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RESEARCH ARTICLE

HISTORY OF PLANT CLASSIFICATION IN ANCIENT INDIAN SCIENCE

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ABSTRACT

Plant taxonomy, the science of classifying and naming the plants antedate recorded history. Even in the early civilization of India, China and Egypt practiced a sort of plant taxonomy as a new a few good number of plants particularly those of food and medicinal value. We find that this branch is originated only since 200-250 b.c. and always credit is given to Theopastus and Aristotle as the beginner in this branch. one of the earliest Indian works dealing with plants in a scientific manner is 'Vrikshyurveda'. It was compiled by Parashar. This was based on study of comparativemorphology of plants. With this origin we find that the taxonomy was changing its concepts and the basis and hence classification was also changing its concepts. It traveled from herbs, shrubs, and trees to oil yielding fiber. Then it came on artificial system from that the natural system and today its base is phylogenetic, which is only imaginary, unpractical and no utility Much more voluminous works are being done to the westerns and modern science and the use of it to the Mankind is very less. But for each subject. We must also refer to the eastern and Ancient Indian Science. In the ancient India much more literature was available on various Sciences. But because of the colonization of the western people much more is destroyed very few are available and in that we can get knowledge more advance and useful than today.

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INTRODUCTION

India was one of the foremost-developed countries in ancient times. Learned persons of Vedic culture were quite aware regarding unimaginable Obligation of plants for the very substance of animal life. At the ancient time People also realized that there is no conduct of life, where the plant kingdom does not make its contribution like food, fuel shelter fiber, fodder and Medicine.

Vedas are the oldest books in world's library and only source of perfect Knowledge and this is the admitted fact. The period of Vedas goes back to the Origin of universe and it is shown as 1, 97, 29, 39,079 in 1980 according to Dayananda and on the basis of vedic literature. This is also supported by geological findings. So, if we get the reference of plants and classification of Plants then, the credit should be given to them being older and ancient. In the Vedas there are so many names of plants, classification and use. *Atharveda* is full of the knowledge of plants and their use especially on human diseases. In '*Yajurveda*' also the names of plants originated from Veda only and deals with The plants their contents, their use in the human diseases their collection, Preservation and classification. Their basis of classification was the Morphology but much more trace was given to the contents, which they call it Drava.

Use of herbal medicines can be traced to the remade past one of the Oldest treaties in the oldest treaties in the world is *RIG-VED*' (4500 BC – 1000 BC) Where healing properties of herbs mentioned. The Drava, which is Present in plants used as a medicine (Aushadhi).

CLASSIFICATION BASED ON MORPHOLOGY

In *Yajurveda* the plants are broadly classified on the basis of Morphology of plants. In *Yajurveda* 12-89 and *Athervaveda* 8-7-27 it is clearly stated that –

याः फलनीर्याऽ अपत्रला अपुष्पा याश्चपुष्पिणी ।

बृहस्पति प्रसूतास्ता नो मुत्रन्व हंसः ॥ यजुर्वेद १२-८९

पुष्पवतीः प्रसुमतीः फलि नी रफ उत् ।

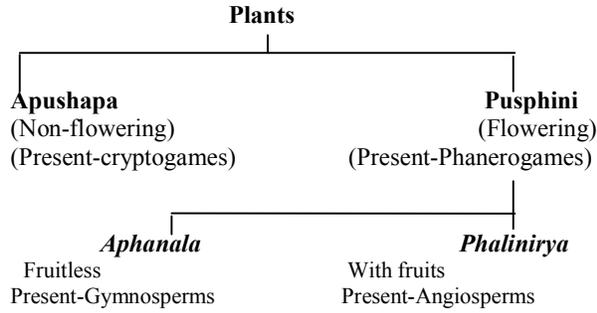
समांतर इव दुहामरमा अरिष्टतातये ॥ अथर्व वेद ८-७-२७

□ In this it is clearly stated that the Bruhaspati (God) has created the various types of plants for the kingdom and they can use food as well as Medicine. The types of plants or the groups of the plants mentioned in this Mantras are as follow:

- 1] Apuspa : Non flowering
- 2] Pushpini : Flowering, with flowers.
- 3] Aphala : Fruit less, without fruits
- 4] Phalinirya : with fruits

So on the basis plants can be classified.

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So in the Vedic period they were knew about uses of flower fruit and the various plants and their uses. They also gave that these plants are created or Produced by God for the animals and these are not evolved and not originated automatically from the nonliving things. Other references from Vedas:-

यश प्रणोभ्यवर्षात् वर्षेण पृथिवी महीम् ।

ओषधयः प्रजायन्ते भो याः काश्च वीरन्हाः ॥ अर्थव ११-२-६

ओषधीः प्रतिमोर्ध्वं पुष्पवतीः प्रसुवरीः ।

अश्वा इव सजित्वरीन्धः पारयिष्णवः ॥ ऋ. यजू. १२-१००

शतं वो अम्ब धामिनि सहस्रत्रमुत वो रन्हः ।

अधाशत कृत्वे युममियं मे अगदं कृत ॥ यजू. १२-७६

On colour, swarup, gun, utpatti, size, and medicinal use the plants are classified in *Atheraveda* 8-7-1, 4,6,7,10,9,17,12,13,27,20. All these clearly indicate that the ancient Indian Science knew the plants, their places, contents and uses. The plant is called as Taru means, which helps in overcoming or curing the diseases.

तरन्ति आपद इति तरुः आमरकोष टिकाकार ।

The plants are used as because of the contents that are present and is called as drava and hence the Drava itself is called as medicine. The Philosophical base of *Ayurveda* is the concept of '*Panchmahabhuta*'. The *Panchmahabhuta*, which are the basic constituent of the universe and also of the human body.

Inter-relationship with Panchmahabhuta

In an ancient Indian Science the attempt was also made to show the interrelationship of the so called the contents of plants to the Panchmahabhoota, which are present in universe around the plants and Showed the relationship with properties. Panchmahabhuta are Ap, Tej, vayu, Akash and pruthavi.

Classification of the Dravya and Plants

The dravya are having their own properties and characters hence, they May differ from each other. In modern science we consider the chemical contents and know the physical and chemical properties but in ancient Indian Science the study was more deep than today's. According to them Dravya are having five properties i.e. 1] Ras 2] Gun 3] Virya 4] Vipak 5] Prabhav

द्रव्यो रसो गुणो वीर्यं विपाकः शक्तिरवेद्य ।

पदार्थाः पश्च तिष्ठन्ति स्वस्वं कुर्वन्ति कर्मच ॥ वाग्भट

1] Ras : Ras are six 1] Madhur 2] Khatta 3] Namkin 4] Tikta 5] Kadwa6] Kasaila

रसाः स्वा द्रव्यं हवण तिवक्तोष्ण कषायका ॥

षड द्रव्यमश्रितारतेच यथापुर्व बलवह ॥ वाग्भट

All the Dosa have all five Mahabhuta in their composition but are by one or more of them. Their location is fixed Aggravation of Dosa results in certain symptoms. Dosa are three in number, namely Vat, Pitta, and Kapha. Location of Dosa and their functions are fixed. Rasa having common gun, with Dosa increase that Dosa, Rasa having Opposite Guna to Dosa decrease Dosa. Thus Madhura, Amla and Lavana Decrease Vata but increase Kapha. Tickta, Katu and Kasaya decrease Kapha and increase vat, Dr. Joshi has given details about properties of different Guna and interrelationship of Rasa, Guna, Virya and Vipak with three Dosa. (Medicinal plants –SG Joshi 2000.)

Increases	Rases	Removes decreases
Kaf Vat Pitta	Madhur, Amla & Kharat Tikta, Katu & Turat Amla, Kharat & Katu	Vat & Pitta Kaf and Pitt Vat and Kaf

From this it is clear that they knew that raises can increase or decrease The Tridosh i.e. Vat, Pitta and Kaf. To understand and appreciate the meaning of technical terms used in *Ayurveda*, it will be appropriate to explain in some details these terms and their Inter relationship. Dosa are three namely vat, Pitta, Kaff. Their properties are as follows.

Vat: Structure of vat is Akasa and Vayu. Inspiration, expiration, voluntary action, circulation of Ras, Rakta etc. throughout the body and discharge of excretory products out of body are functions of Vata.

Pitta : Structure of Pitta is Teja. digestion, heat production, hunger, thirst, Softness and luster, cheerfulness and intelligence are main function of Pitta.

Kapha : Structure of Kapha is Apa and Prathvi smooth working of joints, general stability, strength tolerance, courage and greedleness are properties of Kapha.

Guans: They are having the relation with Panchmahabhootas of the nature and accordingly the plant will be showing the properties. The Panchmahabhootas are having Laghu, Guru, Snigadh; Rukkch, Tikchan gunns of the Akash, Pruthvi, Jal, Vayu and Agni respectively. That is why the plants or the contents (Drava) are having these guans. of the Akash, Pruthvi, Jal, Vayu & Agni respectively. That is why the plants or the contents (Drava) are having these guans

लघुगुरुत्तंभ । स्निग्धो रुक्षस्तीक्ष्ण इति क्रमात् ।

नभोभुवारिवाताना वहनेरेते गुणाः स्मृताः ॥ भावप्रकाश २०१

Gunas

S.No	Gun	Relation to Panchamahabhoot	Functions Nashak	Karak
1	Laghu	Akash	Kafnashak	
2	Guru	Prathvi	Vatnashak	Kafkara
3	Snigadh	Jal	Vat	Kaf
4	Rukkch	Vayu	Kaf	Vat
5	Tickchan	Agni	Vata and kaf	Pitta

Apart from these other gunas are deepan, pachan, vaman, sthambhan, swedan, shaman, anuloman, malanam, bhedan, rechan, ushna (20 by sushrut).

Virya : The energy or power which carries out the actions called as Virya. Kinds of Virya : There are only

उष्णशित गुणोत्कर्षाद बुधैर्विर्यं स्मृतम् ।

यत्सर्वमग्निषोमिय हृष्यते भुवनययम् ॥ वाग्भट्ट

two types of Virya 1] Ushna 2] Shit. Virya is the therapeutic efficiency of drug shit Virya is good for health and is 'Para'. It diminishes secretions, stabilizes excretory functions stops hemorrhages and increases vigor and vitality, and aggravates Vat and Kapha but Subdues Pitta. Ushna Virya leads to storing up of energy, easy digestion, Diaphoresis, emcees, thirst and fatigue, subdues Vat and Kapha but excites Pitta. Relationship between Rasa and Virya Madhur, Tikta and Kasaya rasa are increasingly Ushna Virya.

Virya	Nashak	Karak increases
Ushna Virya	Vat and Kaff pitta	Pitta Vat and Kaff
Shit Virya		

Vipak :- Vipak is the end product in digestion of shad ras. Vipak are three madhur Katu and Amla.,

मिष्टः पटुश्च मधुरमहोऽहं पच्यते रसः ।

कटु तिक्त कषायान पाका स्थाप्रायशः कटुः।... भावप्रकाश वाग्भट्ट २४२

Sr.No.	Ras	Vipak	Functions Nashak Vardhak	Nashak
1	Madhur and Salty	Madhur	Kaf	Vat, Pitta
2	Amla	Amla	Pitta	Vat, Kaf
3	Katu, Tikta Turat	Katu	Vat	Kaf, Pitta

Relationship between Ras and Vipak Madhura and Lavana rasa yeild madhur vipak Amala rasa yeild amla vipak. Katu, Tikta and Kasaya yeild katu Vipak.

Prabhav :- Prabhav is beyond ras, gun, virya and vipak. The plants having Same rasas may not have same prabhav. So prabhav is ones specially. Ex. Danti and Chitrak is not virechak. This is because of prabhav. The root of Sahdevi when kept in head. removes Jwar is because of Prabhav

क्वचित् केवलं द्रव्यं कर्म कुर्यात्प्रभावात् ।

ज्वरं हन्ति शिशोषद्वा सहदेवी जरा यथा ॥ भावप्रकाश - २४८

Interactions of Ras, Gun, Vipak and Prabhav

The aushadhi having opposite gun when mixed, the stronger will suppress the weaker as vipak suppresses ras and Prabhav to Virya, Ras and Vipak.

विरुद्ध गुण संयोगे भुयसाऽहं हि जीयते ।

रस विपाकरत्तो वीर्यं प्रभावस्था न्त्यपोहति ॥ भावप्रकाश २४९

So plants are having these properties and hence they are classified on the basis Of the properties in to the various groups. The plants coming in the same group Will be having generally the same characters, hence in the absence of one plant in a particular place the other plant available in that area.

Description of the plant according to Ayurveda

Apart from morphology.

Plant	Ras	Gun	Vipak	Virya	Prabhav : Gun panchamahabhoot	Functions Nashak : Vardhak
Amlatas	Madhur	Virechak	Tikta	Shital	Guru and Snigdha	Tridosh

Degree of action towards tridosh :-

Any plant aushadhi may have three degrees of action, towards tridosh such asShamak, Nashak and Vardhak. So the plant will be described in this term.

Aushadhi	Tridosh	Degree of action Shamak, Nashak, Vardhak
<i>Sesbania grandiflora</i>	Vat	Karak
	Pitt	Nashak
	Kaf	Nashak

Apart from these the Dravya or Aushadhi can decrease or increase the various pathological troubles such as Shoth, Kas, Shwas, Kust, Trushna, Krimihara, etc. So all these things are taken into consideration in ancient Indian Science and hence the plants are also classified into groups like virechan, gan, vamangan, Paushtik Gan, Jivaniya Gan, Kafnashak Gan, Prasaraniya Gan, Vatkarak Gan, Sarivadi Gan, Shamadi Gan, Dipaniya Gan, Pittanashak Gan etc nearly 42Ganas are describe. Charak classified into 50 ganns or Varg, Shushrut classified into 37 ganas. Wagbhat described gundharm, Nighantu to before more than 1000 years b.c., described the plants and their properties and ganas. Dhanwantari also contribute to this and the contribution is Dhanwantari Nighuntu. In this the plants or Aushadhi are grouped in 10 Vargas. These are 1] Guduchadi Varg 2] Shat Pupadi Varg 3] Chandanadi Varg 4] Karbiradi Varg 5] Amradi Varg 6]Kanchanadi Varg7] Mishrakandi Varg 8] Mishrak Varg 9] Vishopvish Varg 10] Vishpra Varg

Bhavmishra also contributed to this knowledge and gave Bhavprakash In this Aushadhi are classified into Various Vargas. Later on Raj mandanpal has written Madviniot nighuntu (Koshgranth) and classified into 14 Vargas. These Classifications clearly show that, they were taking into account the locality, Habit, morphology, habitat, and the contents of it the guans and the medicinal Use of the same. They gave less importance to the morphology and gave much Importance to the guans and the properties. They also knew that the guans are Because of the god and nobody should try to test these.

Some properties are beyond the properties of the chemical substances in it. Hence the idea of chemotaxonomy, which is supposed to be modern, is still

Primitive and cannot serve the mankind. The Ayurveda taught the Principle '*prevention is better than cure*' to the People and so as to bring the same into practice Pakshastra is developed. Hence the knowledge of Ancient Indian people is still far ahead of the modern botany.

Summery

The History of Ancient Indian science including vedas and books in Ayurveda the knowledge of plants and their medicinal use is present. Today's Broad classification is also seen in vedas. Here the plants are classified into Apushpa and Pushpa, Aphala and Saphala, This is equivalent to the cryptogames and phanerogames and further in to Gymnosperm and Angiosperms. The Athravveda and the books on Ayurveda Are full of history of plants their contents and their use in the eradication and Control of diseases. They also considered the habit and the age or the life period for the classification. They also considered the habit and the age plant for Classification. The plants contain the Drava, which is also called medicine. Drava Are having properties Ras, Gun, Virya, Vipak and Prabhav. Each plant is having its own properties. It is also showed that the Dravyas are having Inter Relationship with panchamahabhootas and carryout the functions related to the panchamahabhootas. The Dravyas of plants can remove or increase the tridosh i.e. vat, pitta and kaff. Not only is this but dravyas also having other gunas. Such as dipana, Pachana, Virechan, Vaman etc. The Ancient Indian people also knew about the prabhav, which is not the subject of today's chemistry. They also declared that nobody should try to test these Gunas or Properties in the laboratory; because these are natural all cannot be tested in laboratory.

With this knowledge keeping in the view the medicinal properties are classified into various groups or Gunas or Vargas. Plants are also described as Laghu, Guru, Snighdh, Ruchak and Tikta on the basis of

Panchamahabhootas. From this it is quite clear that the knowledge of the ancient Indian people about the plants, their contents, their use as medicine and the classification was much ahead of today's botany and its system of classification. Their classification is more correct, minute useful and perfect. Hence this knowledge should be preserved propagated and used to serve mankind.

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