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SUBSTITUTION: A CONCERN AS WELL AS A SOLUTION

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ABSTRACT

History of Indian civilization is very vast according to which it is a country of different cultures, religions, civilizations and languages. Due to varying geography, there are climatic variations and different parts of country have a different environment at the same time. Therefore, the flora found in one part of country is different from other parts. Botanically different plant drugs are being used in different parts of country in the name of a particular classical drug. The issue of substitution of genuine drugs with a similar drug having comparable therapeutic potential is as old as history of use of plant drugs. In the absence of a genuine drug, a substitute drug which is similar in *Rasa, Guna, Virya, Vipaka* with genuine drug is said to be considered for use. This concept was first found in Vedic text. For example, *Soma*, a very popular drug in *Rigveda* was scarce even in Vedic period. There is mention of substitution of *Soma* by some other drugs having properties similar to *Soma*. The genuine drug, which is not available, is known as *Abhava dravya* (Scarce drug) or *mula dravya* and the substitute drug which is used in place of scarce drug, is known as *Pratinidhi drvya* (Substitute). It has been directed in classical texts of *Ayurveda* that in preparation of a formulation, substitution of subsidiary drugs may be considered but the main drug should never be substituted. In a multiple drug formulation, if any drug is contraindicated in a

disease for which the formulation is intended, that drug can be discarded and a suitable drug can be used even it is not described in Classics. Present paper is an attempt to have an in depth analysis of the issue of substitution in present scenario.

KEYWORDS: *Aabhav Dravya*, *Pratinidhi Dravya*, Substitute, Adultration.

INTRODUCTION

According to *Ayurveda*, the whole universe is made up of *Panchmahabhuta* (CS.Su.26.12). These *Panchmahabhuta* are the basis of *Ttridosha* in human body. Increase and decrease of *Panchamahabhuta* in human body is responsible for the *Sanchaya*, *Prakopa*, *Prasara* of *Doshas* in the body. When the *Doshas* are in equilibrium state, the body remains healthy and when this equilibrium is disturbed, *Rogas* (diseases) occur (CS.Su.9.4). As the *Dravyas* are also made up of *Panchmahabhuta*, different *Dravyas* are used for increasing or decreasing a particular *Mahabhuta* in body to bring *Tridosha* in equilibrium (CS.Su.1.44). Sometimes *Dravyas* are used in combination and sometimes single *Dravya* is used.

The *Dravya* used in one part of country or in one season may not be available in another part or another season. So, the Concept of *Pratinidhi Dravya* was introduced. A systematic concept of *Partinidhi Dravyas* was introduced by Vangasena Samhita (95.65-93). A total of 51 drugs and their official substitutes in condition of non-availability of genuine drug have been described by *Vangasena*. This concept has been further elaborated in *Bhavaprakasha* (6.136-168) and *Yogaratnakara* (171,175.1-45)

Types of substitution

- Intentional:- This type of substitution is further of two types, first is that in which substitution is done in the absence or non-availability of a drug with other suitable drug having similar *Guna*, *Virya*, *Vipaka* and *Karma*. In second type of substitution, suppliers and manufacturers to earn more and more profit, mix low quality and low priced drugs, completely or partially, irrespective of their *Guna*, *Virya*, *Vipaka* and *Karm* in place of genuine drugs. This type of substitution is known as adulteration.
- Non-intentional:- This type of substitution occurs unknowingly due to humanitarian error during cultivation, harvesting, collection and storage of drugs.

Scarce Drugs and their Official Substitutes as per Classical Texts

A list of Scare drugs and their substitutes described in classical texts of *Ayurveda* is being produced in following table.

Table No.1: *Abhav Dravya* (Scarce Drugs) and their Substitutes Mentioned in Classical Texts.

S.N.	Abhav Dravya (Scarce Drug)		Pratinidhi Dravya (Substitutes)	
	Classical Name	Botanical Name (with Family)	Classical Name	Botanical Name (with Family)
1.	*Ahinsra (Kantakpaali)*	*Capparis sepiaria Linn.*(Capparidaceae)	*Mankanda*[1,2,3]	*Alocasia indica* (Roxb) schott (Araceae)
2.	*Amlavetasa*	*Garcinia pedunculata* Roxb. (Guttiferaea)	*Pakva chukra*[1,2,3]	*Rumex vesicarius* Linn. (Polygonaceae)
3.	*Arka paya*	*Calotropis procera* (Ait). R.Br (Asclepiadaceae)	*Arka rasa* [1,3]	*Calotropis procera* (Ait). R.Br. (Asclepiadaceae)
4.	*Arkparnadi payah*	*Calotropis procera* (Ait). R.Br (Asclepiadaceae)	*Ark parnadi rasa*[2]	*Calotropis procera* (Ait). R.Br. (Asclepiadaceae)
5.	*Ativisa*	*Aconitum heterophylum* Wall. Ex. Royle (Ranunculaceae)	*1.Shiva (Haritaki)*[2]	*Terminalia chebula* Retz. (Combretaceae)
			2. Musta[3]	*Cyperus scariosus* R.Br. (Cyperaceae)
6.	*Bakula*	*Mimusops elengi* Linn. (Sapotaceae)	*1.Utpala Pankajama*[1,3]	*Nymphoea stellta* Willd. (Nymphoeaceae)
			2. Aabhatwaka [2] *(Baboola Twaka)*	*Vachellia nilotica* Linn. (Fabaceae)
7.	*Bandhuka*	*Pentapetes phoenicea* Linn. (Sterculiaceae)	*Punnaga*[1]	*Colopfiyllum inophyllum* Linn. (Guttiferae)
8.	*Bhargava (Bhargav)*		*1.Talishpatra*[2]	*Abies webbiana* Lindle (Pinaceae)
			2.Kantakari jata[2]	*Solanum surattense* Burm.f. (solanaceae)
9.	*Bhallataka*	*Semecarpus anacardium* Linn. (Anacardaceae)	*1.Raktachandana*[1,3]	*Pterocarpus santalinus* Linn.f. (Leguminosae)
			2. Chhinna (Guduchi)[2]	*Tinospora codifolia* (Willd)Miers ex Hook .*f.* Thoms. (Menispermaceae)
			3. Chitra Moola[3]	*Citrullus colocynthis* Linn.(Cucurbitaceae)
10.	*Bharangi*	*Clerodendrum serratum* Linn. (Verbenaceae)	*1.Talishpatra*[3]	*Abies webbiana* Lindle (Pinaceae)
			2.Kantakari jata[3]	*Solanum surattense* Burm.f. (solanaceae)
11.	*Bilva*	*Aegle marmelos* Corr. (Rutaceae)	*Kashmarya*[2] *(Gambhari)*	*Gmelina arborea* Linn. (Verbenaceae)

12.	*Chandana*	*Santalum album* Benth. & Hk. f. in part (Santalaceae)	*1.Rakta Chandana*[1,2]	*Pterocarpus santalinus* Linn.f. (Leguminosae)
			2. Karpoora[3]	*Cinnamomum camphora* Nees & Eberm. (Lauraceae)
13.	*Chavika*	*Piper retrofractum* Hunter (Piperaceae)	*1.Gajpippali*[1]	*Piper chaba* Hunter (Piperaceae)
			2. Pippali Moola[2,3]	*Piper longum* Linn. (Piperaceae)
14.	*Chitraka Moola*	*Plumbago zeylanica* Linn. (Plumbaginaceae)	*1.Danti*[1,3]	*Baliospermum montanum* Mull.-Arg. (Euphorbiaceae)
			2.Shikhri[1,3]	*Achyranthes aspera* Linn. (Amaranthaceae)
15.	*Chukra*	*Rumex vesicarius* Linn. (polygonaceae)	*Jambeeradi rasa*[2]	*Citrus limon* (Linn.) Birm.f. (Rutceae)
16.	*Darunisha*	*Berberis aristata* DC. (Berberidaceae)	*Haridra*[1,2,3]	*Curcuma longa* Linn. (zingiberaceae)
17.	*Dadhimaphala*	*Punica granatum* Linn. (Lythraceae)	*1.Patolaphala*[1]	*Tricosanthes dioica* Roxb. (Cucurbitaceae)
			2.Vrikshamala[1]	*Garcinia indica* Chois (Guttiferae)
18.	*Dhanvayasa*	*Fagonia cretica* Linn (Zygophyllaceae)	*1. Duralabha*[2,3]	*Fagonia Arabica* Linn. (Zygophyllaceae)
19.	*Draksha*	*Vitis vinifera* Linn. (Vitaceae)	*1.Kashmarya*[1,2]	*Gmelina arborea* Linn. (Verbenaceae)
			2. Madhooka Kusuma[2]	*Madhuca indica* J.F.Gmel (Saptaceae)
			3. Bandhuka Pushpa[3]	*Pentapetes phoenicea* Linn. (Sterculiaceae)
20.	*Gaja Pippali*	*Piper chaba* Hunter (Piperaceae)	*Pippalimoola*[1,2,3]	*Piper longum* Linn. (Piperaceae)
21.	*Harițaki*	*Terminalia chebula* Retz. (Combretaceae)	*Karkatshringi*[2]	*Piatacia integerrima* Stewart ex Brandis (Anacardiaceae)
			Amalaki[3]	*Embelica officinalis* Gaertn. (Euphorbiaceae)
22.	*Hingupatri*	*Gardenia gummifera* Linn.(Rubiaceae)	*Hingu*[1]	*Ferula narthex* Boiss. (Umbelliferae)
23.	*Ikshu*	*Saccharum officinarum* (Poaceae)	*Nala*[3]	*Arundo donax* Linn. (Gramineae)
24.	*Jatipatra*	*Jasminum officinale* Linn. (Oleaceae)	*Lavanga*[2]	*Syzygium aromaticum* Linn. (Myrtaceae)
25.	*Jatipushpa*	*Jasminum officinale* Linn. (Oleaceae)	*Lavanga*[1,3]	*Syzygium aromaticum* Linn. (Myrtaceae)
			Maltipushpa[2]	*Jasminum officinale* Linn. Forma. (Oleaceae)
26.	*Kankola*	*Piper cubeba* Linn. f. (Piperaceae)	*Jati*[1,2,3]	*Jasminum officinale* Linn. (Oleaceae)

			2.Maltipushpa[2]	*Jasminum officinale* Linn. Forma. (Oleaceae)
27.	*Karpoora*	*Cinnamomum camphora* Nees & Eberm. (Lauraceae)	*1.Granthiparn*[1,2,3]	Angelica glauca Edgw. (Umbelliferae)
			2.Raktchandana[2,3]	*Pterocarpus santalinus* Linn.f. (Leguminosae)
			3. SugandhiMustaka[2,3]	*Cyperus scariosus* R.Br., (Cyperaceae)
28.	*Khanda*	*Saccharum officinarum* Linn.(Poaceae)	*Shwet-sharkara*[2]	*Saccharum officinarum* Linn.(Poaceae)
29.	*Khadira twaka*	*Acacia catechu* Willed. (Fabaceae)	*Nimbatwaka*[1]	*Azadirachta indica* A.Juss (Meliaceae)
30.	*Kumkuma*	*Crocus sativus* Linn. (Iridaceae)	*Kusumbha Pushpa*[2,3	*Carthamus tinctorium* Linn. (Asteraceae)
31.	*Kusha*	*Cannabis indica* Linn. (Cannabaceae)	*Kasha*[2]	*Saccharum spontaneum* Linn. (Gramineae)
32.	*Kutherika (Babui Tulsi)*	*Ocimum basilicum* Linn. (Labiatae)	*Tulsi*[2] *(Gramya Tulsi)*	*Ocimum sanctum* Linn. (Labiatae)
33.	*Langali*	*Gloriosa superba* Linn. (Colchicaceae)	*1.Vahinipatri*[1]	*Catharanthus roseus* Linn. (Apocynaceae)
			2. Kushtha[3]	*Saussurea lappa* C.B. Clarke (Compositae)
34.	*Meda-Mahameda*	*Litsea glutinosa* (Lour.) (Lauraceae)	*Vari*[2,3]	*Asparagus racemosus* Linn.(Asparagaceae)
35.	*Murva*	*Marsdenia tenacissima* Roxb. (Apocynaceae)	*Jinghani*[1,2,3]	*Salmalia malabarica* Linn.(Bombaceae)
36.	*Musta*	*Cyprus rotundus* Linn.(Cyprecaeae)	*Shiva*[2] *(Haritaki)*	*Terminalia chebula* Retz. (Combretaceae)
37.	*Nagpushpa*	*Mesua ferrea* Linn. (Guttiferae)	*Padmakesar*[1,2,3]	Nelumbium speciosum Willd. (Nymphaeaceae)
38.	*Nala*	*Arundo donax* Linn. (Gramineae)	*Ikshu*[2]	*Saccharum officinarum* Linn.(Poaceae)
39.	*Nilotpala*	*Nymphaea stellta* Willd. (Nymphoeaceae)	*Kumuda*[1,2]	*Nymphaea nouchali* Burm.f.(Nymphoeaceae)
40.	*Nirgundi*	*Vitex negundo* Linn. (Verbenaceae)	*Sursa*[2]	*Ocimum sanctum* Linn. (Lamiaceae)
41.	*Prishnparmi*	*Uraria picta* Desv.(Fabaceae)	*Singhpuchchi*[1]	Uraria picta Desv. (Fabaceae)
42.	*Punarnava*	*Boerhavia diffusa* Linn. (Nyctaginaceae)	*Rakta Punarnava*[2]	*Boerhavia diffusa* Linn. (Nyctaginaceae)
43.	*Pushkara Mula*	*Inula racemosa* Hook. f. (Astraceae)	*1.Kushtha*[1,2,3]	*Saussurea lappa* C.B. Clarke (Compositae)
			2. Erandjata[2]	*Calotropis procera (Aiton) W.T.Aiton (Apocynaceae)*
44.	*Rakta Chandana*	*Pterocarpus santalinus* Linn.f. (Leguminosae)	*Ushira*[1,2,3]	*Vetiveria zizanoidis* Linn. (Graminae)
45.	*Sharkara*	*Saccharum officinarum* Linn. (Poaceae)	*Khanda*[3]	*Saccharum officinarum* Linn. (Poaceae)

46.	*Siddhartha*	*Brassica campestris* Linn. (Cruciferae)	*Sarshapa*[1]	*Brassica campestris* Linn. (Cruciferae)
47.	*Sita*	*Saccharum officinarum* Linn. (Poaceae)	*Khanda*[1]	*Saccharum officinarum* Linn. (Poaceae)
48.	*Somaraji*	*Centratherum anthelmin ticum* Kuntze (Asteraceae)	*Prapunnata*[1,2,3]	Cassia tora Linn. (Caesalpiniaceae)
49.	*Sthouniyaka*	Angelica glauca Edgw. (Umbelliferae)	*Kushta*[3]	*Saussurea lappa* C.B. Clarke (Compositae)
50.	*Sursa*	*Ocimum sanctum* Linn. (Lamiaceae)	*Nirgundi*[2]	*Vitex negundo* Linn. (Verbenaceae)
51.	*Suvarnkshiri*	*Argemone maxicana* Linn. (Papaveraceae)	*Kushtha*[1]	*Saussurea lappa* C.B. Clarke (Compositae)
52.	*Tagara*	*Valeriana wallichii* DC (Valerianacea)	*Kushtha*[1,2,3]	*Saussurea lappa* C.B. Clarke (Compositae)
53.	*Tumbaru taila*	*Zanthoxylum armatum* DC (Rutaceae)	*Arushkara*[1]	*Semecarpus anacardium* Linn. (Anacardaceae)
54.	*Varahi kanda*	*Dioscorea bulbifera* Linn. (Dioscoreaceae)	*Charmakraluka*[2,3]	Dioscorea esculenta Burkill. (Dioscorraceae)
55.	*Yashtimadhu*	*Glycyrrhiza glabra* Linn. (Leguminosae)	*Dhataki*[2,3]	*Woodfordia fruticosa* Kurz. (Lytheraceae)
[1]Vangsena, [2]Yogratnakara, [3]Bhavprakasha				

DISCUSSION

From the above table we can say that the drugs could be substituted on the following basis -

1. **On the basis of similar *Rasa* -** Like in *Amlavetasa (Garcinia peduncu lata* Roxb. Fammily: Guttiferae*)* and *Chukra (Rumex vesicarius* Linn. Family: Polygonaceae*)* both have same *Rasa* and their therapeutic action is dependent on their *Rasa* so all the three *Acharyas* have described *Chukra* in the absence of *Amlavetasa.*
2. **On the basis of same family-** like in the absence of *Chavika* Acharya Vangsena has described *Gajpippali* and Acharya *Yogaratnakara* and Bhavprakash has described *Pippali mula*. All the three plants have same family.
3. **On the basis of parts of same plant-** Sometimes when a part used of a drug is unavailable then another part which is available of the same plant with similar action is used. Like in the absence of *Arkpaya*, *Arkrasa* is described by all the three *Acharyas*.
4. **On the basis of similar part but of different plants-** in the absence of *Jatipushpa* Acharya *Vangsena* and *Bhavprakasha* has described *lavanga* and *Acharya Yogratnakara* has used *Maltipushpa.* All the three *Dravyas* are collected from different plants but all three are flowers.
5. **On the basis of similar action-** *Khadira* and *Nimba* both are used in skin diseases. So, in the absence of *Khadira, Nimba* could be used.

Table No.2: Comparative analysis of pharmacological properties of original/official drugs and their official substitutes.

S. N.	Dravya	Gun	Ras	Vipaka	Virya	Karma
1	*Ativisha*[(O.D.)] (*Aconitum heterophylum* Wall. Ex. Royle)	*Laghu, Ruksha*	*Tikta, Katu*	*Katu*	*Ushna*	*Tridoshahara, Visheshtah Kapha-pitta Shamaka*
	Shiva[2] [(S.D.)] *(Haritaki) (Terminalia chebula* Retz.*)*	*Laghu, Ruksha*	*Panchrasa, Kashaya pradhan*	*Madhura*	*Ushna*	*Tridoshahara*
2	*Bakula*[(O.D.)] *(Mimusops elengi* Linn.*)*	*Guru*	*Kashaya, Katu*	*Katu*	*Sheet*	*Pitta Shamaka*
	Utpala Pankajama[1,3] [(S.D.)] *(Nymphoea stellta* Willd.*)*	*Laghu, Snigdha, Pichchhila*	*Kashaya, Madhura, Tikta*	*Madhura*	*Sheet*	*Pitta shamaka and Kaphavardhaka*
3	*Bhallataka*[(O.D.)] *(Semecarpus anacardium Linn.)*	*Laghu, Snigdh, Tikshna*	*Katu, Tikta, Kashaya*	*Madhura*	*Ushna*	*Kapha-vata Shamaka and Pitta vardhaka*
	1.Rakta chandana[1,3] [(S.D.)] *(Pterocarpus santalinus* Linn.f.*)*	*Guru, Ruksha*	*Tikta, Madhura*	*Katu*	*Sheet*	*Kapha-pitta Shamaka*
	2. Chhinna[2] [(S.D.)] *(Guduchi) (Tinospora codifolia (Willd)Miers ex Hook .f. Thoms.)*	*Guru, Snigdha*	*Tikta, Kshaya*	*Madhura*	*Ushna*	*Tridosha Shamka*
4	*Bharangi*[(O.D.)] *(Clerodendrum serratum* Linn.*)*	*Laghu, Ruksha*	*Tikta, Katu*	*Katu*	*Ushna*	*Kapha-vata Shamaka*
	Talishpatra[3] [(S.D.)] *(Abies webbiana* Lindle*)*	*Laghu, Tikshna*	*Tikta, Madhura*	*Katu*	*Ushna*	*Kapha-vata Shamaka*
5	*Bilva*[(O.D.)] *(Aegle marmelos* Corr.*)*	*Laghu, Ruksha*	*Kashay, Tikta*	*Katu*	*Ushna*	*Kapha-vata Shamaka*
	Kashmarya[2] [(S.D.)] *(Gambhaari) (Gmelina arborea* Linn.	*Guru*	*Tikta, Kashaya, Madhura*	*Katu*	*Ushna*	*Tridoshahara*
6	*Chandana*[(O.D.)] *(Santalum album* Benth. & Hk. f. in part*)*	*Laghu, Ruksha*	*Tikta, Madhra*	*Katu*	*Sheet*	*Kapha-pitta Shamaka*
	Rakta Chandana[1,2] [(S.D.)] *(Pterocarpus santalinus* Linn.f.*)*	*Guru, Ruksha*	*Tikta, Madhura*	*Katu*	*Sheet*	*Kapha-pitta Shamaka*
7	*Chavika*[(O.D.)] *(Piper retrofractum* Hunter*)*	*Laghu, Ruksha*	*Katu*	*Katu*	*Ushna*	*Kapha-vata Shamaka and Pitta vardhaka*

	1.Gajpippali[1] (S.D.) *(Piper chaba* Hunter*)*	*Laghu, Snigdha, Tikshna*	*Katu*	*Madhura*	*Anushnasheet*	*Vata-kapha Vardhaka and Pitta Shamaka*
	2. Pippali Moola[2,3] (S.D.) (*Piper longum* Linn.)	*Guru, Ruksha*	*Tikta, Madhura*	*Katu*	*Sheet*	*Vata-kapha Vardhaka and Pitta Shamaka*
8	*Chitraka Moola*(O.D.) *(Plumbago zeylanica* Linn.*)*	*Laghu, Ruksha, Tikshna*	*Katu*	*Katu*	*Ushna*	*Kapha-vata Shamaka and Pitta Vardhaka*
	Danti[1,3] (S.D.) *(Baliospermum montanum* Mull.-Arg.*)*	*Guru, Tikshna*	*Katu*	*Katu*	*Ushna*	*Kapha-pitta Shamaka*

[1]Vangsena, [2]Yogratnakara, [3]Bhavprakasha, (O.D.)Originale Drug, (S.D.)Substitute Drug

Comparative analysis of pharmacological properties of original / official drugs and their official substitutes described in classical texts of *Ayurveda* has been done to understand similarities and differences in pharmacological properties of both the drugs. Tabular presentation of analysis has been done. Observations of pharmacological properties of original drugs and their substitutes reveals that maximum pharmacological attributes of the drugs are similar: from the table no.2 we can conclude that :-

1. Haritaki has been considered as official substitute of Ativisha in Yogratnakara. Both the drugs have Laghu, Ruksha Guna, Ushna Virya and Tridosha Shamaka properties. Though Ativisha has Tikta, Katu Rasa whereas Haritaki has Kashaya predominant Panchrasa. Ativisha has been said to have Katu Vipaka whereas Haritaki has been accepted as Madhura Vipaka drug. Substitution of Ativisha with Shiva appears to be on the basis of similarities in their Guna, Virya and Doshakarma.
2. Utpala Pankajama i.e. flowers of Nymphoea stellata have been accepted as official substitute for Bakula by Vangasena and Bhavprakasha. Comparision of pharmacological properties of both the Drugs reveals that both the drugs are sheet Virya and pittashamaka. Guna of Bakul is said to be Guru whereas that of Bakula is said to be Laghu, Snigdha and Pichchhila. Bakul is Kashaya Katu in Rasa and Katu in Vipaka where as Utpalala is Kashaya Tikta in Rasa and Madhura in Vipaka. Substitution of Bakula with Utpala appears to be on the basis of common Kashaya Rasa, Sheet Virya and Pitta pacifying properties.
3. Rakta Chandana has been accepted as official substitute for Bhallataka by Vangsena and Bhavprakasha wherease Chhinna botanicaly identified as Tinosporara cordifolia has been accepted official substitute for Bhallataka. Bhallataka bears Laghu Snigdha Tikshna Guna, Katu Tikla Kashaya Rasa, Madhura Vipaka and Ushna Virya. It is Kapha Vata

shamaka. Officiaal substitute Raktachandana (Vangsena, Yogatnakara) bears Guru Ruksha Guna, Tikta Madhu Rasa, Katu Vipaka and sheet Virya. It is Kapha Pitta Shamaka. Pharmacological properties of Raktachandana are entirly different from Bhallataka and therefore substitution of Bhallataka with Raklachandana on the basis of pharmacological properties is beyond explanation though both the drugs have been indicated in the treatment of skin disease therefore substitution of Bhallataka with Raktachandana appears to be in specific context in the management of skin diseases. Similarly substitution of Bhallataka with Chhinna appears to be on the basis of similarities in the Vipaka Virya and Doshakarma.

4. Talisphpatra (Abies webbiana) is clearly mentioned as an official substitute for Bharangi (clerodendrum serratum). comparison of pharmacological properties of both the drugs reveals that both the drugs have Laghu Guna, Tikta Rasa, Katu Vipaka and Ushna Virya. Even Doshakarma of both the drugs are same, that is Kapha Vata Shamaka. Substitution of Bharangi with Talishpatra appears to be on the basis of similarities in the Guna, Virya, Vipaka and Doshakarma.
5. Kashmarya has been accepted as official substitute for Bilva by Yogatnakara, both the drugs having Kashaya, Tikta Rasa, Katu vipaka and Ushna virya, but the Doshakarma of Bilva is Kapha vata shamaka whereas Kashmarya having Doshakarma as Tridoshahara, Kashmarya carrying the Guru Guna while as Bilva carrying the Laghu Ruksha Guna. substitution of Kashmarya with Bilva appears to be on the basis of common Rasa, Vipaka and Virya properties.
6. RaktaChandana has been considered as official substitute of Chandana by vangasena and Yogratnakar. The pharmacological studies showing both the drugs have Ruksha Guna, Tikta Madhura Rasa, Katu Vipaka, Sheeta Virya and Kapha-pitta shamaka properties. Hence, it can be assumed that substitution of Rakta Chandana with Chandana is done on the basis of same Guna, Virya, Vipaka and Karma.
7. Chavika has been mentioned as official substitute of Gajaippali by Vangsena. Because both the drugs have Laghu Guna and Katu Rasa. But Gujapippali has Madhura Vipaka whereas Chavika having Katu Vipaka. So on the basis of having similar attributes in terms of Guna and Rasa, Chavika is mentioned as official substitute of Gajapippli.
8. Danti (Baliospermum montanum) has been considered as official substitute for Chitraka moola, roots of Plumbago zeylanica by Vangsena and Bhavprakasha. Comparison of pharmacological properties of both the drugs reveals that both the drugs have Tiksha Guna, Katu Rasa, Katu Vipaka and Ushna Virya too. Karma of both the drugs is Kapha

pacifying, but Chitraka moola elevates the Pitta Dosha while Danti appears to be Pitta Shamaka It seems that the substitution of Danti with Chitraka moola is done on the basis of common Tiksha Guna, Katu Rasa, Katu Vipaka Ushna Virya and Kapha pacifying properties.

CONCLUSION

The concept of *Pratinidhi dravya* was introduced for the welfare of humans so, that in the absence of a *Dravya* the treatment of a disease may not be hampered. Only the *Dravyas* of similar *Rasa, Guna, Virya, Vipaka* and of same quality which should not be harmful for the body and not be contra-indicated in the disease should be used. The *Pratinidhi Dravya* used in a combination should not bring any change in the *Guna, Karma* or potency of the original combination. Sometimes the *Rasadi Guna* are not similar to a *Dravya* in that case the therapeutic efficacy of a drug which is similar to the original drug can also be used. The *Pratinidhi Dravya* (substitution) is a solution for:

1. Drugs which are unavailable due to regional or seasonal differences.
2. Making a combination cost effective by using cheaper drug as a substitute which is similar in propertie as in scarce drug.
3. Replacing the drugs which have got extinct over a period of time and also replacing a drug in a combination which is contraindicated in a particular disease.
4. Use of *Pratinidhi* drug checks overload, overexploitation and extinction due to use of drug of same genus. For example in *Balachatushtaya* all the *Balas* have different genus but they can be used in place of one another on the basis of similar *Gun-Dharma*

Long term use of *Paratinidhi Dravya* resulted in replacement and extinction of original dravya and the *Pratinidhi Dravya* also became famous as *Mula Dravya*. Use of *Pratinidhi Dravyas* in the place of *Mula Dravyas*, time gap, deforestation and lack of knowledge became the cause of controversy among similar *Dravyas*. Profit makers took advantage of it and started adultration of *Dravyas* for earning more and more profit. *Pratinidhi dravyas* are used on the basis of similarities of *Rasa, Guna, Viraya, Vipaka* to the main *Dravyas* whereas profitmakers started adultrating dravyas with dravyas of poor quality, less value and sometimes harmful for human body which were similar in morphology to originale *Dravyas* irrespective of *Rasa, Guna, Virya, Vipaka.* So the main concern about the use of substitute *Dravya* is that -

1. Some *Mula Dravyas* become endangered, replaced and extinct by the use of *Pratinidhi Dravya*,
2. Controversy created between *Mula Dravya* and *Pratinidhi Dravya*,
3. Adulteration and misuse of *Dravyas*.

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