J Res Educ Indian Med 2019; 00 (0) :00-00 **ISSN 0970-7700**
* Online First on 6th July 2019 DOI: *10.5455/JREIM.* 82-151314xxxx

DETERMINATION OF *ANUKTA DRAVYA* THROUGH CLASSICAL *AYURVEDIC* PRINCIPLES

HITESH VYAS[1*] AND KALPESH B. PANARA[2]

Department of Basic Principles[1.], Department of Dravyaguna,[2.]
I.P.G.T & R.A., Gujarat Ayurveda University, Jamnagar-361008 Gujarat (India),

Abstract: Introduction: *Bheshaja* or drug is the tool for the physician and is described as the second most important factor for successful management of disease in *Ayurvedic* classical texts. In spite of having detailed description of numerous drugs along with their properties and therapeutic usage, still many of the medicinal plants are not included in *Ayurvedic* texts as they are large in number. *Acharyas* suggested utilizing *Yukti* (intellect) along with *Anumana* (Inference) to determine properties of undocumented drugs.

Aim: To explore the classical principles regarding the determination of properties of *Anukta* (undocumented) *Dravya*.

Material & Method: *Brihattrayi* with available commentaries and other literatures were referred and critically analyzed. Various scattered principles and methods providing the guideline on the evaluation of *Anukta Dravya* were synchronized and explored.

Results and Discussion: *Anukta Dravya* may be used to verdict with four kinds of *Pramana* – *Aaptopadeha*, *Pratyaksha*, *Anumana*, and *Yukti*. Apart from this, properties of undocumented or extra-pharmacopeial drugs may be depended on many factors such as *Chara* (*Desha*), *Sharira Avayava*, *Swabhava* (constitution), *Linga* (sex) etc. Drug evaluation method described in *Charaka Samhita* emphasizes various aspects of new drug development such as morphological identification, analyzing inherent properties and conducting clinical trial for establishing safety and efficacy. Utilization of *Pramana* with other principles may provide the evaluation method of *Anukta Dravyas*.

Conclusion: Classical principles and methods may contribute to present drug development guideline for the determination of *Anukta Dravya* (undocumented or unexplored medicinal plants).

Key words: *Anukta Dravya*, *Dravya Pariksha Vidhi*, *Pramana*, *Yukti*.

1. *Associate Professor, 2. Associate Professor,*

INTRODUCTION

Ayurveda describes four elements for successful management of the diseases. These four are *Vaidya* (Physician), *Dravya* (Drug), *Upasthata* (Nursing staff) and *Atura* (Patient) [1] (*Sutrasthana* 9/3). Among these four, *Dravya* is recognized as the *Karana* (tool) [1] (*Vimanasthana* 8/87) for the physician to achieve the state of *Dhatusamya* (equilibrium of body elements) which indicates the importance of drug. It is further emphasized by creating *Bheshaja Chatushka* (Medicine quadrat) as first group of chapters in *Charaka Samhita*. Ayurvedic texts described many drugs in terms of their names, properties and therapeutic usage etc. As per the FRLHT study, total 620 plants have been identified from *Charaka Samhita* [2] while some scholars opine that about 1000 plants have been described in *Charaka Samhita* including grains and other food plants [3]. In *Sushruta Samhita,* 573 plants have been mentioned for the treatment of various diseases [4] (*Uttaratantra* 66/8). *Acharya Vagbhata* in *Ashtanga Hridaya* described about 903 drugs [3]. Apart from these three principal texts, many *Nighantus* (lexicons) of later period, by adding many new plant drugs, enrich the classical pharmacopoeia. Due to innumerability of plant species, many plant drugs were not recorded in classical treatises though they have the medicinal properties. Therefore, no any classical herbal pharmacopeia is available which enumerates all the medicinal plants and this fact is also supported by the *Charaka Samhita* [1] (*Sutrasthana* 27/329,330). Such drugs are being utilized and practiced by the many ethnic groups. Further, many herbal drugs were introduced in India after intrusion of many other countries. Such undocumented and newly introduced herbs are not evaluated scientifically till date. Undocumented or unexplored drugs are known as *Anukta Dravya* (extra pharmacopeial drugs). Recently, herbal drug research emphasized on enlightening the medicinal properties of such undocumented herbs. But, it is very difficult to transform properties of such herbs into therapeutic application as *Ayurvedic* principles of drug actions i.e. *Rasa* (taste), *Guna* (properties), *Virya* (potency), etc. are not evaluated. Determination of *Anukta Dravya* (extra pharmacopeial drugs) wherein properties of *Dravya* can be enlightened through basic principles of *Dravyaguna* is the need of hour. But, no classical guideline is directly available which provides the evaluation method of such kind of unexplored drugs. Therefore, efforts have been made to compile the scattered references which explain the basic concepts for determination of *Anukta Dravya* (extra pharmacopeial drugs) through classical *Ayurvedic* method.

To explore the principles regarding *Anukta Dravya*, texts of *Brihattrayi* (*Charaka Samhita*, *Sushruta Samhita* and *Ashtang Hridaya*) with available commentaries, *Nighantus* and other literature were screened, analyzed and interpreted in the light of aim of the study.

RESULTS AND DISCUSSION

No direct references regarding determination of properties of *Anukta Dravya* are available in classical texts. *Maharshi Charaka* while concluding *Mahakashayas* in *Sutrasthana* 4th chapter said that 'the intellectual person may find out properties from new drug after the logical examination and analysis' [1] (*Sutrasthana* 4/20) Again in *Sutrasthana* 27th chapter, he stated that the properties of drug utilized in other region may be determined by taking into account the attributes made for them by the people of that locality [1] (*Sutrasthana* 27/329,330). *Maharshi Sushruta* also opined that qualities of the substance can be determined by *Rasa* (taste perception) and *Bhuta-guna* (properties of proto-elements) [4] (*Sutrasthana* 46/331). Such indirect scattered references provide the clue to determine the method for the evaluation of *Anukta Dravya*. But further detail protocol/method needs to be evaluated.

Pramana (Evidence)

Four kind of *Pariksha* also are useful for this purpose. Four kind of *Pariksha* (investigation method) i.e. *Aptopadesha* (authorities testimony), *Pratyaksha* (direct perception), *Anumana* (inference) and *Yukti* (logical reasoning) have been described to assess all kind of substances [1] (*Sutrasthana* 11/17). *Anukta Dravya* also can be assessed by these methods.

***Aptopadesha*:** These are authoritative instructions based on their experience. It is said that foresters like shepherds and goatherds are acquainted with the names, forms [1] (*Sutrasthana* 1/120). It has reduced confusion regarding classification and identification of a drug especially in case of unknown or folklore medicine. Nomenclature and morphological identification can be learnt from these persons and they may be considered as *Apta* in this regard.

***Pratyaksha*:** It is evidence based on direct observation [1] (*Vimansthana* 4/7). Organoleptic characters of the drug such as taste, color, smell etc. can be determined through this tool.

***Anumana*:** it is the inference or indirect knowledge based on reasoning. It is also important method to determine the properties of *Anukta Dravya*.

Determination of *Guna* through *Pramana*

Guna includes properties of drugs responsible for drug action such as *Rasa, Veerya, Vipaka, Gurvadi Gunas and Prabhava* of the drug [1] (*Sutrasthana* 26/71). It will also help in identification and standardization of drug. General principles of Drug action are enumerated as *Rasapanchaka* i.e. *Rasa* (taste), *Guna* (quality), *Virya* (potency), *Vipaka* (metabolism) and *Prabhava* (specific principle). Among them the first four principles are categorized under rational principles while *Prabhava* is designated as empirical component as its activity is inexplicable [1] (*Sutrasthana* 26/67-70). *Guna* of *Dravya* such as *Rasa, Virya, Vipaka* etc. can be determined with the help of *Pramana.*

Determination of Rasa

Charaka states *rasa* is experienced as gustatory sensation when a *Dravya* comes in contact with the tongue [1] (*Sutrasthana* 1/64). Rasa serves as a tool to infer the *Panchabhautika* composition of the *Dravya* [4] (*Sutrasthana* 46/331) and facilitates for identification of spectrum of activity of a particular drug. Prof. C Dwarakanath discovered the method known as "Taste threshold" for determination of intensity of Rasa in a given substance. [5] Pushpan R & Nishtewsar K. have designed a proforma wherein taste is identified through quantifying perception of symptoms allotted to Rasa for the identification in view of guidelines denoted in *Ayurvedic* Classics. Single blind Rasa evaluation method was developed and validated by studies on healthy volunteers. Based on the guidelines denoted in *Ayurvedic* Classics, a single blind Rasa evaluation method was developed and validated by studies on healthy volunteers.[6] But, in case of poisonous plants where the direct taste cannot be possible, indirect method with help of *Anumana Pramana* may become helpful to assume the taste of such drugs. [7] (*Sutrasthana* 7/14-18).

Determination of *Vipaka*

Vipaka is the transformed state of ingested substance after digestion. *Vipaka* can be assessed based on *Doshakarma* (action on humors), *Dhatukarma* (action on tissues) and *Malakarma* (action on metabolic waste products) [1] (*Sutrasthana* 26/58).

Determination of Virya

The *Virya* of *Dravya* is perceived through two means, viz. *Adhivasa* (*Anumana*-Inference) and *Nipata* (*Pratyaksha*-Directly) [1] (*Sutrasthana* 26/66). Here, *Adhivasa* (*Anumana*) means after knowing the karma done by the *Dravya*, inferring its *Virya*. *Nipata* (*Pratyaksha*) means direct perception of *Virya* through sense organs. When a *Dravya* comes in contact with any of the sense organs it is grouped under *Nipata*.

Acharya Charaka stated that it is impossible to describe all drugs with their attributes as they are unlimited in number. He also advocated the therapeutic utility of each and every substance of the world in specific condition and situation but selection of drug is to be made in accordance with the propriety of its administration and therapeutic needs [1] (Sutrasthana26/12) So, method for the evaluation of properties of undocumented drugs is required for their rational and proper therapeutic administration and uses. *Acharya Chakrapani* suggested use of *Panchamahabhuta Siddhanta* for assessment properties of *Anukta Dravya* [1] (*Sutrasthana* 27/329,330). All substances are classified in to the five categories depending upon the dominance of one or other *Mahabhutas* and specific characteristics are described. For instance, *Prithvi Mahabhuta* possesses *Guru* (heavy), *Kathina* (hard), *Khara* (rough), *Sthira* (immobile), *Sthoola* (gross) etc. qualities [1] (*Sutrasthana* 26/11). To determine the therapeutic activities of unknown drug, initially,

Panchamahabhautic categorization based on its *Guna* (properties) should be evaluated. Therapeutic utility can be inferred further as the actions of such *Mahabhutas* and also drugs having various tastes are already described in classical text. *Maharshi Sushruta* and commentator *Dalhana* also has given the same opinion [4] (*Sutrasthana* 46/331).

Other principles

Few more ways are also indicated by *Maharshi Charaka* to determine the properties of *Anukta Dravya*. At the end of *Mamsa Varga, Maharshi* stated that *Chara* (habitat), *Sharira Avayava* (body part), *Swabhava* (constitution), *Linga* (sex) etc. of animals should be examined to determine the properties of *Mansa* (meat) [1] (*Sutrasthana* 27/331). Some of these parameters can be used for evaluation of herbal drugs too.

***Chara* (habitat):** Three kind of *Desha* (habitat) have been described in *Ayurvedic* classical texts. They are *Anupa* (marshy), *Jangala* (arid) and *Sadharana* (general or medium) [1] (*Kalpasthana* 1/8). Among these *Jangala* land is said to be dry and *Vata-Pitta* predominant, i.e. drugs of this land are having less humidity and are comparatively *Laghu* (light) in nature. Opposite to that *Anupa* kind of *Desha* is more humid and therefore herbs of this land tend to be *Guru* (heavy). This is how on the basis of habitat of the unknown drug few properties can be determined (*Kalpasthana* 1/8) (table no. 1). *Sushruta* mentioned characteristic features of *Panchabhautika Bhoomi* (land predominant of particular *Mahabhoota*) [4] (*Sutrasthana* 36/4). For instance, Land with many stones, having blackish colour and hard is *Prithvi Mahabhuta* predominant and the plants of this land also will having dominant properties of *Prithvi Mahabhuta*. Further, Land is also categorized in to two types based on Hot and cold potency. This division further leads to infer the quality and properties of medicinal plant that are grown in particular land [4] (*Sutrasthana* 36/5). This reference of *Sushruta Samhita* is also useful for determination of properties of unknown drugs.

Table 1: Types of *Desha* and its characteristics.

***Desha* (region)**	***Anupa***	***Jangala***	***Sadharana***
***Dosha* Dominancy**	*Kapha*	*Vata*	Balanced *Dosha*
Air	Harsh and hot	Soft and cold	Moderate
Rainfall	Heavy	Less	Moderate
Land	Uneven land is predominantly Many large mountains	Clear sky and the land is even Very few and small hills	Characteristic of both
Disease tendency	*Kapha-Vata Roga*	*Vata-Pitta Roga*	-

Sharira Avayava: Though *Maharshi Charaka* described this with reference to animal meats but this principle also can be used for herbal drugs. *Bhavprakash* while describing *Shaka Varga* (vegetables), says that there are six types of *Shaka-Patra* (leaf), *Pushpa* (flower), *Phala* (fruit), *Nala* (branch), *Kanda* (root or rhizome) and *Sanswedaja* (mushroom etc.) and each category is *Guru* (heavy) to its prior category [8] (*Poorvakhanda*, *Shakvarga*/1). It means leaves are most *Laghu* (light) and roots are most *Guru* (heavy). *Anukta Dravya* can also be assessed by application of this principle of body parts of the herb.

Dravya Pariksha (Drug examination or evaluation tools)

'*Dravya Pariksha Vidhi'* (drug examination method) has been introduced by *Acharya Charaka* [1] **(***Vimanasthana* 8/87). Further, quantification, standardization and examination tools for various factors are discussed in *Vimanasthana*. Among them, '*Dravya Pariksha Vidhi'* may be utilized to assess purity, quality and efficacy of already known or documented drug as well as unknown drugs.

With the help of this methodology, descendant writer of Ayurvedic texts might have evaluated the properties of new herbs and added their application in management of various diseases. Such as *Yashtimadhu, Hingu, Chopachini* etc. herbs have been added to classical *Ayurvedic* Pharmacopeia in later period [9]. This method also provides the standardization and quality control aspect for drug through good cultivation, harvesting and storage practices. Clinical trial on the new drug will provide the assurance on safety and efficacy of the drug.

CONCLUSION

Anukta Dravya i.e. undocumented or extra pharmacopeial drugs can be assessed by *Ayurvedic* basic principles. Four *Pramana* emphasize the role of evidence in any research of examination protocol. Utilization of *Pramana* with other principles may provide the evaluation method of *Anukta Dravyas*. Classical drug examination method provides various aspect of new drug development such as morphological identification, analyzing inherent properties and conducting clinical trial for establishing safety and efficacy. Monograph of any *Anukta Dravya* can be prepared based on examination method for drug mentioned in *Ayurvedic* texts. The study of any new drug by these examination tools would facilitate its inclusion to the *Ayurvedic* compendium.

References

1. **Charaka**. *Charaka Samhita*, *Ayurveda Deepika* (sans) commentary by Chakrapani Datta, reprint, (Acharya YT, ed.). Chaukhambha Orientalia, Varanasi, (2009).
2. Plants of Charaka Samhita; CD ROM, published by Amruth Productions & Services; FRLHT – Bagaluru.

3. **Vaidya Bapalal Shah**. Charaka no Swadhyaya (Guj); part-2, Chapter 21; 1st ed., Prachya Vidya Mandir, Maharaja Sayajirao University, Vadodara; **1979**: 727
4. **Sushruta**. *Sushruta Samhita*, *Nibandha Sangraha* (sans) Commentary by Dalhana, reprint, (Acharya YT, ed.). Chowkhamba Krishnadas Academy, Varanasi (**2004**).
5. **C. Dwarakanath**. The fundamental principles of Ayurveda **Part III**. Chowkhambha Krishnadas Academy, Varanasi **2009**:16
6. **Pushpan R, Nishtewsar K**. *Rasa Nirdhāraṇa* (assessment of taste) of *Leonotis nepetifolia* (L.) R. Br.: A preliminary study in healthy volunteers. *Anc Sci Life*. **2014**;33(3):186-191
7. **Vagbhata**. *Ashtang Hridaya*, Arunadatta's *Sarvangasundara* and Hemadri's *Ayurvedarasayana* commentaries (sans), reprint, (Hari Sadasiva Sashtri ed.). Chaukhamba Sanskrit Sansthan, Varanasi, (**2015**)
8. **Bhavmishra**. Bhavprakash, (Girija Shankar Shastri ed.). Sastu Sahitya Vardhaka Karyalaya, Ahemdabad, **1985**. Pp.448
9. **Pooja S**. DabhadeAn Insight into '*Charakokta Dravya-Pariksha Vidhi'* and its Applicability. *Int J Ayu Pharm Chem*. **2017**;7(1):112.

Corresponding author: Vd. Hitesh Vyas, M.D., PhD (Ayu) Associate Professor, Department of Basic Principles, I.P.G.T & R.A., GAU, Jamnagar- 361008 (Gujarat), email: drhavyas@yahoo.co.in, M- 9426433231