

## SYNONYMS ARE A TOOL OF QUALITY CONTROL-A PRACTICAL APPROACH

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## ABSTRACT

Ayurveda is the ancient system of medicine and whole world is looking forward towards Ayurveda for health care needs. The problem of adulteration is a challenge in front of Ayurveda fraternity. Although, pharmacognostical and phytochemical parameters are available now a days to determine the quality of drugs but it is not practically feasible for patients and practitioners to go for pharmacognostical screening of drugs before use every time. Ancient sages of Ayurveda had given the solution in the form of synonyms. They had coined the synonyms that describe the part used of the drug appropriately. Synonyms were coined in the form that they described the most peculiar feature of the drug. The present paper will explore the potential of synonyms as a tool of quality assurance.

**KEYWORDS:** Ayurveda, Synonyms, Quality assurance.

## INTRODUCTION

Ayurveda is the ancient system of medicine of India. At present Ayurveda caters for about 70% health care needs of India. Even the whole world is looking forward towards Ayurveda for their health care needs. But one of the most important challenges in front of Ayurveda fraternity is adulteration. Both intentional and unintentional adulteration exists in crude drug market. Although, phytochemical and pharmacognostical parameters to decide the authenticity of the drugs have developed but it is not feasible for the patient as well as for the practitioner to go for pharmacognostical screening of the drug every time. It is the time to search for some alternative method that can be practically used by practitioners of Ayurveda.

In ancient and medieval times, there was no system of pharmacognostical description of plants as done now days. The main reason of not going into details in this regard might be the close contact with nature thus, not necessitating other means of identification. *Charak* described the parameters for quality control of drugs. In that context, *Charak* described that the specific drug should be collected from specific place and at a specific time.<sup>[1]</sup> This also indicates close contact with nature. This object, however, was fulfilled by coining names and synonyms which indicated the peculiar features of plants as well as of the parts of plants that are used for medicinal purpose.

Highlighting the importance of synonyms in drug identification, Acharya Priya Vrat Sharma has designated *Naamaroopa Gyan* as a separate branch of *Dravyaguna Vigyan*.<sup>[2]</sup> The word *Naamaroopa Gyan* may be interpreted in three ways:

1. *Naamroope Gayateaneniti*- that by which names and forms of substance are known.
2. *Naambhi Roopam Gayateaneniti*- that which imparts knowledge of the forms of substances on the basis of names.
3. *Naamroopyoh Samanjasyam Gayateaneniti*- that which deals with proper correlation of names and forms so that the entity can be identified correctly.

*Drugavrat* commented on *Nirukta* 1.1 that name is defined by learned as the word which on being pronounced suggests some entity and is also used in alphabtes. *Roop* is a specific character that includes morphology as well as properties and actions. *Pandit Narhari* in *Raja Nighantu* stated that synonyms are assigned on the following seven bases:<sup>[3]</sup>

1. *Roodhitah*- by traditional uses
2. *Svabhavatah*- by natural properties or the state of a thing
3. *Deshyokti*- habitat
4. *Laanchana*- morphological characters
5. *Upamaa*- simile
6. *Viryah*- potency
7. *Itaraahvaya*- names prevalent in other regions or due to other factors.

*Dhanwantari Nighantu* stated that one synonym to many plants and many synonyms to a single plant are assigned according to habitat, form, colour, potency, taste, effect etc.<sup>[4]</sup> The above facts indicate that synonyms are a key factor for identification and quality control of drugs.

## MATERIAL AND METHODS

Classical texts of Ayurveda along with The Ayurvedic Pharmacopeia of India are critically analyzed.

### Names of Medicinal Plants Used In Classical Texts

As regards the total number of plant drugs mentioned in three *Samhitas*, the number of *Sanskrit* names are about 1900, out of which, on a rough counting about 670 are common to all the three texts i.e. *Charak Samhita*, *Sushrut Samhita* and *Astang Hridaya*. About 240, 370 and 240 plants have been exclusively mentioned only in *Charak Samhita*, *Sushrut Samhita* and *Astang Hridaya* respectively. The names common to *Charak Samhita* and *Sushrut Samhita* are 90, names common to *Charak Samhita* and *Astang Hridaya* are 100 while names common to *Sushrut Samhita* and *Astang Hridaya* are 140. Thus, the total numbers of the *Sanskrit* names are about 1100 in *Charak Samhita*, 1270 in *Sushrut Samhita* and 1150 in *Astang Hridaya*.<sup>[5]</sup>

### Importance of Synonyms in Drug Identification and Quality Assurance

*Bhartrhari* in *Vakya Pradeepa* is right in saying that *Sabda* is eternal and immutable *Brahm* from which the creation has evolved in the form of ideas. Ancients were the keen observer of nature and coined exact synonyms to designate specific characters of plants. For instance, the name *Karburdar* for *Kanchnaar* coined by *Charak* suggests the variegated character of one of the petals. The Latin name of the plant *Bauhinia variegata* is also based on this character of the plant.

Many synonyms indicate the original source of the plants, some indicate the part used, some the pharmacological properties of plants while some are reminiscent of the place of their origin or commercial transaction. *Kashmiraka* for *Kumkuma*, *Kairata* for *Kirattikta*, *Dravidi* for *Ela*, *Malayaja* for *Chandana* indicated the place of origin or natural habitat of these plant drugs. The synonyms like *Dharmapattana*,

*Korangi* etc. indicated commercial transaction by sea route. *Kustaha*, *Khrjughna*, *Dadrughna* for *Chakramarda*<sup>[6]</sup> indicate its pharmacological actions while synonyms like *Chakrangi*, *Matsyashakla*, *Krishnabheda* and *Tikta* indicate peculiar features of the rhizome of *Picrorrhiza kurrooa* Royle ex Benth.<sup>[7]</sup> which is medicinally useful part of the plant. Synonyms serve the purpose well for which they were coined i.e. indicating specific characters of plants and plant parts which helped their proper identification. *Acharyas* by these synonyms enumerated the best qualities of the drugs as well as put forward the best place for their procurement. In ancient time, drugs were purest in their form, so it could be assumed that the drug which has all the features as indicated by its synonyms must be of best quality.

### Rarely Synonyms Are Used For Identification

Synonyms are rarely used for identification as well as a measure of quality control. The manifold hurdles were created mainly due to loss of contact with plants in their natural habitat. The absence of a workable morphological description of plants, use of only a few multivocal descriptive terms both old and newly coined and their indiscriminate use by nighantu writers during the last few centuries went on making confusion more confounded. *Charak* used the synonyms strictly for a single drug which did not denote any other entity e.g. *Samanga* and *Manjistha* are enumerated separately in different *Mahakashaya* in *Charak Samhita*. *Sushrut* also reads them together separately.

In the literary sphere, the lexicons and the nighantus sprang up which while referring to a plant refer to more than one or rather many which were used as substitutes at different times and in different areas due to unavailability or ignorance. This practice ultimately resulted in complete merge of some important plants with partially similar but different well known plants e.g. *Tilaka* and *Tilvaka* with *Lodhra*.

### Synonyms as a Tool for Identification

Scrutiny of synonyms in various texts revealed the synonyms which exactly defined the medicinally useful part of the plant. Here some of the plants are listed

S. No.	Sanskrit Name	Latin Name	Part Used	Synonyms that define part used <sup>[8]</sup>	API standard <sup>[9]</sup>
1	<i>Ativisha</i>	<i>Aconitum heterophyllum</i> Wall ex. Royle	Tuberous root	<i>Bhangura</i> , <i>Shuklakanda</i> , <i>Shringi</i>	Roots are ovoid, conical, tapering downwards; fracture short showing uniform white surface
2	<i>Asthishrinkhla</i>	<i>Cissus quadrangularis</i> Linn	Stem	<i>Granthimaan</i> , <i>Chatuhshirah</i>	Stem quadrangular, 4 winged, internodes constricted at nodes
3	<i>Udumbara</i>	<i>Ficus glomerata</i> Roxb.	Bark, Fruit, Latex	<i>Jantuphala</i> , <i>Sheetavalka</i> , <i>Sachakshusu</i> ,	A few insects debris is found in inner walls of syconus fruit, wrinkled ostiole in the apex

				<i>Hemadugdha</i>	region of fruit.
4	<i>Katuki</i>	<i>Picrorhiza kuroo</i> Royle ex Benth	Root	<i>Krishnabheda,</i> <i>Chakrangi,</i> <i>Matsyashakala</i>	Circular scars of roots and bud scales, white dots in circular manner, black on T.S.
5	<i>Kampillaka</i>	<i>Mallotus philippensis</i> Muell. Arg.	<i>Phala Raj</i>	<i>Karkasha,</i> <i>Raktachurnaka,</i> <i>Raktanga</i>	Fine granular powder of dull-red or madder red colour
6	<i>Karkatashringi</i>	<i>Pistacia integerrima</i> Stew ex Brandis	Gall	<i>Ajashringi,</i> <i>Karkatashringi,</i> <i>Kuleervishanika,</i> <i>Vakra</i>	Dried galls are hard, hollow, horn like, greyish brown externally
7	<i>Karpoor</i>	<i>Cinnamomum camphora</i> Nees & Eberm	Exudate	<i>Ghansaara,</i> <i>Chandrasanghya,</i> <i>Shishir,</i> <i>Sheetalraja,</i> <i>Sphatika, Himabaluka</i>	Colourless or white crystals, granules or crystalline mass, aromatic and followed by a sensation of cold.
8	<i>Kokilaksha</i>	<i>Astercantha longifolia</i> Nees.	Root, seed and whole plant	<i>Kokilaksha,</i> <i>Ikshugandha,</i> <i>Kandekshu,</i> <i>Shrinkhlika</i>	Stem usually unbranched, fasciculate, swollen at nodes
9	<i>Guggulu</i>	<i>Commiphora mukul</i> Engl.	Exudate	<i>Kaalniryasa,</i> <i>Mahishaksha</i>	Drug occurs in vermicular or stalactite pieces of pale yellow or brown coloured mass.
10	<i>Gojhiva</i>	<i>Onosma bracteatum</i> Wall.	Leaf	<i>Gojhiva, Kharpatra,</i> <i>Darvipatra</i>	Lanceolate to ovate-lanceolate, acuminate tubercle based hispid hairs present on both surfaces
11	<i>Chakramarda</i>	<i>Cassis tora</i> Linn.	Seed	<i>Drinbeeja,</i> <i>Meshalochana</i>	
12	<i>Jatamansi</i>	<i>Nardostachys jatamansi</i> DC	Root	<i>Krishnajata,</i> <i>Jatamansi, Jatila,</i> <i>Sulomsha</i>	Dried rhizome of dark brown colour covered with reddish brown fibres forming a network.
13	<i>Jyotishmati</i>	<i>Celastrus panniculatus</i> Willd.	Seed, oil	<i>Kangunika, Peetataila</i>	a few roughly three sided being convex on the sides and a few two sided with one convex and other more or less flat side
14	<i>Pippali</i>	<i>Piper longum</i> Linn.	Fruit	<i>Kana, Krishna, Kola,</i> <i>Teekshna tandula</i>	Fruit greenish black-black in colour, consisting of minute sessile fruits arranged around an axis, taste-pungent producing numbness on tongue.
15	<i>Madanphala</i>	<i>Randia dumetorum</i> Lam	Fruit	<i>Golaphala, Ghantaal,</i> <i>Dharaphala</i>	Globose or broadly ovoid, longitudinally ribbed
16	<i>Vacha</i>	<i>Acorus calamus</i> Linn	Rhizome	<i>Aruna, Golomi, Jatila,</i> <i>Lomashi, Shadgrantha</i>	Thumb like branches at the nodes, sub cylindrical to slightly flattened, light-brown with reddish tinge
17	<i>Vidanga</i>	<i>Embelia ribes</i> Burm.f.	Fruit	<i>Chitratandula,</i> <i>Shwetatandula</i>	Pericarp brittle enclosing a single seed covered by a thin membrane, seed is reddish and covered with yellowish spots.
18	<i>Shati</i>	<i>Hedychium spicatum</i> Ham. Ex. Smith	Rhizome	<i>Gandhamoolika,</i> <i>Haridrapatrakandka</i>	Rhizome externally yellowish brown, edge of each piece is covered by a rough reddish brown layer marked with numerous scar and circular rings, odour- camphoraceous.

## DISCUSSION

In the above table, only a few examples are listed. It is not possible here to enlist all the drugs here but these examples are proving the role of synonyms in assuring the quality of a drug. In ancient texts like *Charak Samhita* synonyms were cautiously and exclusively used indicating the peculiar feature of a plant. No synonym was used for two or more drugs e.g. in *Charak Samhita*, *Arishta* is exclusively the synonym of *Nimba* (*Azadirachta indica* A. Juss) not for *Sapindus trifoliatus*<sup>[10]</sup> But, in *Nighantus*, the same synonym had been used for more than one plant. The irrational coining of inaccurate synonyms confused the issue of identification. In present situation, one has to be selective and cautious and choose only those synonyms which are meaningful and significant for identification. This practical application of synonyms will reduce the use of adulterant drugs by *Vaidya* fraternity as the complete dependence of *Vaidya* community on drug dealers without their own capacity of distinguishing between authentic and fake drug gave a boost to profiteering motives of drug dealers and the drug markets are being flooded with useless adulterants.

## CONCLUSION

Synonyms were the tools of identification and thus, served as measure of quality control in ancient times. The synonyms should be used by practitioners as a tool for quality assurance. It will lead to use of genuine drugs in the practice and the patients will be able to get maximum benefit from Ayurveda.

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