

## Review Article

# ***Abhava Pratinidhi Dravya* (substitutes for herbal drugs) acting on digestive system - A brief review**

Sneha Vidhate, Meena S Deogade, Pramod Khobragade



### Abstract

*Pratinidhi Dravyas* (substitutes for herbal drugs) are narrated in Ayurvedic classical texts when original or a form of drug is not available. In Ayurveda there are many drugs combined in single formulation, some of them were difficult to get and some species got destroyed with development of civilization and industrialization. This resulted in scarcity and less availability of the ingredient in the formulation which may cause a drastic or no effect of formulation at all. Hence ancient seers of Ayurveda advised some drugs which can be used when other drug with similar properties is not available for medicinal purpose. Such drugs are known as *Pratinidhi* or substitute drugs. This concept is based on Ayurveda principles and is referred from one of the *Laghutrayi*, *Bhavprakash*, *Yogratnakar* and *Bhaishajya ratnawali*. As the list of substitute is first of its kind and this *Nighantu* is considered as latest among classical work in *Dravyaguna Shastra*. Substitute drugs also known as *Abhav pratinidhi dravya* (*Drugs Substitute*) should possess similar *guna* (properties) i.e. *Rasapanchak* and proven on the basis of pharmaco-therapeutically activity. In Ayurveda *Pachan Samstha* (digestive system) is the most important system considered for both initiation as well as treatment of numerous diseases. Most of Ayurvedic formulations are administered orally, hence in present work an attempt has been made to present brief review of *Abhav Pratinidhi Dravya* acting on digestive system. Post 16th century Ayurvedic texts and lexicons give specific examples of possible substitutes. Understanding the logic behind the Ayurvedic concept of *Abhava Pratinidhi Dravya* (APD) (drug substitution) could lead to new methods of identifying legitimate drug alternatives, and help solve industry's problems of crude drug shortage.

**Key words:** *Abhav Dravya*, *Abhav Pratinidhi Dravya*, Digestive system, Substitutes.

### Introduction

The world is looking towards Ayurveda for safe and effective health care. Human life and survival would be impossible without 'symbiosis' with, and extensive use of plants and plant product. W.H.O. also suggested undertaking Ayurveda herbal assistance to conquer the life style disorders [1]. But Ayurveda, a traditional Indian herbal health care system is facing a big trouble of deforestation which resulting in reduction of availability of herbal drugs. Looking at this problem The Ayurvedic *Acharyas* have proposed alternative method i.e. the concept of '*Pratinidhi Dravya* '

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(substitute drugs) to overcome unavailability or lack of some drugs.

Majority of medicines are prepared by using medicinal plant but now a day few medicinal plant which are required for herbal industry facing shortage due to deforestation, loss on habitat, over exploitation extinction of rare plant harvesting impairing the viability of raw drugs. Hence to overcome this problem substitution of the herbs, gems and metals are found mentioned in classical texts of Ayurveda. Substitute is intentionally selected and utilizes rationally to achieve the desired effect and using substitutes in medicinal formulation is economic feasibility [2]. Exploring the concept of *Pratinidhi Dravyas* is the need of today's pharmaceutical industries. *Pratinidhi* drug is substitute drug in absence of an original drug (*Abhav Dravya*). *Bhavmishra* has mentioned various *Pratinidhi Dravya* in *Mishra Prakaran* [3]. *Yogaratanakar* [4] & in *Bhaishjya Ratnawali* [5] has also compiled valuable information regarding *Pratinidhi dravya*. The substitution is based on Ayurvedic principles that both original and substitute should possess similar *Guna* (properties) and therapeutic activities.[6]

All diseases are rooted in *Mandagni* i.e. malfunctioning of digestive fire because *agni* play an more important role in the absorption of drugs. [7] *Acharyas* of Ayurveda prefer this route of drugs delivery. This is the most common route of administration. It is also safest, most convenient and economical. Hence in Ayurveda nearly all orally administered formulations include some ingredients acting on digestive system. Few drugs acting on digestive system are chief and easily available. On the other hand few drugs are difficult to get and are costly too. Present work has provided information of few drugs acting on digestive system along with their substitutes. This work may prove as torchbearer towards discovering cost effective ingredients for manufacturing chief Ayurvedic formulations.

#### **Material and method:**

Literature regarding *Pratinidhi Dravya* referred in various Ayurvedic classical texts has been compiled along with their similarity in Ayurvedic properties. Probable reasoning, suitability and scientific basis behind narrated *Pratinidhi Dravya* has been discussed with the help of available literary information and scientific data.

#### **Observation and Results:**

*Abhava dravya* and *Abhava Pratinidhi dravya* have similarity in Ayurvedic profile and mostly similar groups of phytoconstituents. Post 16th century Ayurvedic texts and lexicons give specific examples of possible. There are seven herbal drugs acting on digestive system for which substitute drugs are mentioned (Table no.1). The substitutes are mostly similar in Ayurvedic properties and the difference is looking not significant (Table no.2). Therefore it can be assumed that in the absence of a desired first choice medicinal herb, classical Ayurveda recommended functionally similar substitute can be preferred.

#### **Discussion:**

As per Ayurveda, *Dravyas* (material) are characterized based upon *Dravyaguna Vigyan*, where elements of *Rasapanchak* (taste, properties, potency, post digestive effect and action) are considered. *Dravyaguna* way of characterization of plant is different from modern botanical or chemotaxonomical ways of characterizing herbal drugs. E.g *Charak samhita* described *Panchashat Mahakashay* (fifty therapeutic groups of medicinal herbs) and classifying herbal drugs according to their pharmacological action [13]. *Chitrak* (*Plumbago zeylanica*) as it is not much common plant and it is one of the threatened species [14], *Dantimool* (*Baliospermum montanum Muell*) and *Apamarga* (*Achyranthus aspera* Linn) are substituted with the *Chitrak*. There *Rasapanchak* are similar except its *Guna* and there is no any similarities in there phytochemical constituent but having some similar Ayurvedic properties. [15,16].

*Chavya* (*Piper chaba* Hunter) is substituted with the *Pippali mool* (root of *Piper longum* Linn) because both drugs having a similar *Rasapanchak* and comes under *Panchkol* (group of five drugs having digestive properties) which act on *Agnimandya* [17]. Piperine and Piplartine are the similar phytoconstitute constituents between *Chavya* and *Pippali mool* [18]. *Musali* is having different *Rasapanchak* but *Doshghnta* is same to that of *Chavya*. *Chukra* (*Rumex vesicarius* L.) is substituted with *Amlavetas* (*Garcinia pendunculata*). *Chukra* has many important medicinal uses such as treatment of tumors, hepatic diseases, indigestion, constipation. The plant also

used as cooling, laxative, stomachic, tonic, analgesic, appetizer, diuretic, astringent, purgative, antispasmodic. Both drugs having some similar phytoconstituent such as vit c, flavonoid, quercetin [19,20]

*Amalaki (Emblika officinalis)* and *Kakadshingi (Wrightia tinctoria)* are substituted with *Haritaki (Terminalia chebula)*. These drugs have similar in *Rasapanchak*, action and also having a more similar phytoconstituent such as Flavonoids, alkaloids, phenols, hydrolysable, tannin, ellagic acid, trigallayl glucose, chebulagic acid, chebulinic acid and corillagin acid [21,22]. *Kamal (Nelumbium neucifera)* and *Padmkeshar (Nelumbium speciosum)* are substituted with *Nagkeshar (Mesua ferrea)*. *Kamal* and *Padmkeshar* are the same species of different varieties with similar *Rasapanchak* but having different phytoconstituent [23,24]

*Raktachandan (Santalum album)* and *Chitarakmool (Plumbago zeylanica)* are substituted with the *Bhallatak (Semicarpus anacardium)* they are only having similarities in *Veerya, Vipak, Doshghnta, Karma* (action) and only phenolic compound [25,26]. *Musta (Cyperus rotundus)* is substituted with the *Ativisha (Aconitum heterophyllum)*. It is interesting to note that despite lack of apparent similarities in botanical aspect as well as chemical composition the *Rasapanchak* of *Ativisha* and *Musta* were narrated similar. Both of them cause dryness in the body, are easy digest, retain pungency even after digestion and pacify *Kapha* and *Pitta Doshas*. [27]

The present review finds that there is more concentrated on herbal origin drugs rather than other types of *Dravyas*. All *dravya* categories into *Amapachak Dravya* (Table 1). In most of the examples *Pratinidhi Dravya* showed similarity in *Rasapanchak*, *Doshghnata* and *Karma*. The *Abhava* (lack) in one instance is not regarding the non-availability of drug but drug intolerance and thus the given substituent is totally opposite in *Gunas* e.g. *Bhallatak* is extremely *Ushna* and exhibits side effects of blisters on skin and can create intolerance. Therefore according to *Bhavprakash & Chitrakmool* according to *Bhaishajya Ratnawali* it is substituted with anti-dote like *Rakta-Chandan*. This gives an understanding that if any drug proven to be unsuitable should be discarded. Many expensive or rare drugs like *Kumkum, Kasturi, Chandan, Yastimadhu, Ashtavarga* plants etc. are

substituted with low cost, easily available. To select a proper substitute one has to not only seek overall *Guna (Rasapanchak)* similarities, but also test its therapeutic efficacy clinically. To assess drug on physico-chemical and clinical similarities requires further research.

Ayurvedic substitution pair can be better explained as given ahead: *Musta (Cyperus rotundus)*, a common weed, for the rare Himalayan species, *Ativisha (Aconitum heterophyllum Wall.)*. The study's strategy was to use modern phytochemical and pharmacological methods to test the two herbs for biochemical and metabolic similarities and differences, and literary studies to compare their Ayurvedic properties, a novel trans-disciplinary approach. No previous scientific paper has compared the two herbs' bioactivities or chemical profiles. Despite being taxonomically unrelated, the first choice, but relatively unavailable (*Abhava*) plant, *A. heterophyllum*, and its substitute (*Pratinidhi*) *C. rotundus*, are not only similar in Ayurvedic pharmacology (*Dravyaguna*) profile, but also in phytochemical and anti-diarrheal properties. These observations indicate that Ayurveda may attach more importance to pharmacological properties of raw drugs than to their botanical classification. Further research into the nature of raw drugs named could open up new areas of medicinal plant classification, linking chemistry and bioactivity. Understanding the logic behind the Ayurvedic concept of APD (drug substitution) could lead to new methods of identifying legitimate drug alternatives, and help solve industry's problems of crude drug shortage.

### Conclusion

Ayurveda phytochemistry and pharmacology analysis of, *Abhava Pratinidhi Dravya* can legitimately substitute respective *Abhava dravya*. The Trans-disciplinary research work can be helpful study and to find out other *Abhava dravya - Abhava Pratinidhi Dravya* pairs and to search new *Abhava Pratinidhi Dravya* suitable to contemporary requirements. However further research is necessary to prove the efficacy and similar action of *Abhava Pratinidhi Dravya* on basis of its pharmacological action, animals and clinical studies.

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**Table no.1: Pratinidhi dravya acting on digestive system according to various classical texts**

Classical texts in which Pratinidhi dravya are mentioned								
SR.	DRUGS	BOTANICAL NAME [8]	PART USED	BHAVPRAKASH [9]	YOGRA TNAKA R [10]	BHAISH AJYA R. [11]	Botanical name	Part used
1.	Chitrak	<i>Plumbago zeylanica</i> Linn	Root bark	<i>Dantimool</i>	<i>Dantimool</i>	<i>Dantimool</i>	<i>Baliospermum montanum</i> Muell	Root
				<i>Apamarga</i>	-	-	<i>Achyranthus aspera</i> Linn	Whole plant & Kshar
2.	Chavya	<i>Piper chaba</i> Hunter	Root	<i>Pippalimool</i>	<i>Pippalimool</i>	-	<i>Piper longum</i> Linn	Root
						<i>Musali</i>	<i>Asparagus adscendens</i> Roxb.	Rizomes
3	<i>Amlavetas</i>	<i>Garcinia pedunculata</i> Roxb OR <i>Rheum emodi</i>	Fruit	<i>Chukra</i>	<i>Chukra</i>	<i>Chukra</i>	<i>Rumex vesicarius</i> Linn	Whole plant, leaves
4	Haritaki	<i>Terminalia chebula</i> Reiz	Fruit pulp	<i>Amalaki</i>		<i>Amalaki</i>	<i>Emblica officinalis</i> Gaertn	Fruit pulp
					<i>Kakadshingi</i>		<i>Wrightia tinctoria</i>	Bark, Seed
5	Nagkesar	<i>Mesua ferrea</i> Linn	Flower, stamens	<i>Kamal</i>		<i>Kamal</i>	<i>Nelumbium neucifera</i> (Wild)	Flower, stamens
					<i>Padmakasar</i>		<i>Nelumbium speciosum</i> Wild	Flower, stamens
6	Bhallatak	<i>Semicarpus anacardium</i>	Fruit	<i>Raktachandan</i>		-	<i>Ptrocarpus sanatalinus</i> Linn F	Heartwood
					<i>Chitrakmool</i>	-	<i>Plumbago zeylanica</i> Linn	Roots
7	<i>Ativisha</i>	<i>Aconitum heterophyllum</i> Wall.	Tuberous root	<i>Nagarmotha</i>	<i>Nagarmotha</i>	<i>Nagarmotha</i>	<i>Cyperus rotundus</i> Linn.	Tuberous root



**Table no. 2:**  
**Rasapanchakas of Pratinidhi dravya acting on digestive system along with their similarities with original drug.[12]**

SN	Dravya	Guna	Rasa	Vipak	Virya	Doshghnta	Karma	Roghnata	Acc to
1	Chitrak	Laghu Ruksha	Katu	Katu	Ushna	VataKaphahar	Vahni krita ( deepan) Pachan , Grahi	Grahani , Kushtha , Shoth, Arsha , Krimi	B.P Y.R B.R
	Danti	Saar Tikshna	Katu	Katu	Ushna	Kaphahar	Deepan Vidhah nashan	Arsha , Ashmari, Kandu , Rakta dosha , Kushta , Rakta pitta , Shoth , udar , krimi	B.P Y.R B.R
	Apamarga	Saar Tikshna Kshar	Tikta, Katu	Katu	Ushna	Kaphavatahar	Deepan , Pachan , Medohar , Rochan	Chardi, Medorog , Hridrog , Adhman , Arsha , Kandu , shul Udar Apachi	B.P
	<b>Similarity</b>	-	<b>Katu</b>	<b>Katu</b>	<b>Ushna</b>	<b>Kaphahar</b>	<b>Deepan , Pachan</b>	<b>Arsha, Kushta udar , Kandu</b>	
2	Chavya	Laghu Ruksha	Katu	Katu	Ushna	Vatakapha har	Agnivardhak	Specially in guda vikar	
	Pippalimool	Laghu Ruksha	Katu	Katu	Ushna	Kaphavatahar	Deepan Pachan Bhedan	Udar, Anah, pleeha, Krimi, gulma, swasa Kshay	B.P Y.R
	Musali	Guru Snigdha	Madhur	Madhur	Ushna	Kaphavardhak Vatapittashamak	-	Mutrakruccha, Balya , Shukrakshay.	B.R
	<b>Similarity</b>	<b>Laghu Ruksha</b>	<b>Katu</b>	<b>Katu</b>	<b>Ushna</b>	<b>Kaphavatahar</b>	<b>Deepan Pachan</b>	<b>Krimi , Swas,</b>	
3	Amlavetas	Laghu Ruksha	Ati-amla	Amla	Ushna	Kaphavatahar	Deepan Bhedan	Hridrog , gulma, Pleeha, Vinmutradosha, Udavarta, Hikka, Anaha, aruchi Swas, Kasa , Vami	
	Chukra	Laghu	Ati-amla	Amla	Ushna	Kaphavatahar	Deepan Pachan, Param ruchya	Shul , gulma, vibandha, trishna , Hritpeeda, agnimandya, Vami	B.P Y.R B.R
	<b>Similarity</b>	<b>Laghu</b>	<b>Ati-amla</b>	<b>Amla</b>	<b>Ushna</b>	<b>Kaphavatahar</b>	<b>Deepan</b>	<b>Hridrog</b>	
	4	Haritaki	Laghu Ruksha	Kashay, Madhur Tikta , katu amla	Madhur	Ushna	Tridoshhar	Medya, deepan, anuloman, B rimhanayushya, chaksusya	Swas kasa prameh, Arsh, Kushta, Shoth, Udar, Krimi, Vibandha, Chhardi, Trishna , Hridrog, Kamala, Shul, pleeha, Kandu yakrit, Mutrakriccha
Amalaki		Snigdha saar	Amla kashay madhur, tikta, katu	Madhur	Sheet	Tridoshhar	Medya, deepan, anuloman, Chaksusya, Especially vrushya rasayan	Swas kasa prameh, Arsh, Kushta, Shoth	B.P B.R
Kakdshingi		Laghu Ruksha	Tikta , kashay	Katu	Sheet	Kaphapittashamak	Vamak , Deepan, Sthmbhan , Arshoghna, Krumighna	Agnimandya, Atisar , Udarshool, Kushtha	Y.R
<b>Similarity</b>		<b>Laghu Ruksha</b>	<b>Amla kashay madhur, tikta, katu</b>	<b>Madhur</b>	-	<b>Tridoshhar</b>	<b>Medya, deepan, anuloman, Chaksusya, Especially vrushya rasayan</b>	<b>Swas kasa prameh, Arsh, Kushta, Shoth , Udarshool</b>	

SN	Dravya	Guna	Rasa	Vipak	Virya	Doshghnta	Karma	Roghnata	Acc to
5	Nagkesar	Ruksha	kashay	<b>Katu</b>	Ushna	Kaphapittasha mk	Deepan, Pchan, Grahi,	Arshoghna, Krimighna, Kushtaghna, Jwarghna.	
	Padma keshar	Ruksha	kashay	<b>Katu</b>	Sheet	Kaphapittasha mk	Vrushya	Trishna, daha , raktapitta Vish , Shoth	B.P
	<b>Similarity</b>	<b>Ruksha</b>	<b>kashay</b>	<b>Katu</b>	<b>Sheet</b>	<b>Kaphapittasha mk</b>	<b>-</b>	<b>Raktapitta, Jwarghna.</b>	
6	Bhallatak	Laghu Snigdha	Madhur	Katu, Tikta , Kashay	Ushna	Kaphavatasha mak , Pittavardhak	Deepan , Pachan Chedan ,bhedan	Shitprashaman , Vishghna, Medhya, Krimighna, Agnimandya , Pachanvikar, Vibandha	
	Raktachan	Ruksha Laghu	Tikta Madhur	<b>Katu</b>	shit	Kaphapittasha mak		Jwarghna	B.P
	Chitrakmool	Ruksha, Ushna	<b>Katu</b>	<b>Katu</b>	Ushna	Kaphavatasha mak ,	Deepan , Pachan	Agnimandya , Pachanvikar, Grahi , Vtaghna, Krumighan	B.R
<b>Similarity</b>	<b>-</b>	<b>-</b>	<b>Katu</b>	<b>Ushna</b>	<b>Kaphavatasha</b>	<b>Deepan , Pachan</b>	<b>Agnimandya ,</b>		
7	Ativish	Laghu Ruksha	Katu , Tikta , Kashay	<b>Katu</b>	Sheet	Kaphapittahar	Deepan , Pachan	Atisar amdosh, Vish, Kasa , Vami, Krimi	
	Musta	Laghu, Ruksha, Snigdha	Katu, Tikta, Kashay	<b>Katu</b>	Sheet	Kaphapittahar	Deepan , Pachan , Grahi	Trishna, Raktvaha , Jwar, Aruchi, Jantu	BP B.R YR
	<b>Similarity</b>	<b>Laghu Ruksha</b>	<b>Katu , Tikta , Kashay</b>	<b>Katu</b>	<b>Sheet</b>	<b>Kaphapittahar</b>	<b>Deepan , Pachan</b>	<b>Krimi</b>	

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