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IMPORTANCE OF BHOOMI PARIKSHA IN RELATION TO DRAVYAGUNA

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ABSTRACT

Dravya is a basic component act as a store house for *Guna, Karma, Rasa, Virya, Vipak* etc. The intensity of pharmacodynamics and pharmacokinetics depend upon this component present in *Dravya*. The quality of *Dravya* from herbal origin weather cultivated or collected from forest depends on the land, soil, through which it is developed. *Acharya* have described about soil, land in detail in relation to subsis, for agriculture, to cultivate herbs, also collection of potent herbs depends on the type of *Bhoomi* (land or habitat). A profound knowledge of *Bhoomi Pariksha* is described by *Acharyas* in *Samhitas, Vedas*, and other related texts. Success of four pillars viz *Bhishak, Aushadhi, Rugna, Paricharak* depends on good quality of *Bhoomi*, as all other three depends on good quality of *Aushadhi* which is collected from *Prashasta Bhoomi* Over looking on modern science, scientist / scholars also belief that a very well nutrient rich land is essential for proper development of a plant or for agriculture. To increase fertility of a land organic supplement / components like nitrogen, phosphorus, manganese etc are being added in soil. Any soil polluted by means of today's pollutantion eg. Water and air

harm fest the therapeutic value of that medicinal plant grown there beside that type of land is consider for potable water, construction road and building etc. by a well-equipped soil testing department of govt. of India.

KEYWORDS: Soil, *Bhoomi*, *Bhoomi Pariksha*, *Dravya.*

INTRODUCTION

The development of man in this era of globalization is one of the subjects of discussion. The developed communication, media etc. has made distant places closer than before. Misuse of all these has been made by man for himself. He has adopted food habits, life style etc. which may not be suitable to his place of origin. This all leads to psychosomatic unhealthy and in this condition he rushes towards modern therapy due to unreliable results of *Ayurvedic* drugs. Since long the subject of standardization of *Ayurvedic* drugs are still hot; but there has been no fruitful outcome. This has happened because we have forgotten our concepts and the useful *Sutras* which are given by our learned by *Aacharyas*. In this era of globalization we must remember the quotation given by *Aacharya Charaka* in *Vimansthan.*[1]

The references to *Bhoomi* are present since the *Vedickala*. *Prashastabhoomi* are classified for Farmer and Plants. In primary level *Urvara, Irin* and *Shashya Bhoomi* are classified. In *Atharvaveda, Yajurvaveda* and *Taitariya Upanishad*. In *Taitariya Upanishad* Soil are classified *Mruda Mrutika, Rajasbhoomi, Ashama, Ashamanti, Kinshil, Irinya, Uravara and Uarvarya.*[2]

The world *Desha* is defined as that which indicates or directs the particular substance mainly an area or any geographical place. All the *Aacharyas* have mentioned six types of *Bhoomi* and these are *Blackish, Pandu, Shyamala, Lohita, Shweta, Yellowish.* Taste wise six types of *Bhoomi* are classified as *Madhura, Amliya, Lavaniya, Tikta, Katu, kashay.*[3]

In *Vrukshayurveda* all the *Aacharyas* have mentioned three types of *Bhoomi* and these are *Anupa*-(wet area), *Jangala*-(dry area), *Sadharana*-(Area of balanced climate).

The world *Desha* indicates the area as well as the body of a patient. *Aacharya Vagbhata* has also mentioned *Bhoomi*, meaning the area which allows different creatures to survive. Etymologically *Desha* means a part of the geographical area. All the *Aacharyas* have mentioned three types of *Desha* and these are

1. *Anupa*(wet area)

2. *Jangala*(dry area)
3. *Sadharana*(area of balanced climate).[4]

Aacharya Charaka has described three types of *Desha* in *Kalpasthana* 1/8 as below. The *Anupa Desha* (marshy land) is characterized by *Aacharya Charaka* as follows; the *Anupa Desha* contains deep forests of trees like *Hintal, Tamala, Narikel, kadali* etc. This area is located generally at the banks of rivers and seas, mostly cold winds blow here, in this area the banks are beautified by plants like *vanjula* and *Vantra*. The area is surrounded by thick forests with beautiful and blossoming trees and mountains covered with beautiful creepers. The branches of trees located here echo with the sound produced by birds like *Hamsa, Cakravaka, Balaka, Nandi-mukha, Pundarika, kadamba, Madgu, Bhringraja, Satapatra* and inebriated *Kokila*. The people inhabiting this type are of tender body, and generally they are dominated by *Vata* and *Kapha*.[5]

Aacharya Sushruta has described *Anupa Desha* as the area where water is more in quantity, the surface is uneven, rainfall is more, and rivers are more, cold air blows continuously. The area has dense forests and big trees, the persons have tender body and are more prone to *kaphavatika* disorders. This area is full of waterfalls, ponds, lakes with different types of *Jalamruga*, small mountains, along with different types of birds *Kuraramukhakhagalkrita*. The soil is Copper or red colour. This area is cool in nature and produces different type of grains. This climate is prone to vitiate *Vata* and *Kapha Dosha*, increases *Udararoga* and *Aamadosha*, but it is spacifying for the *Pitta Dosha*.[6]

As said above, the characters found with excessive water and dense forests which cover that area is said to be *Pradhan Anupa Desha*. The area where there is more water which is clear and slight light is present is called *Madhyam Anupa Desha* and the *Kaniya Anupa Desha* is that where there is absence of excessive water.[7]

In *Bhavaprakasha, Anupadesha* or marshy land is to be understood by presence of plenty of rivers, mountains, reservoirs of water (ponds, lakes etc.) with abundance of lotus flowers, swan, crane, goose, lark and other such birds, animals, like the rabbit, bear, buffalo, deer, duck etc. Plenty of trees with more flowers, green vegetation full of fruits, yield of different kinds of paddy, plantains, sugarcanes etc. People suffer from diseases produced by *Vata* and *Sleshma* (*Kapha*).[8]

In *Jangaladesha* (desert land) is characterized by *Aacharya Charaka* as follows; it abounds in open sky. It has deep forests of trees like *Kadar*, *Khadira*, *Asana*, *Asva- karna*, *Dhava*, *Tinisha*, S*shallaki*, *Sala*, *Soma-Valka*, *Badar*, *Tinduka*, *Ahsvattha*, *Vata*, and *Amalki*. It is mostly surrounded by trees of *Sami*, *Kakubha* and *Simsapa* in larger numbers. The tender branches of these trees dance, being swayed by the force of continuous dry winds. It abounds in thin, dry and rough sands as well as gravels which give rise to mirages. This area is inhibited by lava, *tittiri* and *cakora* and the people in habituating this type of land are dominated by *Vayu* and *Pitta*, and most of them are sturdy and hardy.

It is like open sky, the area is even or flat in nature. This area is full of thorny trees, less or rear rainfall, available quantity of water is very less, blowing wind is hot in nature, the people are emaciated and stable and prone to *Vata* and *Pitta* disease.[9]

It is totally opposite to *Anupa desha*, soil is *Dhusaravarna*, this type of soil produces *mudga*, *vrihi*, *yavadi* grains and is *Ushna* (hot) in nature. This area is *Pittadoshavardhka* and cures all the Diseases of the person. The region from where the goat and cows produce more milk as well as where excess of water is found in wells.

The area in which as above said characters are found that area is said to be *Pradhan Jangala Desha*. If the area has some trees or vegetation then it is to be called *Madhyam Jangala Desha* and the *Kaniya Jangala Desha* is that where easy water will be available when well is digged.

Jangala Desha (arid, desert- like land) is that in which the land is like the sky, high, with less water and trees, such as *sami*, *karira*, *bilva*, *arka*, *pilu*, *karkandhu* trees (which have very little of sap and are thorny and rough) abound, plenty of antelopes, deers, bucks and donkeys, fruits which are very sweet and with people suffering from diseases caused by *Vata*. *Jangala* has less quantity of water and trees and people suffer from disease of Pitta, *Asruka*, *Maruta* (*Vata*).[10]

The *Sadharana Desha* is characterized as; it has creepers, *Vanaspati*, *Vanaspatya*, birds and beasts described above in respect to *Jangala* and *Anupa Desha*; and the persons inhabiting this land are sturdy, tender, endowed with strength, complexion and compactness, as well as other attributes of people inhabiting in the land of general nature.[11]

The land which has mixed features of *Anupa* and *Jangala Desha* is called as *Sadharana Desha*. The land which has mixed features of *Anupa* and *Jangala Desha* and leading to balance in *Doshas'*. The land which produces *Godhum,Masha* is called as *Sadharana Desha*.[11]

The land which has mixed features (of both the land) is called *SadharanaDesha* because cold, rain, heat and breeze are in equal proportion, leading to balance in *Doshas'* also, hence it is best. This factor is most important in classification of *Trivida Desha*. *Aacharya Sushruta* has given *Panchbhautika* classification of *Bhoomi* on the basis of overall appearance of that area which may correlate with modern soil classification. Depending upon predominance of *Mahabhuta* type of lands is as follows –

1. *Parthiva*
2. *Apya*
3. *Taijasa*
4. *Vayaviya*
5. *Akasheeya*.

The *Parthiv bhoomi* is full of small stone and pebbles, is stable, hard, firm, black or blackish and trees, grasses and grains are growing in such *Bhoomi* are voluminous.

The *Bhoomi* which is unctuous , cold, marshy and full of ponds, river, books and other water sheds, were delicate plant grass and trees grows is called as *Jaleeya.*

That *Bhoomi* which is full of pebbles and sand with different colours and where stunted grass grows is called as *Agneya*.

The land which is dry, is ash coloured or of the colour of donkey's skin and where small and porous tree having scanty juice in them grow, called *Vayaveeya*.

Sandy, tasteless water, dry trees, trees which grow near rocky mountains are seen in this type of soil.[12]

All plant receives nutrition form the land in which they are grown. Man, animal and birds depend on the plants for their subsistence. Subsistence of plant, animal and minerals are affected by *Bhutika* constitution of land from which they are obtained. Hence, one should

constitution of land from which they are obtained. Hence, one should have knowledge of the land in which plants grow.

Plants are nutrishaed by ground water which takes up different salts contained in the soil. Theses constituent change according to *Bhutika* predominance. Hence the test of herbs or plant also changed. Thus smell, colour and taste are of soil affect *Guna –Karama* of plants.

Sushruta also states that to have better effect of *Dravya* for a particular action they should be collected from different *Bhoomi*. For *Virechana* action should be collected from *bhoomi* which is predominant in *Prithavi* and *Aap Mahabhuta* for *Vaman Karma* should be *Agni, Akash* and *Vayu Mahabhuta Pradhan* and for *Samsamana* action the *Bhoomi* should be predominant with a *Akash Mahabhuta Sushruta* stated that the high quality drug will be that, which is born in fertile land, collected properly, used in appropriate dose, pleasant to mind, possessing pleasant smell, colour, test, able to destroy the diseases, devoid of side effects and administered as per time schedule. All these qualities will make a drug highly effective. The raw materials available near the *valmika*, polluted areas, water logged areas, *Smashanbhoomi*, dry and sandy areas , the road sides, infected with pests, burnt or covered with snow etc., are to be avoided.[13]

Vagbhata just followed *Charaka's* view and accepted four qualities i.e. *Bahukalpa, Bahuguna, Samapanna* and *Yogya*.[14]

Sharangdhara followed Sushruta's view.[15]

Modern concept soils vary in their characteristics and properties. They are classified in following order to establish the interrelationship between their characteristics.

Broadly in five groups

1. **Alluvial soils:** Such soils include deltaic alluvium, calcareous alluvium, coastal alluvial soils and coastal sands, formed by transportation in streams and rivers and are deposited in flood plains or along coastal belts; generally deep soils. This is by far the largest and most important soil group of India contributing the largest share to its agricultural wealth.[16]

2. **Black soils:** The typical soil derived from Deccan trap is called black cotton soils. Parent rocks are generally hornblendic type, varying quantities of gypsum deposited in the

layers; in 45% of the black soils. It is highly argillaceous, very fine grained and dark and contains a high proportion of Calcium and Magnesium carbonates. It is rich in Black soils are highly argillaceous, very fine-grained and dark and contain a high proportion of calcium, magnesium carbonates, lime, and alumina, moderate potash. They are very tenacious of moisture and exceedingly sticky, when wet Potash has a wide range. They are poor in phosphorus, nitrogen and organic matter. The black soils are low in organic matter, high in clay content, high exchange capacity and base saturation.

Type: Depending on the depth black soils are classified as shallow, medium and deep. Shallow black soils are Entisols. Medium black soils dominantly belong to Inceptisols while deep black soils are Vertisols.[17]

3. **Red soils:** The colour of the red soil is due to the wide diffusion of iron rather than to a high proportion of it. The soils grade from poor thin gravelly and light-colour varieties of the plains and valleys. They are generally poor in nitrogen, phosphorus and humus. These soils by and large occur in sub humid to humid areas with some exceptions in South India. High rainfall causes leaching of bases making these soils poor in bases. Besides, due to tropical weathering, these soils are highly weathered and are therefore dominated by low activity clays. These soils are therefore having low exchange capacity, moisture reserve and nutrient holding capacity. Such soils form from ancient crystalline and metamorphic rocks some red soils are of lateritic origin and of a quite different nature, rich in kaolinitic type of minerals.[18]

4. **Laterite soils:** Laterites and lateritic soils. Laterite is a formation peculiar to India and some other tropical countries, with an intermittently moist climate. It is a compact to vesicular rock composed essentially of a mixture of the hydrated oxides of aluminium and iron with small amounts of manganese oxides, titania, etc. It is derived from the atmospheric weathering of several types of rocks. Under the monsoon conditions of alternating wet and dry seasons, the siliceous matter of the rooks is leached away almost completely during weathering. All lateritic soils are very poor in lime and magnesia and are deficient in nitrogen. It is nearly void of bases and primary silicates, but it may contain large amounts of quartz and kaolinites. It is either hard or capable of hardening on exposure to wetting and drying. Laterites are formed near the earth surface occurring mostly below the soil. They may either be denuded by erosion, or covered by thick forests with the tree roots penetrating several meters deep inside the laterite. The chemical and

mineralogical compositions and their fabrics are largely determined by their parent rocks. Hardness is variable with generally accepted concept of difficulty in breaking even with a hammer when hard. Colours are highly variable, mostly reddish, reddish brown and yellowish brown. Mineralogical composed mainly of gibbsites, goethite, hematite, maghematite, kaolinite and quartz. These kaolinites may be interstratified with smectites. By and large, oxalic minerals and kaolinite dominate. Smectites may also occur. As relicts of the parent rock anatase, titamite, tourmaline may be present as accessory minerals. All these soils are acidic.[19]

5. **Desert soils:** The desert sand is composed of quartz but feldspar and hornblende grains also occur with a fair proportion of calcareous grains.

a. Acid soil

All though soils having pH below 7 are considered to be acidic from the practical standpoint, those with P^H less than *5.5* and which respond to liming may be considered to qualify to be designated as acid soils. In the classification of soils both the percentage base saturation and the P^H are used as criteria to distinguish acid soils from non-acid ones. Acid soils occur widely in the Himalayan region, the great eastern plains of extra peninsular India, the peripheral peninsula and the coastal plains, including the Gangetic delta. They are found to occur on different geological formations under varying physiographical, climatic and vegetation environment. In all these regions, however, the rainfall component of the climate appears to have a dominating influence on the formation of acid soils.

In humid regions, where rainfall is high, the soluble bases formed in the course of weathering of rocks are leached down and carried away by the drainage waters. The continued leaching of soils results in the replacement of calcium, magnesium, potassium and sodium ions by hydrogen ions and the formation of acid soils with low P^H. In acid soils, the dissolution of aluminosilicate minerals occur and the aluminium ions, thus released, increase the acidity owing to hydrolysis. Similarly, humus and hydrous oxides contribute to soil acidity at low P^H. Soil acidity exceeding a particular limit is injurious to plant growth. The availability of certain nutrients, particularly phosphorus, calcium and magnesium, becomes low with increasing acidity. On the other hand, in acid soils, ions, e.g. those of aluminium, iron, manganese and copper, may be found in the dissolved form in quantities sufficient to become toxic. Similarly, most of the desirable soil microbiological processes, such as the beneficial

activities of Azotobacter and noduleforming bacteria of legumes, are adversely affected as the acidity increases. The satisfactory granulation of soils also becomes difficult to achieve.

b. Saline and Alkali soils

- **Saline soil**

The soils containing toxic concentrations of soluble salts in the root-zone are called saline soils. Electrical conductivity in the saturation extract of such soils taken as a measure of salt is greater than 4.0 mmhos/cm. Exchangeable sodium percentage is less than 15 and the pH is less than 8.5. The soluble salts mainly consist of chlorides and sulphates of sodium, calcium and magnesium. Because of the white encrustation due to salts, the saline soil is also called white alkali.

- **Non-saline alkali or sodio soils**

These soils do not contain any large amount of neutral salts and, as such, the electrical conductivity is less than 4mmhos/cm. The detrimental effect of alkali soil on plants is largely due to toxicity of a high amount of exchangeable sodium and the P^H. Alkali soils have an exchangeable sodium percentage of more than 15 and a pH greater than 8.5. Such soils have low infiltration rate and the physical condition is unfavourable. Because of high alkalinity, resulting from sodium carbonate, the surface soil is discoloured and black, and, hence the term black alkali is frequently used to designate the non-saline alkali soil.

- **Saline-alkali soils**

This group of soils is both saline and alkali. They have appreciable amounts of soluble salts, as indicated by the electrical conductivity values of more than 4mmhos/cm. Also, the exchangeable sodium percentage is greater than 15. The P^H, however, is likely to be less than 8.5.

According to geographical features and its effect on plants. The applied aspect of this concept has remained untouched. So here an attempt has been made to establish and prove the concept. By assessing the drug and its effects with the help of clinical practises.

If the *Vaidya* can give proper attention to patient in all the aspects then why can't he do to the same for the drug which he will administer to the patient? Today it has become a must to give attention towards all the factors which affect the potency of the drug. After lot of observation it was found that the geographical variation and climate of the place of origin of the drug may be the major factor in influencing the potency of drug.[20]

DISCUSSION

As we have discussed above, standardization in *Ayurvedic* drugs. The cause behind it is also genuine because our drugs are used as a whole. There may be effect of environmental factors on the quality and quantity of drug. In classics lot of references are found regarding the drugs which should be called the best of one which genesis in particular places. But there are still lots of other drugs remaining to be explored to find out the best way of collection. This unpredicted drug becomes difficult to interpret during the drug collection and formulation. So, here an attempt has been made to find out the reality behind the effect of patient in clinical medicinal practices. Hence the soil examination is important in *Dravyagna*.

REFERENCE

1. Shukla AV, Tripathi PR. Rogbhishagjatiya Vimansthan. En Charak samhiata Vimansthan. Varanasi: Chaukhamba Sanskrit Prakashan, 2010; 641: 8.
2. Sharma P. prashstaBhoomi. En Dravyaguna Vigyan. Varanasi: Chaukhamba Parisansthan, 2006.
3. Sharma P. En Dravyaguna Vigyan. Varansi: Chukhmba Prakashan.
4. Vijayalakshmi DK, Shyam Sundar vKM. Soil. En Balasubramanian AV, editor. Vrukshayurveda An Introduction to Indian Plant Sciences. Madras: Sree Charak Foundation, 1993; 22 – 30.
5. Shukla AV, Tripathi PR. En Charak Samhita. Varanasi: Chaukhamba Sanskrit Prakashan, 2011.
6. Kaviraj Ambikadatta Shastri. En Sushruta Samhita. Varanasi: Chaukhamba Sanskrit Prakashan, 2012.
7. Tripathi DB. En Ashatang Hrudayam. Varanasi: Chaukhamba Sanskrit Prakashan, 2011.
8. Misra SB. Atha pancham Dinacharyaprakaranam. En Bhavaprakash Nighantu. Varansi : Chukhamba Sanskrut Prakashan, 2020; 109 – 110.
9. shastri DJLN. Division of Different Area and soil. En Dravyaguna Vijnan. varanasi: Chaukhambha orientalia, 2017; 295.
10. Shastri DJLN. Division of different area and soil. En Shastri DJLN. Dravyaguna Vijnan. Varanasi: Chukhambha Orientalia, 2017; 295.
11. Shastri DJLN. Division of different area and soil. En Shastri DJLN. Dravyaguna Vigyan. Varanasi: Chukhambaha Orientalia, 2017; 296.
12. shastri DJLN. Soil Divisin. En shastri DJLN. Dravyaguna Vijyanan. Varansi: Chaukhambha orientalia, 2017; 297 – 298.

13. Shastri A. Prashsta Bhoomi. En Shastri A. Sushrut Samhita. Varanasi: Chaukhamba Surbharati Prakashan; Reprint, 2011; 150.
14. Tripathi DB. Prashta Bhoomi. En Ashatang Hrudayam. Varansi: Chaukhamba Sanskrit Prakashan, 2011; 868.
15. S DS. En Sharangadhar Smhita. Varansi: Chaukhamba Oriental, 1998; 13.
16. https://soilsmatter.wordpress.com/2020/02/15/what-are-alluvial-soils/. [Online].
17. https://www.fao.org/global-soil-partnership/intergovernmental-technical-panel-soils/gsoc17-implementation/internationalnetworkblacksoils/more-on-black-soils/definition-what-is-a-black-soil/en/. [Online]
18. https://en.wikipedia.org/wiki/Red_soil. [Online].
19. https://en.wikipedia.org/wiki/Laterite. [Online].
20. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/desert-soils. [Online].