

ETHNO-TAXONOMICAL STUDIES OF SOME AYURVEDIC DRUGS

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A B S T R A C T

Ethno-taxonomical explanation of some plants forming constituents of Ayurvedic drugs has been provided in the present paper.

Lack of proper description of drug species has led to mis-identities and lost identities resulting in fairly long list of controversial drugs that have more than one proposed source. At present we have lost identities of many miraculous, wonderous and life saving drugs such as Som, Vishalya Karni, Mushak Karni, Sandhan Karni, Nirvishi, Asta Varga having eight rejuvenative drugs viz. Riddhi, Vriddhi, Kakoli, Kshir Kakoli, Meda, Mahameda, Jivak and Risbhak.

As per a study (Scrutiny), about 150 drug species out of 560 appeared in Charak Samhita are either missing or controversial in their identity, resulting in making them out of use or replaced by substitutes or adulterants. The best example is Astavarga which is now substituted by Vidari Kanda (*Pueraria tuberosa* DC.)

The modern mode of taxonomic studies is very comprehensive based on morphology aided by Cytotaxonomy, Chemotaxonomy, Statistical taxonomy, etc. We have well defined taxa in floras. However, this is of least help to drug users and drug collectors. Once we establish correct co-relation between a drug and its botanical source, the modern taxonomy will definitely be of immense use.

To solve the drug identification, help of ancient treatises, Samhitas, Kosh (Dictionaries) and Nighantus (Glossaries) may be taken. These ancient literatures have some clues of identities scattered in the form of synonyms, similies, proverbs, etc.

For better understanding of the subject let us take two examples of similies related to drug species. To a sharp minded child we call Kushagra (Kush-A mythological and drug species, Agra-apex) as sharp as the leaf tip of Kush. That signifies that leaf tip of Kusha should be finely pointed and as stiff to pierce. As a second example we may take a famous proverb *Pipal Pat Saris Mann Dola* i.e. Mann (thoughts) are as mobile and versatile as leaves of *Pipal Ficus religiosa*. With slightest of wind the leaves of pipal dance to and fro quickly with noise, while with the same wind leaves of other trees have very slight or no movement. People guess the direction of wind through twisting

of pipal leaves. This is how the plant characteristics used as similies function as diagnostic points.

Here, use of such assemblies have been made to identify few drugs and an effort has been made to establish corresponding Botanical source. This establishment of co-relation of drugs with its botanical source have been named Ethno-taxonomy. Whole of the study conducted may not be presented here, hence few examples are putforth.

SOME ETHNO TAXONOMIC STUDIES

(A) Identification of some Grasses used in Ayurveda

I. Study of Kush, Darbh and Nal

Under panch of trin-mool group in Ayurvedic texts, there are five grasses whose roots are used as **Mootral** (diuretic) viz. **Kush, Darbh, Ikshu, Kas, Sar**, some times the sixth **Nal** is also included. Out of the six species three are of disputed identity i.e. **Kush, Darbh** and **Nal**. Let us try to unfold the mystery of Identity.

(A) Kush & Darbh.

Raj Nighantu 8.210 used the word **Darbh dvau** as ;

दर्भो दौ च गुणं तुल्यो तुलो तथापि च सितोऽधिक

यदि वेत कुशाभावस्त्वपर योजयैभि कि॥

Both **Darbh** (Kush and Darbh) are similar in properties yet white variety is more effective. In case white variety is not available, then other variety is used by Physicians.

Here one character comes out that first variety is white, while the other is not.

According to **Dalhan** the first commentator on "Susrut samhita" :

कुश हस्व दर्भ हस्वेमृदु सूचिपत्र

दर्भ पृथुलः खर पत्र दीर्घः॥

Su. Sam. Dalhan Teeka, Su.4

Kush is smaller to **Darbh**, it is small grass with soft needle shaped leaves.

Darbh is bigger, Leaves rough (Scabrous) and Large (There is no mention of it being sharp tipped leaves)

Further in Raj Nighantu it is mentioned.

कुशोऽल्पः शरपत्रश्च हरिदर्भ पृथुच्छदः

शारी च रुक्ष दर्भश्च दीर्घ पत्र पत्रिकाः॥

That **Kush** is smaller, leaves like **Sar-Saccharum munja**. It may be called to be **Darbh** of ravines (Hari=water). The top or inflorescence is large and heavy.

(b) Medium reed or some time non reed, diuretic, and clearly defined effect on heart and blood pressure.

Arundo donax

(Nal)

It is concluded that *Arundo donax* L. is Nal while *Phragmites karka* is Mahanal or Deonal.

It looks as Vagbhatta would have come across *Phragmites karka* as Nal and due to undefined properties of this *Arundo donax* on heart or BP, he might have omitted Nal from Panch Trinmool, which is later followed by several Nighantukars. He named Panch Trinas as Kush, Kas, Sar, Darbh, Ikashu, excluding "Nal"

In my opinion Nal must be taken as (a) Mahanal and Deonal *Phragmites karka* and (b) *Arundo donax* as Nal.

Likewise there is fairly a long list of grasses whose identities are to be decided ethno-taxonomically but all can not be cited here.

(B) Studies on Rutaceae and some Rutaceous species :

Rutaceae one of the most economically important families include all citruses, viz. *Aegle*, Kaith, Nairpati (*Skimmia laureola*) Sudab (*Ruta graveolens*) Timru or Tejbali (*Xanthozylum alatum*) Meethineem (*Murraya exotica*) etc. The Family name in ancient literature is **Puplic puspagan** 'Fleshy carpelled group' as :

पुप्लिक पुष्प गणीये, मुक्तं च दल केशर
विभक्त तुण्ड मंडलं मंजरी माधवोद् भवा॥
जालकं पंच विज्ञेयं दल चैव तथा भवेत्
केशरैर्वहु भिरश्चेव किञ्जिलकं प्रान्त ग्रन्थिकम्॥

वृ. आयु. वीरुध.काण्ड।

Puplic puspagan is characterised by free sepals, petals and stamens, Inflorescence is much divided, odd or cymose and appears during Vasant or March / April.

Fruit is reticulated, (at least) 5 carpelled, so are the sepals and petals (five each). Stamens many, filaments bear noded anthers on summit.

(a) Study of (tribes) groups in Rutaceae :-

According to fruit structure the family is divided into sub (main) groups (Tribes) called (1) "**Kesharak or kant keshar**" group with fleshy antheroid sacs in fruits, and (2) "**Malur Phalam**" where fruits are hard, pulpy without antheroid sacs. as:

कस्यचित् फलं शस्यैच दृश्यन्ते केशरनिभम्।

आदय केशरकं ज्ञेय

अल्पान्तरेण मिथः तैना कन्ट केशराः

वृ. आयु. वीरुध काण्ड।

Some species have yellowish fruits in which antheroid sacs are visible, they are known as **Kesharakam** with slight difference in pronunciation this group is also called **Kanta Keshar** group.

कस्यधित फलं च संहतं च धनं भवेत्

द्वितीय मालुरं फलम्

The second group is of **Malur Phal** where the fruits are not yellow, pulp is dense and heavy.

(b) Study of Rutaceous genera, Citrus and its species :

Characteristic of genus Citrus :

विभक्तं वराटं चवसी र्वन्तु बहु कर्णितम्।

अखण्डं फलं वल्कलं शस्यां विभक्तं बहुपुलिकैः॥

पुष्पा कान्त फलंश य च केशर निभम्।

दृश्यन्ते बहु बीजानि पुप्लिकान्तर्गतेन च

एतानि लक्षणानि भवन्ति पुष्प मण्डले॥

वृ. आयु. वीरुध काण्ड॥

Seed vessels or ovary is divided into many, so is the stigma. Fruit rind is undivided, green when young and is divided into many fleshy carpels. Fruit is seated over flower (ovary superior), yellowish on ripening and full of antheroid sacs. In each fleshy carpels many seeds (4-5) are seen. These are the symptoms of flower and its parts (fruits, stamen etc.) Further :

कीलकं गन्धपर्णना वृक्षाणामुपपक्षा नाम्

दृश्यन्ते पुल्पिकं पुष्पं तेषां नाम् विवक्ष्यते॥

मातु लुगं नीरग जम्बीरम् निम्बुकादयः

भवन्ति पुप्लिक पुष्प, केशरक फलं च तत्॥

वृ. आ.वीरुध. काण्ड॥

Tree is spinous, leaves are fragrant due to oily glands; bear sub-leaf (wings on petiole). The flowers where fleshy fruits with above characters are seen, are included in this group.

Fleshy carpelled, & full of antheriod sacs fruits are **Matulug, Narang, Jambeer and Lemon** etc.

लुगं द्रवं च जाम्बीरं नारगं तथा
वृत्त वृन्तोपत्राश्च दीर्घ कण्टक पादपा।

The trees of **Lung, Drav, Jambeer and Narang** are long spinous with circular petiolar leaf i.e. winged petiole; wings circular.

The modern description of citrus fully correspond with these descriptions.

(c) Identification of Citrus species based on weight of Fruits :

Species of Citrus are defined as.

लुगं प्रस्थो द्रवोर्ध्वं च जम्बीरं तदर्थकम्
ततो द्वै फले नारगं तु मानं पक्वेषु पीततो।

शिव कोष व्याख्या।

Lung weighs one prastha or 64 Tolas or 747-750 grams. **Drav** is half of **Lung** i.e. half prastha 32 Tolas or 375 gms. Further **Jambeer** is half of **Drav** i.e. 16 Tolas or 187 to 190 gms., then others **Narang** (orange) & **Mausambi** weighs 2 pal or 8 tolas or 95-100 gms. All the Fruits become more or less yellow on ripening. Further "**Nimbukams**" (Lemons).

निम्बुकं छुद्रं जम्बीरम् वृहत् नारंगार्धकम्
तत् अर्ध मात्रे तु विज्ञेयं च निम्बुकं॥

(शिव कोष व्याख्या)

Nimbukam (Lemons) are smaller to **Jambeer**, bigger variety is half of orange i.e. 1 pal or 4 Tola or about 50 gms. The smaller variety the **Nimbu** weighs half of bigger variety i.e. 1/2 pal (2 Tolas or 22-25 gms.)

Hence only on the basis of weight of fruit all the Citrus species are divided as follows :

KEY

1. **Lung** Matulung 1 Prastha = 747 gms.; *Citrus maxima* Chakotara, Mahanibu, Madhu Karkati.
2. **Drav**, Weight 1/2 Prastha 32 tola or 375 gms. *Citrus medica* var. *medica*; and *Citrus paradisi*, Bara nimbu, Amlakeshar.
3. **Jambeer** (galgal) weight 16 Tola or 195-200 gms. *Citrus limon*
4. **Narang** (Orange) and **Mausammi**, weights 8 Tola or 90-100 gms. *Citrus reticulata*, *C. aurantium* (Slightly acidic) and *Mausammi*, Malta; *Citrus sinensis*; Santara, Narangi Meethi

5. Bada Nimbu weights 4 total about 50 gms. Meetha nimbu *Citrus limettoides* = *C. medica* var. *limetta*.
6. Chhota nimbu- weights 2 Tola about 20-25 gms. *Citrus aurantifolia* = *C. medica* var. *acida* Kagzi nimbu.

(d) Study of second tribe “ Malurphalam

Characteristics of “Malurphal” group

त्रिपर्ण गन्धपर्ण च ग्रन्थं फलं च शल्यकम्
कपिस्थ दधिफलं च मालुर सुरभिच्छदः॥

वृ. आयु. वानस्पत्य।

MALUR PHAL GROUP

Leaves trifoliate (leaflets many in *Feronia*) fragrant (due to glandular leaf); fruit is attached to knot like seat on stack; rind bony; it bears fragrant flowers in cymose. **Kapittha** or **Dadhi phal** and **Malur** or **Bilva** are included in it.

The characteristics of *Malurgroup* or *Bilve* are.

मालुरं भवति बिल्वं कपित्थचं तथैव च
विल्व च श्री फल प्रोक्त मालुर च महाफलम्॥

वृ. आ. वानस्पत्य अ. ॥

Malur includes **Bilva** and **Kapittha**. **Bilva** is also called **sriphal** (superior fruit), **Malur** and **Mahaphal** i.e. *Aegle marmelos* Correa-**Kapittha** is described as

तरु कपित्थाऽल्प दलः कल्पायासितकः फलम्।
सितमाम् कल्पायाम्लं पक्वं स्वादु सुगन्धि च।

Kapittha tree has smaller leaves (reducing in size from top to bottom) so is the flower; fruit is astringent, not pure white. Unripe fruit is whitish astringent and acidic while ripe fruit pulp is tasty and fragrant, it is *Feronia elephantum*.

In similar way by using ancient Indian literature, rural or tribal claims, various nomenclature and synonym studies have been conducted on may drugs to establish the correct botanical identity and source such as nayee or Katunahi or mabhijak has been established *Enicostema hysopifolia*; Nagpatla or katori-*Radermachera xylocarpa*; Gilodhya or galekhuas *Ceropegia vincitoxifolia*; Nagar Mustak, Nagar Motha *Cyperus pangorei*; Sugandh bala *Limnophila racemosa* etc. Ethno taxonomical studies on graminaceous and leguminous drugs plants have also been taken in hand.

It is proposed to conduct similar studies on other drug or economically potential species to find the correct source or correct botanical identity for applied use and field studies.

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