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A CLASSICAL REVIEW ON PRATINIDHI DRAVYA (SUBSTITUTE DRUG)

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ABSTRACT

The concept of Pratinidhidravya(substitute drug) is need of pharmaceutical area. Pratinidhidravya is substitute drug in absence of an original drug. Many (Substitute Drugs)pratinididravya are mention in texts, which are involved many aspect. In Bhavprakash list of pratinidhidravya is given in Mishrakavargaprakarana but in Yogratnakarpratinidhidravya mentioned in separately. The principals to selected pratinidhi Dravya (Substitute Drugs)based on similarity on Rasa(Taste), Guna(Property), Virya(Potency), Vipaka most important factor is karma (action). Pratinidhi drug serves to overcome the problem of un-availability of drug due toscarcity, rare or difficult to procure. This in way to help to produce good quality herbal product and lend a support in conservation and sustainability of medicinal plants. The Pharmacopial or extra Pharmacopial drug should be assessed on the basic fundamentals of as well as resemblance, regional Dravyguna Ayurvedic material medica Rasa, Virya, Vipaka substitution on the basis of synonym, pharmacological and clinical trials. This will enrich the current practices of Pratinidhi Dravyas(SubstituteDrugs) in Ayurvedicscience.

KEYWORDS: Pratinidhidravya, Substitute.

INTRODUCTION

व्याख्या–कदाचिद्द्रव्यमेकंवायोगेयत्रनलभ्यते।

तत्तगुणयुतंद्रव्यंपरिवर्तेन गृह्यते॥

Pratinidhi is a unique concept about uses of substitute drug in the absence of original drug. In Ayurveda definition of pratinidhidravya as

Pratinidhi means representation, substitute, vicegerent. This concept has been mentioned by Bhavmishra (16th century A.D.) it is evident that inclusion of number of medicinal plants in Ayurveda classics from Vedic period to Nighantu period has been incereased.

In view of the phenomenalincreaseindemandofherbaldrugs, theconcerned medicinal plants have been indiscriminately over exploited leading to scarcity or endangerment of many valuable plant species. In India more than 90% plant species used by industry are collected from wild and over 60% of the collection involve destructive harvesting. According to an estimate over half a million tones of the raw materials are indiscriminately collected from wild, mostly following destructive harvesting procedure and thus about 165,700 hectares forest being clear felled each year. Hence alarming situations have resulted into short supply, high prices, forced import, or substitution and adulteration of crude drugs. In ancient time the drugs were supplied by the government of the state as far as time is concerned after the 10th century , it is difficult to get pure drugs from ministry and it was need of the time, had to collect the drug by own self. The drugs Vaidya which were less available in local area were replaced by the another drugs known as (Substitute) and Pratinidhi Dravyas put in the practice because of easy availability and comparative cost effective. In terms of pharmacy, substitute is generally done when original drugs are not available or maybe available in small quantity.

The prior like and have not given Acharyas Charaka Sushruta direct reference or listing of (Substitute) Pratinidhi Dravyas but, have stated that in case of Acharya Vagbhata, availability of any particular drug in the preparation of a compound one should try to get another similarly potent drug having similar Rasa(Test), Guna(Property), Virya(Potency) and detail description regarding Vipaka. Pratinidhi Dravyas (Substitute) can be traced from the text books like Bhavaprakasha Bhavmishra (in 16th century), Yogaratnakara(in 17th century) and Bhaishajyaratnavali (in 14th century) mentioned.

MATERIALS AND METHODS

1) AvailableAyurvedic/classical Liturатures were studied for perfect understanding of concept of pratinidhidravyas (Substitutes drugs).

2) Information regarding Substitutes drugs from various jouranals, Ayurvedic texts and also Internet was also used for availability and necessity for comprehensive understandingofthesubstitute drug.

3) A detail is of classical drugs and their pratinidhi dravyas (Substitutesdrugs) with their botanical names was prepared, which was critically studied and divided under various subclasses with possible logic involved with them.

The list of some Pratinidhi dravya are mentioned in Bhavprakash are below

Sr. No.	Mukhya drug (Original drug)	Pratinidhidravya (Substitute drug)
1	Lakshamana (*Ipomea sepearia*)	Mayurshikha(*Actinopteris dichotoma)*
2	Madhu(Honey)	Puranagud(old jiggery)
3	Madhuyashti(*Glycyrrhiza glabra*)	Dhatakipushpa (*Woodfordia friticosa* flower)
4	Meda, Mahameda (*Polygonatum cirrhifolium*)	Shatavari(*Asparagus racemosus*)
5	Munukka	Gambhariphala(*Gmelinaarborea* flower)
6	Murva(*Marsdenia tenacissima*)	Jinginaitawak(*Odina woodier* bark)
7	Nagakeshara (*Mesuaferra* stigma)	Padmakeshara(stigma of *Nelumbiumspeciosum*)
8	Nilakamala(*Nehumbium speciasum*)	Kumudini(Nymphaea alba)
9	Pushkaramoola(*Inmula recemosa*)	Kushta(*Saussurealappa*)
10	Raktachandana	Karpura(*Cinnamomum camphora*)
11	Tagar (*Valeriana wallichii*)	Kushta(*Saussurea lappa*)

The list of some Pratinidhidravya are mentioned in Yogaratnakara are below-

Sr. No.	Mukhyadravya(Original drug)	Pratinidhidravya(substitute drug)
1	Kusha (Desmostachya bipinata)	Kasha(Saccharum spontaneum)
2	Madhu (Honey)	Puranagud (old jaggery)
3	Madhuyashti(Glycyrrhiza glabra)	Dhatakipushpa(Woodfordia friticosa flower)
4	Meda, Mahameda (Polygonatum cirrhifolium)	Shatavari (Asparagus racemosus)
5	Murva(Marsdenia tenacissima)	Jinginaitawak(Odina woodier bark)
6	Nagakeshara (Mesua ferra stigma)	Padmakeshara(stigma of Nelumbiumspeciosum)
7	Mustaka(Cyperus rotendus)	Haritaki(Terminalia chebula)
8	Nakha(Achatina fulica)	LavangaKusuma(Syzygiumaromaticum)
9	Nirgundi(Vitex negundo)	Tulasi(Ocimum sanctum)
10	Punarnava(Boerhavia diffusa)	Raktapunarnava (Trianthema portulacastrum)
11	Pushkaramoola(Inmula recemosa)	Kushta(Saussurea lappa)
12	Rasna(Pluchea lanceolata)	Kulinjara(Alpinia galangal)
13	Raktachandana	Karpura(Cinnamomumcamphora)
14	Shwetachandana(Santalum albaum	Karpura(Cinnamomum camphora)
15	Tagar (Valeriana wallichii)	Kushta(Saussurea lappa)
16	Tulasi (Ocimum sanctum)	Nirgundi(Vitex nirgundo)

The list of some Pratinidhidravya are mentioned in Bhaishjyaratnavali as below

Sr. No.	Mukhyadravya(Original drug)	Pratinidhidravya(Substitute drug)
1	Kustumbaru(Nepali dhaniya)	Dhanyaka(Indian dhaniya)
2	Kutaja (*Holarrhena antidysenterica)*	Maushlikamoola(root of *Asperagus adscendens*)
3	Lakshamana(*-Ipomea sepearia*)	Mayurshikha (*Actinopteris dichotoma*)
4	Langali (*Gloriasa superb*)	Kushta(*Saussurea lappa*)
5	Madhu (honey)	Puaranagud(old jaggery)
6	Madhuyashti(*Glycyrrhiza glabra*)	Dhatakipushpa (*Woodfordia friticosa* flower)
7	Meda (*Polygonatum cirrhifolium*)	Ashwagandha (*Withania somnifera*)
8	Mahameda (*Polygonatum cirrhifolium*)	Anantmoola(roots of *Hemidesmus indicus*)
9	Murva(*Marsdenia tenacissima*)	Jinginaitawak(*Odina woodier* bark)
10	Nagakeshara (*Masua ferra*)	Kamala keshara(*Mymphe aalba*)
11	Nakha(*Achatina fulica*)	Lavanga Kusuma (*Syzygium aromaticum*)
12	Prishniparni (*Uraria picta*)	Haridra(*Curcuma longa*)
13	Puaranaguda(Old jiggery)	Nava guda (New jaggery)
14	Pushkaramoola(*Inmula recemosa*)	Kushta(*Saussurealappa*)
15	Rasna(*Pluchea lanceolata*)	Vendaka (*Vanda roxburghi*)
16	Shwetachandana(*Santalum albaum)*	Karpura(*Cinnamomum camphora*)

Comparative chart of Pratinidhidaravya mentioned in Bhavprakash, Yogratnakar and Bhaishjyaratnavali.

Sr. No.	Mukhyadravya (original drug)	Pratinidhidravya (Bhavprakash)	Pratindhidravya (Yogaratnakar)	Pratinidhidravya (Bhaishjyaratnavali)
1	Kusha (*Desmostachya bipinata*)	----------	Kasha (Saccharumspontaneum)	----------
2	Kustumbaru (Nepali dhaniya	----------	----------	Dhanyaka (Indian dhaniya)
3	Kutaja (*Holarrhenaantidysenterica*linn.)	----------	--------	Maushlikamoola(root of Asperagusadscendens
4	Lakshmana(*Ipomeaseperia*)	Mayurshikha (Actinopteris dichotoma)	---------	Mayurshikha (Actinopteris dichotoma)
5	Langali (Gloriosa superblinn.)	----------	---------	Kushta (Saussurea lappa)
6	Madhu (Honey)	Puranagud(old jaggery)	Puranagud(old jaggery)	Puaranagud(old jaggery)
7	Madhuyashti (Glycyrrhiza glabra)	Dhatakipushpa (Wood fordiafriticosa)	Dhataki pushpa (Woodfordiafriticosa)	Dhatakipushpa (*Wood fordiafriticosa* flower)
8	Meda (polygonatu mcirrhifolium)	----------	---------	Ashwagandha (*Withania somnifera*)
9	Mahameda (Polygonatum cirrhifolium)	----------	--------	Anantmoola (roots of *Hemidesmus indicus*)
10	Meda,mahameda(Polygonatu m cirrhifolium)	Shatavari (Asparagus	Shatavari (Asparagus racemosus)	----------

		racemosus)		
11	Munnuka(Vitus senifera)	Gambhariphala(L.N .-Gmelina arborea flower)	---------	----------
12	Murva (Marsdenia tenacissima)	Jinginaitawak (odina woodier bark)	Jinginaitawak (Odina woodier bark)	Jinginaitawak (Odina woodier bark)
13	Mustaka (Cyperus rotendus)	----------	Haritaki (*terminaliachebula*)	----------
14	Nagkeshara (Mesua ferra)	Padmakeshara (stigma of *Nelumbium speciosum*)	----------	Kamala keshara (*Mymphea alba*)
15	Nakha(Achatina fulica)	----------	Lavangakusuma (*Syzygium aromaticum*)	LavangaKusuma (*Syzygiumaromaticum*)
16	Nilkamala (Nelumbium speciosum)	Kumudini (Nymphaea alba)	----------	----------
17	Nirgundi) vitexnirgbundo	----------	---------	----------
18	Prishniparni (*Uraria picta*)	----------	---------	Haridra (*Curcumalonga*)
19	Punarnava (Boerhavia diffusa)	----------	Raktapunarnava (*Trianthemaportulacastrum*)	Nava guda (New jaggery)
20	Puaranaguda(Old jiggery)	----------	----------	Kushta (*Saussurea lappa*)
21	Pushkaramoola(*Inmularecemosa*)	Kushta (*Saussurea lappa*)	Kusahta (*Saussurea lappa*)	Vendaka (*Vanda roxburghi*)
22	Rasna(L.N.-*Pluchea lanceolata*)	----------	Kulinjara (*Alpinia galangal*)	----------
23	Raktachandana	Karpura (*Cinnamomum camphora*)	---------	----------
24	Shwetachandana (*Santalum albaum*	----------	Karpura (*Cinnamomumcamphora*)	Karpura (*Cinnamomum camphora*)
25	Tagar (*Valeriana wallichii*)	Kushta (*Saussurea lappa*)	Kushta (*Saussurea lappa*)	---------
26	Tulasi (*Ocimum sanctum*)	----------	Nirgundi-(*Vitex nirgundo*)	

DISCUSSION

Acharya Bhavaprakash while explained the pratinidhi dravyas have mentioned that among the things enumerated so far and some others not mentioned here if any one is not available then any other drug which is similar to it in, Rasa –Veerya- Vipaka, should be selected by the physician and made use of (Substitute). More than 60 described Pratinidhi dravyas in Bhavprakash. Morethan 70 described Pratinidhi dravyas in Yogaratnakara, and about 75

described Pratinidhi dravyas Bhaishajyaratnavali. In this list of, they are gradually increasing Pratinidhi dravyas in number. In the text, it is clearly stated that the main drug in any formulation cannot be substituted, only the excessary drugs in the formulation can be substituted by appropriate Pratinidhi dravyas.

In recent era, mainly two factors are responsible for adulteration i.e. availability and price. When availability of the drug is less and demand is more, it leads to adulteration. As the health is first and for tissue to be prioritized and that to affordable cost, but when the cost of drug is high, again leads to adulteration. The other factors involved for selection of pratinidhidravyas (Substitutes drugs), which are mention in Ayurvedic texts and then find out most appropriate drugs in case of none availabity of genune drugs. Some major factor regarding to pratinidhi dravya are discuss here.

Factors- to be considered for selection of Pratinidhidravya

1) Uncertain identity
2) Regional substitutes
3) Non-availability of the drug
4) Seasonal availability of the part
5) Shelf life of the drug
6) Cost of the drug
7) Geographical distribution of the drug

1) Uncertain identity- in Ayurvedic classics, certain drug were unidentified, for these drugs the nearest matching characteristic, i.e. nam(nomenclature), roopa(morphological and other organoleptic characters), and karama(action of the drug) were taken into consideration.

Examples: Meda, Mahameda- Shatavari(*Asparagus recemosus)* Kakoli, Kshirkakoli- Ashwagandha (*Withania somnifera).*

2) Regional substitutes-under one various drugs were used in various regions as there are changes in vernacular as, misidentification or adulteration practices and specific drug action on the available source may be the cause of introduction of regional substitutes

Examples: Rasna – *Alpiniagalgana* wild

Vanda roxburghii R.br.

3) Non-availability of the drug- in case of then non-availability of the drug e.g. Talispatra(*Abies webiana*)- leaf of the taxusbaccata are used.

4) Seasonal availability of the part- certain part of drugs are available seasonally in these cases, other drug can be introduced, which is having the same action. e.g. Raktapunarnava (*Boerhaavia diffusa*linn.) can be substitute for Shwetapunaranava (*Trianthema portulacastrum*)

5) Shelflife of the drug- dravya like Ativisha(Aconitum heterophyllum wall.) which get infected easily by cankers, thus may be substitute by drug like Musta(*Cyperus rotendus*linn.)

6) Cost of the drug- Rasnamoola(*Pluchea lanceolate*) value in the market is near about 700 Rs per kg instead of that pharmacies are using leaf of Rasna. Kumkuma (*Corcus sativus* linn.) being costly herb is substituted by Kusumbha (*Carthamus tinctorus* linn.).

7) Geographical distribution of the drug- through India is one among the richest bio-diversity all over the world, geographically variations are always there some plants like Vastanabha (*Aconitum ferox* wall), are available in Himalaya.

Criteria for substitution drugs

1) Rasapanchaka
2) Consideration of the species
3) Drug of the same family

1) Rasapanchaka: according to it, if a drug posseses the same Characteristic based on rasa, guna, virya, vipaka, and prabhav with that of another drug then other drug is qualified as substituted drug.

2) Consideration of the species: if due to some reasons the particular species of genus is not available, then some other species can replaces the drug. E.g. pinusnigra can be substitute for pinusroxburghii.

3) Drugs of the same family: on several occasions, drugs belonging to the samewfamily arereversibely taken. E.g. berberisaristata and berberislysium could be substitute for each other where needed.

CONCLUSION

1) Ayurvedic concept based Substitution differ the views of current botanical and pharmacy concept. The drugs should be assessed on the basis of their (Property and Gunakarma action) and further they should be evaluated.

2) Regional substitution is need of hour on the basis of synonym, and its local usage. On the basis of tools Ayurvedic and current scientific base may be assessment and find outproper . Same action like as main drugs is Pratinidhidavyas most important regarding find out suitable Pratinidhi Dravyas(Substitute).

3) Substitute and adulteration are different. Substitute is rational replacement of herbal drugs to get similar medicinal properties from replaced material.

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