Uchraya means aggravation. It is relieved by nidana-parivarjana or by the contact of opposite gunas. Hence uchraya is a temporary change causing disease. But the predominance of dosa in the bija is physiological, stable and does not cause illness. It causes peculiarities in the constitution. It is note-worthy that ksut (hunger) and pipasa (thirst) are considered as svabhavika rogas while these are very characteristic of arogya. These are termed as roga because they need immediate care and if not appeased change into disease. The author strongly defends dosabahulyapaksa. A predominance of all the three dosas will result in samadoprakriti.

Relevant to the context, the author answers certain objections raised against the concept of sannipata. Sannipata cannot occur, as dosas having opposite gunas can neutralise each other's aggravation. More over, all the diseases are said to be caused by all dosas. Though the dosas have some opposite gunas, they co-exist and cause sannipata as in the case of satva, rajas, tamas (three mahagunas) forming the universe. They do not neutralise each other because "to vitiate" is the essential characteristics of dosa. In all the diseases all the dosas are vitiated in the sense that each of the

dosa when vitiated, vitiates other dosas by impeding their natural functions. The latter dosas will not show symptoms particular to their vitiation as they do not have their particular nidana. Sannipata is the vitiation of all the three dosas caused by the nidana for the kopa of all the dosas.

Dosasthana is another matter discussed in the first chapter of Rasavaishesika. Though dosas are present all over the body, their presence is apprent in certain body areas. These parts are accepted as mulasthanas of dosa; their functional areas are termed gocarasthana. Concept of dosasthana enables us to explain caya and kopa and the action of sodhana treatment.

On the question, wich among the thirty three matters is most important, the author opines that none among these can be neglected and some need to be over emphasised. In particular occasions one may be given more significance. Treatment should be specific to the particular condition, taking into consideration all these aspects.⁸ Likewise, in another context, on the comparative importance of the dravya, rasa, guna, virya, vipaka and karma, Nagarjuna expresses the opinion that each can have its own importance.

The first chapter is concluded defining the six padarthas. The definition of dravya that "it is the base of the five⁹ can be interpreted in many ways. Dravya is the seat of the other five padarthas i. e. rasa, guna, virya, vipaka and karma. The five padarthas recognised by the Vaisesika school via., samanya, visesa, guna, karma and samavaya also reside in dravya. Another five, that

formulate dravya is the pancamahabhutas. Dravya also forms the base for panchakasaya kalpanas (svarasa, kvatha etc.). Rasa is defined as that which is perceived by the sense of taste.

Definition of guna is note-worthy. Gunas vary from each other and it is not possible to find a common characteristic. Some gunas are felt by touch (e. g. snigdha) and some by sight (e. g. drava). Hence the definition is "gunas are of various characteristics"¹⁰. Virya is defined as that which is inferred from the drug action¹¹. Karma as a padartha includes all the therapeutic measures. In the definition of virya, the word "karma" is used in the sense of drug action. The second chapter contains the description of dravya and its structure. The discussion is opened questioning the concept of dravya. Is it necessary to accept the existence dravya? Are not the other five enough! The author defends the concept of dravya giving many reasons. Possessiveness rasa, (vyapadesa) is a reason for accepting dravya. Generality (samanya) is another feature leading to the concept of dravya. Our intellectual conception also distinguishes (budhibheda) dravya from rasa, guna etc., We recognise dravya even after transformations as in the case of earthen pot before and after baking (abhijnana). Agama (sastra) also considers dravya as a distinct entity. To use rasa etc. particular dravya has to be used.

Panchamahabhuta theory is elucidated in the second chapter among the bhutas, bhumi forms the base; jalabhuta makes the bhutaparamanus cohere together. It is agnihuta that causes

pacana resulting in specific transformations. The shape or structure of the dravya resulted from the vyuhanakarma (arrangement of paramanus) due to vayumahabuta. The space occupied by dravya is attributed to akasabhuta. Infinite types of dravya is formed by predominance, diminution of particular bhutas and variations in their arrangement. Human body is considered parthiva in the sense that parthvibhuta is inclusive of other bhutas by the process of pancikarana. Rasavaisesika also gives the specific pancabhuta combinations for particular types of colour, smell, touch etc.

Each of the rasa, guna, virya and vipaka have their own pancabhautic structure in dravya. Even in a single dravya, each of these structure may differ from other, causing guna dissimilar to rasa (e. g. ruksaguna for a madhura-dravya) or vipaka dissimilar to rasa (katuvipaka for a madhuradravya) and so on. If all the properties of a dravya is of similar nature it is termed as pradhana. Bhutas present in each indriya are named in this chapter. The chapter is concluded enumerating the grahyamas of raw drugs of vegetable, animal and mineral origin.

The third chapter is devoted for discussions on rasa and guna. Rasas are numerous as each of six rasa vary. This is due to the variations in pancabhutic structure. Yet rasa is sixfold based on distinct asvada laksanas (perceptual characteristics) and actions. Rasa of dravya may be changed (anyadhatvage-mana) due to the adhara (container), atapa (Sun's heat), bhavana, desa, and kala. Elucidating the importance of

rasa all other Padarthas are defined in terms of Rasa Gunas are that by which rasa act. Virya is that which makes rasa act. Dravya is defined as basing which rasa act. What rasa does is termed as karma.

Both amla and lavana rasas are of agnijala predominance in their bhautic structure. In amla rasa, jalabhuta is more predominant while it is agni in lavana rasa. But according to Susruta, lavana rasa is of bhumyagni predominance. Caraka and Vagbhata consider amlarasa bhumyagni predominant.

Among the bhutas only bhumi and jala have the property of rasa and this rasa is considered as madhura. But with the association of other bhutas, other variants of rasa form in the dravya. Hence bhumi and jala bhutas are termed as nirvartaka (cardinal cause) and the other bhutas as upakaraka (complimentary cause). Nature of the dravya cannot be inferred easily due to enormous number of variations in the rasa, guna virya, and vipaka. So agama or aptopadesa is to be relied on mainly in the selection of drugs¹².

Rasas vitiate or pacify the dosas similar or dissimilar in bhautic structure. By permutations and combinations of the six rasas there can be sixtythree rasabhedas to be used in corresponding variations. If the use of particular rasa combinations during the beginning, middle and end of the course of the treatment are also counted, these rasabhedas will be two hundred and eleven for each of the dosa. Rasabhedas can also be formulated in the cases of sam-sarga, sannipata and also according to the site of dosakopa such as amasaya,

pakvasaya etc. Rasa of a dravya is known by direct perception (pratyaksa) anumana (inference as in the case of svarna) and agama (e. g. rasa of a visadravya).

The third chapter is concluded with a brief note on gunas. Sita, usna, snigdha, ruksa, visada, picchila, guru, laghu, mrudu and tiksna are considered as karmanya gunas, in the sense that these are more potent than the other gunas. Susruta also recognises ten gunas having importance in karma. The ten karmanya gunas are inclusive of the eight viryas of astavidha-viryavada. In addition, there are visada and picchila. The term "Karmanya" brings to mind the sutra "karmalaksanam viryam" Gunas affect the dosas according to their structural similarities.

The main content of the fourth and last chapter of Rasavaishesika is the discussions on virya and vipaka. As virya is one that is inferred from the karma, viryas are named after their respective karma (eg. chardaniya, medya) Susruta names these as ausadhakarmas (drug action.) Karmas of drugs are various and hence viryas are also numerous. Among them aviskrtatamas (those which are mostly manifested) are enumerated in sastras. This view is called bahuvidhaviryavada. The author has given the bhautic composition and often associated rasagunas of each virya. Some drugs act by virtue of the mantra chanted as the time of the administration. Hence it is karma (drug action) that indicates the virya. So Bhadantana-garjuna's concept of virya includes "prabhava" described by Caraka and Vagbhata.

On vipaka, author scrutinizes the theories of satvidha and trividha vipakas. Vipaka cannot be perceived by rasanendriya (sense of taste). So it is not proper to consider vipaka in relation to rasas. Trividhavipaka theory is mainly based on the argument that each of the vipaka is to nourish each dosa. That also does not seem to be right as any of the three dosas gets vitiated in a baby consuming milk only. Milk is madhura in rasa and paka and it should cause kaphakopa only if the above theory is correct.

Vipaka results from the jatharag-nipaka of food. Paka is of two types the one that takes more time and the other less time, i.e. gurupaka and laghukaka. These are connoted by the terms madhura and katu. Names of rasas are given to the vipakas due to their association with the respective pakas. There is a predominance of bhumijala and vayvakasa bhutas in gurupaka and laghupaka drugs respectively. Samskara (processing) sadmya (habituation), agnibala (digestive power) and samyagyoga (combination) greatly influence vipaka. Laghuvipaka is associated with laghuguna and guruvipaka with guruguna.

The concept of karma of nagarjuna differs from that of other acaryas. According to Susruta karma is drug action such as samsodhana, samana, agnidipana, lekhana etc.¹³ In Rasavaisesika it is the administration of drug or the therapeutic measures. Though Caraka and Vagbhata have used the term "karma" in the sense of pancakarma or other modes of treatment they have

not considered it as a padartha associated with dravya. Karma is not explained in Rasavaisesika. As application of medicine, it is well described in other sastras where cikitsa is expensively expounded. Also karma padartha is not a matter of dravyagunasastra alone.

In conclusion Nagarjuna explains some aspects of Swastavritta. On viruddha, he says it is not produced by the mere combination of opposite rasas. The dictum "sadrasm madhura payam"¹⁴ allows the use of opposite rasagunas in combination. Those combinations which cause dosavaisamya because of toxicity are viruddhas. Anupana is to be selected according to the gunas of food consumed. If a dravya of particular rasaviryavipaka is not available another of similar rasa can be substituted.

Pratyaksa (perception) anumana (logical inference), upamana (analogy), agama (textual evidence), arthapatti (circumstantial inference) and sambhava (inclusion) are the pramanas accepted by Nagarjuna, among which agama is the most important one. Susruta accepts pratyaksa, anumana, upamana and agama. Caraka adds yukti also. It is noteworthy that the traditional Buddhist schools of philosophy accepted two pramanas only i. e. pratyaksa and anumana.

Success of treatment relies on padacatustaya (proper aspects of physician, medicine, attender and patient). But which among the six padarthas is inclusive of padacatustaya? Or is it a separate one?

Out of the four matters pertaining to the attainment of health. Arogya to arogya, Rasavaishesika deals with the or health is precursor of purusarthas. the sadhana aspect comprising of the six So arogya is the highest achievement padarthas. Proper understanding and and nirvana is the supreme happiness.¹⁵ utilization of the six padarthas lead Nirvana is the end of all purusarthas.

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NEED FOR RESEARCH

Permit me to quote here what Sree C. D. Deshmukh, the Chairman of the Universities Grants Commission of India, who claims to be a student of Science, said, when he visited the Ayurvedic College, Trivandrum on 9th October 1957.

"The University Grants Commission would be only too glad to assist research where real merit is observed. Modern medicine cannot claim all the discoveries. There are many failures, which can be debited to them also. It may be that we have some components in the Ayurvedic medicines, which biologically prevent the growth of cancerous cells. This is not beyond the bounds of possibility. There is ample and scope for research in that direction. We are provision now on the fringe of new discoveries of life. How life can be created, how it can be proliferated etc. All basis of life seems to be chemical.

"Our ancestors were great observers of every little detail of the nucleus, or so to say, the nuclear physics from the Anu and the Paramanu to the Cosmos. They went deeply into the science of the theory of life. They were able to realise, what the reactions of the ultimate particles were. They seemed to have worked out mysteriously some methods by which, they were able to calculate the age of the Universe etc. It may be that we have a great deal to learn and what is more, to investigate in the empirical practice of medicine, as well as in laying down certain principles. In other words, we have the imagination, without which no scientific invention is complete.

"If we can recapture some of that ancient spirit of investigation and the detailed painstaking observation in the search for truth, there is a great deal of scope for us to revive some of that ancient achievement of which, we are justifiably proud. We must strive our best to bring out what is hidden in our ancient heritage."

കുളിച്ചാൽ തെറി

വൈദ്യരത്നം പി. എസ്. വാരിയർ

[കൊല്ലവർഷം 1080 കർക്കടകം 1-ാംനം (പുസ്തകം 2 ലക്കം 12) പ്രസിദ്ധീകരിച്ച 'ധന്വന്തരി'യിൽ നിന്ന]

കെ. കൃഷ്ണൻ എന്നു പേരായ ഒരാൾ കട്ടിക്ക് ചികിത്സിക്കുവാൻ വേണ്ടി ഇയ്യടിയിൽ എന്നെ കൂട്ടിക്കൊണ്ടുപോയി. കട്ടി തിരുവനന്തപുരം രാജ്യക്കാരനും സാമാന്യം സ്വത്തുള്ള ഒരു തറവാട്ടിൽ ജനിച്ചവനാണ്. വയസ്സ് ഏകദേശം മൂന്നിൽ താഴെയാണ്. ദഹനക്കേട്, ഇടയ്ക്ക് അതിസാരം ഇവയാണ് ആദ്യം ആരംഭിച്ച സുഖക്കേടുകൾ. ചിലപ്പോൾ മുഖത്തും കാലിനടിക്കും അല്പം നീരുള്ളതുപോലെ തോന്നും. രുചികുറവ് വളരെയില്ല. ഞാൻ കണ്ടപ്പോൾ, കട്ടി നന്നെ പരവശമായിട്ടുണ്ട്. ക്ഷീണമാണെങ്കിൽ അതികാറം. ദേഹം ഇരുണ്ട് വളരെ മോശമായിത്തോന്നും. കട്ടി നാലു കോൽ അകലെ നിന്നാൽ കൂടി വായിൽനിന്ന് അതികാറമായ ദുർഗന്ധം വരുന്നുണ്ട്. വായിൽ പുണ്ണുവന്ന് മലച്ചിരിക്കുന്നു. പല്ലുകൾ ഉച്ചുപിടിച്ചിരിക്കുന്നു. രക്തം നന്നെ കുറഞ്ഞിരിക്കുന്നു. കണ്ണിൽ പഴുപ്പും പീളയടിച്ചിലും ധാരാളമുണ്ട്. ആകപ്പാടെ കണ്ടതിൽ നല്ല ധൈര്യം വന്നില്ല. എങ്കിലും ചികിത്സിച്ചുനോക്കുവാൻ തന്നെ ഉറച്ചു. തല്ലാലം രണ്ടാഴ്ചയോളം അവരുടെ വീട്ടിൽതന്നെ വെച്ചു ചികിത്സിക്കുവാനും, പിന്നെ ഇങ്ങോട്ട് (കോട്ടയ്ക്കിലേക്ക്) കൊണ്ടുവരുവാനും ഏല്പിച്ച് ഞാൻ തിരികെ പോരികയും ചെയ്തു.

മൂന്നാഴ്ചവരെ മരുന്നായുകൊടുത്തു ചികിത്സിച്ചു. അതിനിടയ്ക്കു കട്ടിയെ കുളിപ്പിക്കാമൊ എന്നു ചോദിച്ചതിന് ഒരിക്കൽ കുളിപ്പിക്കുവാനും സമ്മതം കൊടുത്തു. ഈ ചികിത്സ തുടങ്ങിയശേഷം ദഹനക്കേട് വളരെയിട്ടില്ല. ദേഹബലത്തിനും അല്പം ഭേദം കണ്ടു എന്നു പറയാം. കണ്ണിലും കുറച്ചു സുഖമുണ്ടായി. ഈ ട്രൈക്കം പറഞ്ഞ രണ്ടു ഗുണവും ഒന്നു കുളിപ്പിച്ചതിനുശേഷമാണ് ഉണ്ടോ എന്നു സംശയം തോന്നി തുടങ്ങിയത്. അതിനുശേഷം ഈ ദിക്കിലേക്ക് കൊണ്ടുവന്നു. ആദ്യം കണ്ടതിലും അല്പം ഭേദമുണ്ടെന്ന് ഏനിക്കും തോന്നി. എങ്കിലും ഞാൻ ഉദ്ദേശിച്ചതിനേക്കാൾ വളരെ കുറച്ചു ഫലം കിട്ടിയിട്ടുള്ളു എന്നാണ് ഞാൻ വിശ്വസിച്ചത്. അതിനു വല്ല പ്രത്യേക കാരണവുമുണ്ടോ എന്നു പലവിധവും അന്വേഷിക്കുന്ന കൂട്ടത്തിൽ കട്ടിയുടെ ജനനം മുതൽക്കുള്ള ചരിത്രത്തെപ്പറ്റിയും ചോദിച്ചുനടിയായി. അപ്പോൾ ശിവ! ശിവ! ആ സാധു കട്ടിയെ പെററിട്ട് ഇതെ വരെ മിഴക്ക് തൊടിച്ചിട്ടില്ലെന്ന് അവർ പറയുന്നതു കേട്ടു. വെളിച്ചെണ്ണയാകട്ടെ, പച്ചെണ്ണയാകട്ടെ, കാച്ചിയതാകട്ടെ, പച്ചയാകട്ടെ യാതൊരണ്ണയും ആ കട്ടിയുടെ ദേഹത്തിൽ പെരുമാറിയില്ല. എന്നുമാത്രമല്ല, ദീനത്തിന്റെ ആരംഭം മുതൽ അതായത് ഏകദേശം ഒരു കൊല്ലം മുതൽക്ക്

ഒന്നോ രണ്ടോ പ്രാവശ്യം മാത്രമാണ് ചുട്ട വെള്ളംകൊണ്ടെങ്കിലും അതിനെ കളിപ്പിച്ചിട്ടുള്ളത്. ഇതിന്റെ സംഗതിയെപ്പറ്റി ചോദിച്ചതിൽ, വൈദ്യന്റെ കഠിന നിഷേധംകൊണ്ടാണ് ഇങ്ങനെ ചെയ്യാൻ ഇടയായതെന്നാണ് അവർ പറഞ്ഞത്. തേച്ചു കളിപ്പിച്ചാൽ 'ഇറക്കം'കൊണ്ടുള്ള ഉപദ്രവങ്ങളും, വെറുംകളിയായാൽ ഗ്രഹണീസംബന്ധമായ വ്യാധികളും ഉണ്ടാകുന്നതാണെന്നും, അതുകൊണ്ട് കട്ടിയെ 'കളിപ്പിച്ചാൽ തെറ്റി' എന്നും അദ്ദേഹം പലപ്പോഴും നിബന്ധിച്ചു പറയാറുണ്ടത്രെ! തന്റെ ആജ്ഞയെ ലംഘിച്ചാൽ പിന്നെ ആ കട്ടിക്കണ്ടാവുന്ന വ്യാധികളെപ്പറ്റി തന്നോടു പറയേണ്ടതില്ലെന്നും, താൻ അതു ചികിത്സിക്കുന്നതല്ലെന്നും ആണത്രെ വൈദ്യന്റെ ശപഥം.

ഈ പറഞ്ഞ വൈദ്യൻ അവിടങ്ങളിൽ സാമാന്യം നടപ്പുള്ള ആളും, അമ്പതു അറുപത് വയസ്സു പ്രായക്കാരനാണ്. അതുകൊണ്ട് ഈ ആജ്ഞ സാധാരണ നടപടിക്കു വിരോധമാകയാൽ അവർക്ക് മനസ്സിനു വളരെ ഈഷ്യലുണ്ടായിരുന്നെങ്കിലും പിന്നെയും അയാളുടെ അടുക്കലേക്കുതന്നെ യല്ലെ ചെല്ലേണ്ടതെന്ന് വിചാരിച്ച് അതുവരെ കട്ടിയെ മിഴക്ക് തൊടിക്കാതിരുന്നതാണ്. ആ ദിക്കിൽ ഇങ്ങിനെ ജനനം മുതൽ മരണം വരെ തേച്ചുകളിച്ചിട്ടില്ലാത്ത പലേ കട്ടികളും ഉണ്ടായിരുന്നു എന്ന് അവരുടെ വാക്കിൽനിന്ന് ഗ്രഹിക്കുകയും ചെയ്തു.

ഏതായാലും ക്രമമായി തേച്ചു കളിപ്പിച്ചാൽ വളരെ ആശ്വാസമുണ്ടാകാൻ ന്യായമുണ്ടെന്ന് ഞാൻ തീർച്ചപ്പെടുത്തി. വെറും കടക്കു ചതച്ചിട്ടു മൂപ്പിച്ച വെളിച്ചെണ്ണ തേപ്പിച്ചു, നിർച്ചുള്ളി (വയൽ

ച്ചുള്ളി) ചതച്ചിട്ടു തിളപ്പിച്ച വെള്ളം ആറിച്ചു തലയിലേക്കും ചെറുവകയോടു കൂടി (സുഖോഷ്ണമായി) മേലേക്കും പകുൻ കളിപ്പിക്കുവാൻ പറഞ്ഞു. ദൈവകാരുണ്യത്താൽ ഞാൻ അശേഷം തെറ്റിദ്ധരിച്ചിട്ടുണ്ടായിരുന്നില്ലെന്ന് ഉടനെ തീർച്ചപ്പെട്ടു. ആദ്യത്തെ ദിവസം കളിപ്പിച്ചിട്ടു അന്നുതന്നെ വളരെ ആശ്വാസമുണ്ടെന്ന് എല്ലാവർക്കും തോന്നി. പിന്നെ നന്നാലുദിവസം കൂടുമ്പോൾ മുറയ്ക്കു കളി തുടങ്ങി. മുഖത്തിന് തെളിവു ദിനംപ്രതി വർദ്ധിച്ചുവന്നു. രക്തപ്രസാദവും ധാരാളം ഉണ്ടായിത്തുടങ്ങി. വയറിനു സുഖക്കേടില്ല. ദേഹം വളരെ ഭേദം വന്നു. കളിയും ചിരിയും ധാരാളം തുടങ്ങി. എന്തിനധികം പറയുന്നു, രണ്ടുമൂന്നാഴ്ചകൊണ്ട് സംശയമെല്ലാം വിട്ടു. കട്ടി നല്ല മനുഷ്യാകൃതിയായിത്തീർന്നു. മരുന്നിന്റെ കാര്യത്തിൽ ആദ്യവും, രണ്ടാമതും പറയത്തക്ക വ്യത്യാസമൊന്നും ചെയ്തിട്ടില്ല. ആദ്യത്തെ മൂന്നാഴ്ചയിൽ അതിന്റെ ഗുണം മുഴുവനും മങ്ങിക്കിടക്കുകയായിരുന്നു. പക്ഷെ രണ്ടാമത്തെ കാലത്തിൽ ശരിയായി കളികൂടി തുടങ്ങിയപ്പോൾ മുമ്പ് ഉപയോഗിച്ച മരുന്നിന്റെ ഫലംകൂടി പ്രകാശിച്ചു എന്നു പറയുന്നതിൽ ഒട്ടും അബദ്ധമില്ലെന്നാണ് എന്റെ വിശ്വാസം. ഒരുവിധം സമാധാനമായി എന്നു കണ്ടപ്പോൾ കുറച്ചു ദിവസം കൂടി ഉപയോഗിക്കുവാനുള്ള മരുന്നുകളും വേണ്ടുന്ന ഉപദേശങ്ങളും കൊടുത്തു കട്ടിയെ തിരികെ അയക്കുകയും ചെയ്തു.

ഒരു കാര്യം എല്ലാവരും മനസ്സിലാക്കേണ്ടതാണ്. പരമ്പരയാ ശീലിച്ചവരുന്ന ദിനചര്യയെ നല്ലവണ്ണം ആലോചിക്കാതെ മാറ്റുവാൻ കല്പിക്കുന്നത് പരമാബദ്ധമായിരിക്കും. രോഗത്തെ എത്രത്തോളം നിഷ്ഠർഷിച്ചു ചികിത്സിച്ചാലും ശരി ദിന

ചര്യയുടെ കാര്യത്തിൽ വേണ്ടത്ര ശ്രദ്ധ വെക്കാതിരുന്നത് അതുകൊണ്ട്യാതൊരു ഫലവും കിട്ടുന്നതല്ല. അത്രമാത്രമല്ല തൃപ്തമായ അശ്രദ്ധകൊണ്ട് വലിയ ദോഷം വന്നേക്കുകയും ചെയ്യും. ഈ കട്ടിയെ ജനനം മുതൽ ഇതുവരെ തേച്ചുകളിപ്പിക്കാതിരുന്നത് മഹാ കഷ്ടമായിപ്പോയിരിക്കുന്നു. നമുക്ക് വളരെ കാലമായിട്ടുള്ള പരിചയം തേച്ചുകളിച്ചിട്ടാണല്ലോ. അതിനു വിപരീതം പറഞ്ഞാൽ ബോധ്യം വരുവാൻതന്നെ പ്രയാസം. പിന്നെ ഇതു പോലെയുള്ള ദൃഷ്ടാന്തങ്ങൾ കൂടി ഉണ്ടാവുമ്പോൾ എങ്ങിനെ വിശ്വസിക്കും. അതു

പോട്ടെ. കളിപ്പിക്കാൻ കൂടി സമ്മതിക്കാത്തത് എന്തൊരു കഷ്ടമാണ്. ചില രോഗങ്ങളിൽ കളിപ്പിക്കരുതെന്നു വിധിച്ചിട്ടുണ്ടെങ്കിലും അതിനു ഇത്ര കഠിനമായ അർത്ഥമില്ല. ശുചിത്വം ആർക്കും ഏതവസ്ഥയിലും അത്യാവശ്യം തന്നെയാണ്. അതു പച്ചവെള്ളത്തിൽ കളിപ്പിക്കുന്നതു അധികം സംഗതികളിൽ നിഷിദ്ധമായിട്ടുണ്ടെങ്കിൽ ചൂടുവെള്ളത്തിന്റെ ഉപയോഗം വളരെ ദുർല്ലഭം രോഗങ്ങളിൽ മാത്രമേ നിഷേധിക്കപ്പെട്ടിട്ടുള്ളൂ എന്ന് എല്ലാവരും ധരിക്കേണ്ടതാണ്.

1922 ജനുവരിയിലെ 'ധന്വന്തരി'യിൽ നിന്ന്

1. "കരയാന്യ കടിച്ച ചവച്ചിറക്കിയാൽ ഛർദ്ദി നിലവാനിടയുണ്ട്."
2. "ആവണക്കണ്ണയിൽ തോറാവരൽ അരച്ച സേവിച്ചാൽ മുത്രച്ചും, വയറുകാളലും മാറുന്നതാണ്."
3. "ആകസ്മികമായുണ്ടാകുന്ന ആഗന്തകപ്രണങ്ങളിൽ കാവിമണ്ണ് പൊടിച്ചിട്ടാൽ പൂണ്ണശമനം കിട്ടുമെന്നു കാണുന്നു."
4. "ഉളക്കു, ചതവ് മുതലായതു നിമിത്തമുണ്ടാകുന്ന നീരിൽ കിളിഞ്ഞിലിന്റെ തൊലി കാടിയിൽ അരച്ചു തിളപ്പിച്ചു പുരട്ടിയാൽ ക്ഷണത്തിൽ ആശ്വാസം കിട്ടുന്നതാണ്."
5. "ഇരട്ടിമധുരവും, ഈത്തപ്പഴവും ഇട്ട് കറക്കിയ പാൽ കഴിച്ചാൽ ശബ്ദവാഹിനി കളായ സിരകൾക്ക് ബലമുണ്ടാകുന്നതും, അധികം സംസാരിച്ചുണ്ടാവുന്ന ചെറുപ്പ് ആശ്വാസപ്പെടുന്നതുമാണ്."

ധാതുപോഷണം എങ്ങിനെ സംഭവിക്കുന്നു?

* ഡോ. കെ. മുരളീധരൻപിള്ള എം. ഡി. (ആയു.)

മനസ്സും ശരീരവും ആത്മാവും ചേരുന്നതാണ് വ്യക്തി എന്ന് ആയുർവേദശാസ്ത്രം വ്യക്തമാക്കുന്നു. ആത്മാവും മനസ്സും നഗ്നനേത്രങ്ങൾക്കു ശോചനമല്ല. ശരീരം പഞ്ചഭൂതാത്മകമാണ്. അത് ചലിക്കുന്നത് ദോഷങ്ങളും ധാതുക്കളും കാരണമായാണ്. ക്രിയാപരമായ (Physiological) പ്രവർത്തനങ്ങളെ ദോഷങ്ങളും, ഘടനാപരമായ പ്രവർത്തനങ്ങളെ (Structural) ധാതുക്കളും നിർമ്മാർജ്ജനകരമായ പ്രവർത്തനങ്ങളെ (Excretory) മലങ്ങളും പ്രതിനിധീകരിക്കുന്നു.

രസരക്താദികളായ ധാതുക്കളാണ് ശരീരത്തിലുള്ളത്. "ശരീരം" എന്ന പദം തന്നെ ക്ഷയിച്ചുകൊണ്ടിരിക്കുന്നത് എന്നതിനെ സൂചിപ്പിക്കുന്നു. ക്ഷയിക്കുന്നതിനൊപ്പം പുഷ്ടിപ്പെടുകയും ചെയ്യുന്നതുകൊണ്ടാണ് ശരീരം നിലനില്ക്കുന്നത്. പുനർനിർമ്മാണപ്രക്രിയ ഏറ്റവും കൂടുതലുള്ള ശൈശവകാലത്ത് ശരീരം വേഗം വളരുന്നു. ക്ഷയിക്കലും പുഷ്ടിപ്പെടലും തുല്യനിലയിലുള്ള യൗവ്വനകാലത്ത് വൃദ്ധീകരണങ്ങളില്ലാത്ത അവസ്ഥയിലായിരിക്കും ശരീരം. നാശാത്മകപ്രവണത (Destructive Phase) കൂടി നില്ക്കുന്ന വാർദ്ധക്യകാലം ശരീരത്തിന്റെ ക്ഷയകാലമാണ്. ശരീരത്തെ തുലനാവസ്ഥയിൽ

നിലനിർത്താനുള്ള പ്രക്രിയയുടെ രണ്ട് മാർഗ്ഗങ്ങളാണ് വൃദ്ധിയും ക്ഷയവും. ഈ മാറ്റങ്ങൾ ധാതുക്കളിലാണ് സംഭവിക്കുന്നത് എന്നതുകൊണ്ടാവണം ശരീരത്തിന്റെ നിലനിൽപ്പിൽ നിർണ്ണായക പങ്ക് ധാതുക്കൾക്കുള്ളത്. അതുകൊണ്ട് തന്നെ ശരീരത്തിന്റെ നിലനിൽപ്പിൽ 'ധാതുപോഷണം' അതീവ പ്രാധാന്യമർഹിക്കുന്നു.

ശരീരപോഷണം നിർവ്വഹിക്കുന്നത് ആഹാരമാണ്. അതിനാൽ ധാതുമലങ്ങൾക്ക് പരിണാമം (Transformation) സംഭവിക്കത്തക്കവണ്ണം അവർക്ക് പുഷ്ടി പ്രദാനം ചെയ്യുന്നതും ആഹാരം തന്നെയാണ്. ആയുർവ്വേദരീत्या പരിണാമം സംഭവിക്കണമെങ്കിൽ പാകം ഉണ്ടാകണം. അതിന് അഗ്നിയും വേണം. അതുകൊണ്ടു നാം കഴിക്കുന്ന ആഹാരം ധാതുക്കളായും മാറും പരിണമിക്കണമെങ്കിൽ അഗ്നി പാകത്തിനു വിധേയമാകേണ്ടതുണ്ടെന്നതു വ്യക്തമാണല്ലോ.

ആഹാരം ഉള്ളിലെത്തിയാൽ ആദ്യം ജാരാഗ്നിയുമായി ബന്ധപ്പെട്ട് സൂക്ഷ്മാതി സൂക്ഷ്മഭാഗങ്ങളായിത്തീർന്നിട്ട് അതിലടങ്ങിയിട്ടുള്ള പഞ്ചഭൂതാംശങ്ങൾ ഭൂതാഗ്നികളുടെ പ്രവർത്തനഫലമായി ശരീരസാമാന്യ

* ഡോ. കെ. മുരളീധരൻപിള്ള, വൈദ്യരത്നം ആയുർവ്വേദ കോളേജ്, ല്ലൂർ, തൈക്കാട് ശ്ലോനി P. O., 680 322, തൃശൂർ.

ഭൂതങ്ങളായിത്തീരുന്നു. ഈ പ്രവർത്തനങ്ങളുടെ അന്ത്യത്തിൽ ആഹാരം സാരകീട്ടങ്ങളായി വേർതിരിയുന്നു. സാരം അന്നരസമായും കിട്ടും മുത്രപുരീഷ് സ്വേദങ്ങളായും തീരുന്നു. അന്നരസം ഏഴ് തരത്തിലുള്ള ധാതുക്കളുടെ പ്രവർത്തനഫലമായി ശരീരത്തിലേക്ക് ആഗിരണം ചെയ്യപ്പെടുന്നു.

രക്തം രസത്തിൽ നിന്നും മാംസം രക്തത്തിൽനിന്നും മേദസ് മാംസത്തിൽനിന്നും അസ്ഥി മേദസിൽനിന്നും മജ്ജ അസ്ഥിയിൽനിന്നും ശുക്ലം മജ്ജയിൽനിന്നും ഉണ്ടാകുന്നു. ആദ്യത്തെ ധാതു തൊട്ടടുത്ത ധാതുവിന്റെ ധാത്യാഹാരം ആണെന്നത്.

ധാതു പരിണാമത്തിനുപോൽബലകമായി മൂന്നുദാഹരണങ്ങൾ ആയുർവ്വേദത്തിൽ പറയപ്പെട്ടിട്ടുണ്ട്. പാൽ തൈരാക്കുന്നതുപോലെ രസം രക്തമാവുന്നു. മാംസം മേദസാകുന്നു. ഇത് ക്ഷീരദധിന്യായം. തോടുകളിലൂടെ വിവിധ സ്ഥലങ്ങളിലേക്ക് വെള്ളം എത്തിക്കുന്നതുപോലെ പോഷകവസ്തുക്കൾ ധാതുവഹശ്രോതസ്സുകളിലൂടെ ഒരു ധാതുവിൽനിന്നും മറ്റൊരു ധാതുവിലേക്കെത്തിക്കുന്നു. ഇത് 'കേദാരകല്യാന്യായ'മാണ്. കൂട്ടിയിട്ടിരിക്കുന്ന ധാന്യത്തിൽ നിന്നും പ്രാവുകൾ അവക്കാവശ്യം ഉള്ളവ കൊത്തിക്കൊണ്ടു പറന്നു പോകുന്നതുപോലെ, അന്നരസത്തിൽ നിന്നും വിവിധ ധാതുക്കൾ അതാതിനാവശ്യം ഉള്ള പോഷകവസ്തുക്കൾ വലിച്ചെടുക്കുന്നു. 'ഖളേകപോതന്യായം' എന്ന പേരിലാണിതറിയപ്പെടുക. ക്ഷീരദധിന്യായമനുസരിച്ച് നോക്കിയാൽ രക്തവർഷക ദ്രവ്യമെന്നോ മാംസവർഷക ദ്രവ്യമെന്നോ ഒരു ദ്രവ്യത്തെ വിവരിക്കുവാൻ പറ്റില്ല. കാരണം ആ പ്രത്യേക ധാതുവിനു മുമ്പുള്ള എല്ലാ ധാതുക്കളേയും ആ ദ്രവ്യത്തിനു പോഷിപ്പിക്കേണ്ടതായി വരുന്നു. കേദാരകല്യാന്യായം സ്വീകരിച്ചാൽ 'രസാത് രക്തം തതോ മാംസം' എന്ന ശാസ്ത്രഭാഗം സത്യവിരുദ്ധമായിത്തീ

രും. 'ഖളേകപോതന്യായ'ത്തിനും ഇതേ വൈരുദ്ധ്യം തന്നെയുണ്ട്. ചുരുക്കത്തിൽ ഇവയിൽ ഓരോന്യായം മാത്രം എടുത്താൽ ധാതു പരിണാമം എന്ന പ്രക്രിയയുടെ ഭാഗികമായ ചിത്രം മാത്രമേ നമുക്ക് ലഭിക്കുന്നുള്ളൂ.

ആധുനിക ശാസ്ത്രരീത്യാ ആഹാരരസം രണ്ട് മാർഗ്ഗങ്ങളിലൂടെ ആഗിരണം ചെയ്യപ്പെടുന്നതായി മനസ്സിലാക്കാം.

1. പ്രതിഹാരിണിസിര(Portal vein) യിലൂടെ നേരിട്ട് രക്തത്തിലേക്ക്.
2. ലംഫിക് സിസ്റ്റം (Lymphatic system) രക്തപര്യവഹന വ്യവസ്ഥയിലേക്ക്.

ഈ പോഷകങ്ങൾ കോശങ്ങളിലേക്ക് രക്തത്തിലൂടെ എത്തിക്കപ്പെടുന്നു. ധാതു പരിണാമത്തെക്കുറിച്ച് ഇവിടെ പരാമർശിക്കുന്നേയില്ല.

ഓരോ ധാതുവും സ്വധാത്വഗ്നിയായ് പാകത്തിന് വിധേയമായി വിവിധ സ്രോതസ്സുകളിലൂടെ സഞ്ചരിച്ച് പരിണമിക്കുന്നു എന്നുവേണം ആയുർവ്വേദ ഗ്രന്ഥങ്ങളിലെ വിവരണങ്ങളിൽനിന്നും മനസ്സിലാക്കുവാൻ. ഒരു ധാതുവിൽനിന്നാണ് ഇതര ധാതുവിന് പോഷണം ലഭിക്കുന്നത്. ഓരോ ധാതുവും പാകപ്പെടുമ്പോൾ സാരകീട്ടങ്ങളായി വേർതിരിയുന്നു. സാരഭാഗം അടുത്ത ധാതുവിന്റെ പൂർവ്വരൂപം (അസ്ഥായി ധാതു-Premonitory form) ആക്കുകയും, കിട്ടം വിവിധ വിസർജ്ജന മാർഗ്ഗങ്ങളിലൂടെ പുറംതള്ളപ്പെടുകയും ചെയ്യും. കഫം, പിത്തം, കർണ്ണമലം, വിയർപ്പ്, നഖം, മുടി, ഓജസ്സ് ഇവയെല്ലാം ഓരോ ധാതുവിന്റേയും പാകാവസാനം ഉണ്ടാക്കുന്ന വിവിധ കീട്ടങ്ങളാണ്.

നാം കഴിക്കുന്ന ആഹാരം പാകപ്പെട്ട്, അന്നരസമായിത്തീർന്ന്, രസധാതുവിലേക്ക് ആഗിരണം ചെയ്യപ്പെടുന്നു. രസധാതു എന്നത് ശുദ്ധരസധാതുവും അന്നര

സവും കൂടിക്കലർന്ന ഒരു മിശ്രിതമാണ്. രസയാത്മഗിയും അതിലുൾക്കൊള്ളുന്നുണ്ട്. ആ അഗ്നി രസയാത്മവിൽ പ്രവർത്തിച്ച് രക്തയാത്മവിന്റെ ആദിരൂപമായി പരിണമിക്കുന്നു. കിട്ടുമായി കഫം ഉണ്ടാക്കുകയും ചെയ്യുന്നു. ആഹാരരസത്തെ ശുദ്ധരസയാത്മവാക്കി മാറ്റാനും ആ അഗ്നി ഉപയോഗിക്കപ്പെടുന്നുണ്ട്. രക്തയാത്മവിന്റെ ആദ്യരൂപത്തെ അസ്ഥമായി ധാതു അഥവാ പോഷകധാതു എന്നു വിളിക്കാം. ഇതു രക്തവഹസ്രോതസ്സിലൂടെ ആനയിക്കപ്പെട്ട് സ്ഥായി രക്തവുമായി—ശുദ്ധരക്തവുമായി—കലരുന്നു. രക്തമെന്നത് അസ്ഥായി രക്തത്തിന്റെയും സ്ഥായിരക്തത്തിന്റെയും കൂടിക്കലർന്ന ഒരു രൂപമാണ്. അതിൽ രക്തയാത്മഗിയുമുണ്ട്. ഇത് രക്തത്തെ മാംസത്തിന്റെ ആദിരൂപത്തിലാക്കുകയും അസ്ഥായി രക്തത്തെ ശുദ്ധരക്തമാക്കുകയും ചെയ്യുന്നു. അപ്പോഴുണ്ടാകുന്ന കിട്ടമാണ് പിത്തം. ഇങ്ങിനെയുണ്ടാകുന്ന അസ്ഥായിമാംസം മാംസവഹ സ്രോതസ്സിലൂടെ സ്ഥായിമാംസവുമായി ചേരുന്നു. ഇത് എല്ലാ ധാതു പരിണാമത്തിലും ആവർത്തിക്കപ്പെടുന്നു. അവസാനം ശുക്രയാത്മഗി ശുക്രത്തിൽ പ്രവർത്തിച്ച് ഓജസ്സായിത്തീരുന്നു. മാംസയാത്മവിന് പോഷണം നൽകുവാനുള്ള ഉദ്ദേശത്തിൽ ഒരു ദ്രവ്യം നൽകുമ്പോൾ ആ പ്രത്യേക ദ്രവ്യത്തിൽ രസയാത്മഗിയും രക്തയാത്മഗിയും പ്രവർത്തിക്കണം. അല്ലെങ്കിൽ ഇതേ പാകം മറ്റൊരു ജന്തുവിൽ സംഭവിച്ചതാകണം. അതുമല്ലെങ്കിൽ ഘടനാപരമായി രക്തയാത്മഗി പാകം സംഭവിച്ചതിനു ശേഷമുള്ളതുപോലെയായിരിക്കണം ആ ദ്രവ്യം. അതിനാലാകണം മാംസം മാംസത്താൽ വൃദ്ധമാകുന്നു എന്നു പറയുന്നത്. രക്തത്താൽ രക്തം വർദ്ധിക്കുന്നുണ്ടല്ലോ. കാരണം ഇവ ഇതേ തരത്തിലുള്ള പാകത്തിനു മറ്റൊരു ജന്തുവിനുള്ളിൽവെച്ച് വിധേയമായിട്ടുണ്ട് എന്നതാണ്. തന്നെയുമല്ല, രക്തയാത്മഗി പാകത്തിന് ശേഷമുള്ള രീതിയിൽ ഘടനാപരമായി അത് തുല്യമായിരിക്കുകയും ചെയ്യും. അവ ആഹാരരസ

ത്തിലുണ്ടാവുകയും, ആ പ്രത്യേക ധാതുവിലേക്ക് ആഗിരണം ചെയ്യപ്പെടുകയുമാണ് സംഭവിക്കുന്നത്. ഇതാണ് ആ പ്രത്യേക ദ്രവ്യം പെട്ടെന്ന് ആ പ്രത്യേക ധാതുവിനെ വർദ്ധിപ്പിക്കുവാനുള്ള കാരണം.

ഇങ്ങിനെ ചിന്തിക്കുമ്പോൾ മുൻപറഞ്ഞ എല്ലാവിധ ന്യായങ്ങളുടേയും ഒരു സമ്മിളിതരൂപമാണ് ധാതുപരിണാമം എന്നു കാണാൻ പ്രയാസമില്ല. ഒരു ധാതുവിൽ നിന്നും മറ്റൊരു ധാതു ഉണ്ടാകുമ്പോൾ ക്ഷീരദധിന്യായവും ഓരോ ധാതുവും അതതു സ്രോതസ്സുകളിലൂടെ സഞ്ചരിച്ച് ഇതരധാതുവിന്റെ അസ്ഥായി രൂപമായിത്തീരുന്നപ്പോൾ കേദാരകല്യാന്യായവും ഓരോ ധാതുവും അതതിനാവശ്യം ഉള്ള പ്രത്യേക പോഷകഭാഗം രസയാത്മവിൽനിന്നും എടുത്തു വൃദ്ധമാകുന്നതിനാൽ 'ഖളേകപോതന്യായ'വും നമുക്കു കാണുവാൻ സാധിക്കും. അതിനാൽ ധാതുപരിണാമം എന്ന പ്രക്രിയ മേല്പറഞ്ഞ എല്ലാംകൂടി ചേർന്നാലേ പരിപൂർണ്ണമാകുന്നുള്ള എന്നറിയണം. രസത്തിന്റെയും രക്തത്തിന്റെയും സംയോജിതരൂപമായ രക്തത്തിലൂടെ അസ്ഥായിധാതുക്കൾ സംവഹനം ചെയ്യപ്പെടുകയും അവ സിരാജാല (Cappillaries) സൂക്ഷ്മദാർശനങ്ങളിലൂടെ കോശമദ്ധ്യത്തിലുള്ള ദ്രാവകത്തിലേക്ക് എത്തിക്കപ്പെടുകയും അങ്ങിനെ കോശങ്ങളെ പോഷക സമർത്ഥമാക്കുകയും ചെയ്യുന്നു. ('ബിസാനാം ഇവസുക്ഷ്യാണി' എന്നു തുടങ്ങുന്ന ശാസ്ത്രഭാഗം ഇവിടെ ഓർക്കുക.)

. ഒരു പ്രത്യേക ധാതുവിന്റെ വൃദ്ധിയും ക്ഷയവും ഉണ്ടാകുന്നത് ആ പ്രത്യേക ധാതുഗിയുടെ മാന്ദ്യംകൊണ്ടും തൈക്ഷ്ണ്യം കൊണ്ടും ആണ്. രസയാത്മഗി മന്ദിച്ചാൽ അടുത്ത ധാതുവായി അതു പരിണമിക്കുന്നത് വളരെ മന്ദഗതിയിലാകും. അതുവഴി രസധാതു അളവിൽ വർദ്ധിക്കുകയും ചെയ്യുന്നു. അതിദീപ്തമാണെങ്കിൽ ഇതര ധാതുവായി വളരെ പെട്ടെന്നുതന്നെ പരിണമിക്കപ്പെടുകയും രസ

ധാതു അളവിൽ വളരെ കുറയുകയും ചെയ്യും. ജന്മാന്ധ്യത്തിന്റെ ഭാഗമാണ് ധാതുപ്രതികരണമെന്നതിനാൽ ജന്മാന്ധ്യത്തെ ബാധിക്കുന്നതല്ല. ധാതുപ്രതികരണമേ അങ്ങിനെ ധാതുപോഷണത്തെ ബാധിക്കും.

രസധാതു വർദ്ധിച്ച അളവിലുണ്ടാകുന്ന രക്തധാതുവും വർദ്ധിച്ച അളവിലായിരിക്കും. കുറഞ്ഞ അളവിലുള്ള രസധാതുവിൽനിന്നും വളരെക്കുറച്ച രക്തമേ ഉണ്ടാകൂ. എന്നാൽ ദുഷ്ട മേടസ് വർദ്ധിച്ചുണ്ടാകുന്ന അതി സ്ഥൂല്യത്തിൽ തൊട്ടുതന്നെ ധാതുവായ അസ്ഥി വർദ്ധിക്കുന്നില്ല. കാരണം അത് സ്ത്രോതോരോധത്തെ ഉണ്ടാക്കുകയും അങ്ങനെ അടുത്ത ധാതുവിലേക്ക് ഉള്ള പോഷകപ്രവാഹത്തെ തടസ്സപ്പെടുത്തുകയും ചെയ്യുന്നു.

ഇവിടെ മറ്റൊരു സംഗ്രഹം ന്യായമായും ഉണ്ടാകാം. 'വളരെ നാരം നീണ്ടു നിൽക്കുന്ന ഉപവാസത്തിൽ ക്രമേണ രസധാതു മുഴുവനും രക്തധാതുവായി പരിണമിച്ചു' രസധാതു എന്നൊന്നില്ലാത്ത അവസ്ഥയിലേക്ക് എത്തിച്ചേരില്ലേ? ഇങ്ങിനെ

നെ ഒരിക്കലും സംഭവിക്കില്ല. കാരണം രസധാതുവിന്റെ അളവ് കുറയുമ്പോൾ രസധാതുവിന്റെ കർമ്മത്തെ ക്ഷയിപ്പിക്കുകയും അത് ദോഷകോപത്തിന് കാരണമായിത്തീരുകയും ചെയ്യും. ഇത് ധാതുപ്രതികരണ പ്രതികൂലമായി ബാധിക്കും—ഫലമോ പൊതുവായ ആരോഗ്യക്ഷയം തന്നെ. ഒരു ധാതുവിന്റെ ക്ഷയമായി മാത്രം എന്തെങ്കിലും ഇതിൽനിന്നും മനസ്സിലാക്കാം.

മതിയായ ധാതുപോഷണം പ്രധാനമായും മൂന്നുവിധത്തിൽ തടസ്സപ്പെടാം.

1. ആഹാരത്തിന്റെ മിഥ്യോപയോഗം (അഥവാ ദുഷിച്ച ആഹാരത്തിന്റെ ഉപയോഗം)
2. ജന്മാന്ധ്യത്തിന്റെ വൈഷമ്യം.
3. സ്ത്രോതോരോധം.

ധാതുപോഷണത്തെക്കുറിച്ച് ചിന്തിക്കുമ്പോൾ ഈ വസ്തുതകൾ ചികിത്സകന്റെ മനസ്സിൽ ഉണ്ടായേ മതിയാകൂ. ●

ധാതുപ്രതികരണത്തിന്റെ പഴയ ലക്ഷണങ്ങളിൽനിന്ന്

1. വികിരണമുള്ളവർ സ്വകാര്യമായി വല്ലതും സംസാരിക്കുന്നതാണെങ്കിൽ ആ ഉപദ്രവം സാധാരണ ഉണ്ടാകാറില്ലെന്ന് സൂക്ഷിച്ചു നോക്കിയാൽ അറിയാം. എന്നാൽ അതിനെ അടിസ്ഥാനപ്പെടുത്തി ഒരു തരം ചികിത്സ നിശ്ചയിച്ചാൽ വികിരണ തീരെ ഇല്ലാതാക്കാമെന്ന് കാണുന്നു.

വികിരണമുള്ള ആരും ആദ്യം പത്തു ദിവസം ഒന്നും മിണ്ടാതിരിക്കണം. ഇതുകൊണ്ട് ശബ്ദവാഹിനികൾക്ക് വിശ്രമം കിട്ടുമല്ലോ. പിന്നെ ഒരു പത്തു ദിവസം, സ്വകാര്യപാരമ്പര്യപോലെയല്ലെങ്കിലും മാത്രം പറയണം. ഇങ്ങനെ സംസാരം അല്ലാതെ ഉച്ചത്തിലാക്കിക്കൊണ്ടുവന്നാൽ ഏതാനും മാസംകൊണ്ട് വികിരണമെന്നും കൂടാതെ സാധാരണക്കാരുടെ പോലെ സംസാരിക്കാമത്രെ.

1920 നവമ്പർ 16-ാം നം

TO THE ATTENTION OF CONTRIBUTORS

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