



Assesment of *Rasapanchaka* in accordance with *Ayurvedic* & modern parameters

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ABSTRACT

Dravya Pariksha plays a vital role in the field of clinical *Ayurveda*. It elaboratively deals with the study of *Ayurvedic* parameters to assess *Rasapanchaka* (*Rasa*, *Virya*, *Vipaka*, *Guna*, *Prabhav*) of a herbal drug that helps in evaluating its efficacy and probable mode of action. *Ayurvedic* texts comprise of detailed guidelines to find out *Rasapanchaka* of *Anukta* (undocumented) as well as time tested herbal drugs. However, in this article, an attempt has been made to understand the analysis of *Rasapanchaka* of a drug by incorporating modern parameters. A brief review of utilising methods like Taste threshold assessment to find *Rasa* & *anurasa* of the drug, Endothermic & exothermic reaction methods to find out *Virya*, modern clinical parameter like body temperature to assess *Ushna* or *Sheeta Guna* of a certain *Aushadhi* or *Ahar dravya* and so on has been discussed. Added advantage of studying these parameters will help in avoiding language barriers since, it will become more easier to describe *Ayurvedic* concepts written in Sanskrit. Thus, it can be

concluded that studying a new or already documented herbal drug by combining both *Ayurvedic* and Modern parameters may be more beneficial & scientifically acceptable.

KEYWORDS

Dravyapariksha, *Rasapanchaka*, *Anukta*, *dravya*, *Rasa*, *Virya*, *Vipaka*, *Guna*, *Pratyaksha* *Pramana*, *Anuman praman*, Taste threshold method, glycemic index, molecular weight, modern parameters

INTRODUCTION

Rasa, *Guna*, *Virya*, *Vipaka*, *Prabhav* are the five important attributes of *Ayurvedic* pharmacology i.e *Dravyaguna Vigyana* since *Ayurvedic* medicine is used as a whole plant unlike modern medicine which uses fractional components or a synthesized molecule. The therapeutic action of a herbal medicine has been explained descriptively in *Ayurveda* based on *Rasapanchaka*. However, certain barriers like language, unavailability of enough literature, limited research has made it difficult for world-wide scientific acceptance. Here comes the role of modern parameters, to make complex concepts like *Rasapanchaka* easier to assess.

Rasapanchaka as a guideline for standardisation of herbal drug according to *Charak Samhita*- In today's time, highly efficient laboratory methods like TLC, HPTLC etc. are used for standardisation of herbal drugs which help in deriving active chemical constituents present in the drug that are responsible for its mode of action in the body. However, *Acharaya Charak* quoted detailed guidelines to study standardisation of a herbal drug in a reference which is as follows –

“ तस्यापि परीक्षा इदं एवं प्रकृती एवं गुणं एवं प्रभावंविशेषण युक्तं इति ”

(च. वि. 8/87)

It can be concluded from the reference above that prime importance has been given to attributes like *Guna* (physical & chemical properties of a drug) and *Prabhav* (therapeutic actions performed by the drug after consumption).

Rasapanchaka as a tool for identification of herbal drugs according to *Nighantus - Raj Nighantu* emphasises on the importance of proper identification of any medicinal plant followed by nomenclature to avoid confusion and controversies of origin. A well known reference which states seven ways to identify & name a plant has been found in this book. Two of these methods of nomenclature are rightly said to be – Based on *Prabhav* (Pharmacological action), Based on *Virya* (Potency).

“ नामानि क्वचिद् रुढितः प्रभावात् देशोक्तया
क्वचिद् लान्छनोपमाभ्यां,
वीर्येण क्वचिद् इतराह्वयतिदेशात् द्रव्याणां
ध्रुवमिति सप्तथोदितानि ”
(रा. नि)

Rasapanchaka as a tool to assess pharmacological action of herbal drug according to *Dravyaguna Vigyaan* - A *dravya* (drug) is defined as a substance which possesses five in-built attributes – *Rasa* (taste), *Vipak* (Post digestive effect), *Virya* (Potency), *Guna*(Physical and chemical properties), *Prabhav* (Pharmacological action). *Acharya Charak* quotes that, a drug is like fabric material and these five attributes present in it are like the yarn of the fabric which cannot be separated, They produce certain local, systemic, therapeutic or toxic effects on the body depending upon the dose of administration of drug. Hence, it becomes very important to study in detail about *Ayurvedic* principles and compare them with the modern parameters to assess the *rasapanchaka* of a drug.

“ किञ्चिद् रसेन कुरुते कर्म वीर्येण चापरम् ,
द्रव्यं गुणेन पाकेन प्रभावेण च किञ्चन् ”

(च. सु. 26)

AIM - To review the basic concept of assessing *Rasapanchaka* of a *dravya* and find its practical applicability with the help of modern parameters.

OBJECTIVES

1. To review the importance of *Rasapanchaka* in clinical *Ayurveda*
2. To find out how *Rasapanchaka* is assessed according to *Ayurvedic* principles
3. To assign & review modern parameters/techniques in assessment of *Rasapanchaka* of a herbal drug.

MATERIALS AND METHODS

This study was thoroughly carried out after reviewing various classical *Ayurvedic* texts

like *Charak Samhita*, *Ashtang Hridaya*, *Raj Nighantu*, *Bhavprakash Nighantu* and reference books of *Dravyaguna vidnyanam* by different authors. In addition to that, previously published articles, papers relating to the concerned topic were also reviewed.

1. ASSESSMENT OF RASA

Ayurveda explains six types of *Rasas* that produce certain local and systemic therapeutic actions when consumed in a balanced state. A diet consisting of all the six rasas is said to be *Balyakara* (Promoting health & strength to the body). According to *Ayurveda*, *Rasa* of a substance can be perceived with the help of three methods –

- a) *Pratyaksha pramana/ Nipata* – through direct means (Eg. *Sharkara* is *Madhur Rasatmak*)
- b) *Anumana pramana* – By logical inferences (Eg. Poisons are *Katu Rasatmak*)
- c) *Aptopadesh* – As mentioned by the *Acharyas* in the classical texts.

A modern technique to assess *Rasa* (primary taste) and *Anurasa* (secondary taste) was performed by Dr. S.C Dhyani known as “Taste threshold assessment by Dilution method”.

A solution made up of powdered drug mixed in distilled water is used for this experiment. The study includes the healthy volunteers who have complete knowledge of six *rasas* and are free from any intervening diseases. Volunteers are requested to taste the solution and note down the taste they felt instantaneously and after half a minute. The taste perceived immediately is recorded as “*Pradhan Rasa*” & after half a minute is

recorded as “*Anurasa*”. The degree of variation of taste after adding distilled water to the solution little by little and administering the diluted solution to a point at which no taste is perceived by the volunteers is recorded as “Taste threshold of the drug.” The taste threshold thus recorded, is compared with the available threshold scales for the specific *Rasas*. Eg. The *Rasa* recorded can also be graded as *Madhura-Tara-Madhura Tama* with the help of this method.

2. ASSESSMENT OF VIRYA

According to *Ayurveda*, *Virya* of a drug can be observed by following methods –

- a) *Adhivasa/ Anumana* – Through logical inference (Though *Matsya* is *Madhura rasatmak*, it causes symptoms of *Pitta vardhan* because it is *Ushna Viryatmak*.)
- b) *Nipata* – Direct perception (*Maricha/ Black pepper* has stimulant local effect because it is *Ushna Viryatmak*)
- c) By both *Nipata* and *Adhivasa*.

By applying the law of thermodynamics, Dr. S. C. Dhyani elaborately mentioned that the *Virya* of the drug can be assessed with the help of Endothermic or Exothermic reaction it produces with different substances.

- a) Reaction with distilled water – 100 gm of drug is added to 100ml of distilled water, and the reactions are noted for an hour by considering the rise (*Ushna virya*) or fall (*Sheeta virya*) of temperature of the solution.
- b) Reaction with artificial gastric juices – If the solution produces exothermic reaction, it is *Ushna Virya* and if it

produces endothermic reaction, it is *Sheeta virya*.

- c) *Ushna Viryatmak* drugs increase appetite, BP, BMR while *Sheeta Viryatmak* drugs decrease appetite, BP, BMR.
- d) *Ushna Virya* drugs have decreased effect on sleep, urine and stool formation, whereas *Sheeta Virya* drugs help in increasing sleep, urine and promoting soft stool.

3. ASSESSMENT OF VIPAK

In *Ayurveda*, *Vipak* is generally assessed by the associated *Rasa* with the help of *Anumana & Aptopadesh Pramana*–

1. *Madhura, Lavana Rasas* undergo *Madhura Vipaka*
2. *Amla Rasa* undergo *Amla Vipaka*
3. *Katu, Tikta, Kashaya Rasas* undergo *Katu Vipaka*

Vipaka of the drug is usually inferred to as the Biotransformative phase of *Rasa* or the post digestive effect or the drug on the body or the product of metabolism of the *Rasa*. *Vipaka* can be assessed by its final action produced on the *Dosha, Sthayi Dhatu & Mala*. *Vipaka* of the drug can be only assessed by inference. Eg. *Madhura Vipaka* can be compared to the final formation of the glucose after the metabolism of food consumed. Available literature and new researches on this topic may further lead to invention of modern tools to assess *Vipaka*.

4. ASSESSMENT OF GUNA

All the drugs that possess medicinal properties are superior due to the presence of *Guna* in them. *Gun*as are the physical, chemical and pharmacological properties of the drug. 20 types of *Gurvadi Gun*as (*Sharir Guna*) have been explained which contribute

immensely in *Ayurvedic* treatment protocols. *Ayurveda* explains *Guna* on the basis of the effect observed after consumption or application of a medicinal drug. For eg. The property which consists of mass or weight is called as *Guru* whereas, the property which brings about lightness in the body is called *Laghu*. According to *Dravyaguna*, *Gun*as can be assessed by –

- a) *Pratyaksha* (Eg. *Khara guna* by *Sparsh grahyatva*)
- b) *Anuman* (Eg. *Sukshma Guna*)
- c) *Aptopadesh*

Certain modern parameters can be taken help of to make the concepts of *Guna* scientifically explainable. In this paper, an attempt has been made to explain four important *Gun*as in clinical practice.

a) *Guru Guna* – It can be assessed by measuring molecular weight of the substance. Eg. Proteins have high molecular weight, are heavy to digest & contribute in gaining body weight and mass as compared to other food components. *Guru Guna* can also be assessed by finding out the Glycemic index of a particular drug. Glycemic index is calculated from the raised blood sugar after consuming any substance. A drug having low glycemic index, breaks down slowly and causes slowed down digestion. *Masha* (*Vigna mungo*) has G.I 30 which causes prolonged digestion and heaviness.^[11]

b) *Laghu Guna* – Drugs having low Molecular weight and high Glycemic index may be considered as *Laghu* or light for overall digestion. *Mudga* (*Vigna radiata*) which is *Laghu* &

Pathyakar has G.I 48 which results in easy & fast digestion further leading to lightness of mind)

- c) *Sheeta Guna* – Physiological parameters like body temperature, perspiration, frequency of micturition, consistency of stool after consumption of the drug can be recorded. *Sheeta Guna dravya* decrease body temperature & sweating, increase the frequency of micturition and may cause constipation.
- d) *Ushna Guna* – *Ushna Guna dravya* increase body temperature & sweating, decrease the frequency of micturition and stimulate the process of digestion.

5. ASSESSMENT OF PRABHAV:

Prabhav stands for that property of a drug which is responsible for specific systemic action. *Acharyas* explained *Prabhav* under various contexts like – Unpredictable or Unexpected effects of a drug. Sometimes, these drugs do not follow the *Rasa-Virya-Vipaka* rules and are considered as *Vichitra pratyarabdha*. In modern era, *Prabhav* can be considered as “Pharmacodynamics” of a drug i.e pharmacological or therapeutic effects of the drug on various organs, body systems and physiological processes.

The *Prabhav* of a drug can be assessed with the help of lab techniques like TLC, HPTLC, HPLC that record various active chemical constituents of the drug which are responsible to produce certain pharmacological action in the body.

- a) *Haritaki* (*Terminalia chebula*) – It is *Kashaya Rasa pradhana, Madhur Vipaki, Ushna Dravya*, i.e ideally it must cause constipation or dry stool. But by the presence of Anthraquinone glucoside

present in it, it causes *Anulomana* (Mild laxative effect).^[13]

- b) *Goghruta* (Cow's ghee) – It has *Madhura Rasa, Madhura Vipaka and Sheet Virya* i.e it must ideally reduce appetite by lowering the digestive fire. But because of the presence of Omega 3, Omega 9 fatty acids, Conjugated linoleic acids, Palmitic acids, it stimulates the natural gastric juices and help in *Agni Deepan*.^[14]

DISCUSSION:

In this review study, an attempt has been made to encourage the combined use of modern & *Ayurvedic* parameters for assessment of *Rasapanchaka* for better global acceptance of principles. *Ayurvedic* pharmacology is completely dependant on the five main attributes of a medicinal drug which are – *Rasa, Virya, Vipaka, Guna, Prabhav*. A detailed review of various physiological parameters, laboratory techniques and clinical methods have been discussed that can be directly used in accurate assessment of the *Rasapanchaka*.

The principles of *Ayurveda* are eternal and time tested but its applications can be improvised as per changing time. These assessment parameters will provide a major boosting factor in conducting explorative research on various medicinal plants that are documented in *Ayurvedic* texts, undocumented, used by folklore, endangered or controversial. It can be also used in introducing newer medicinal plants of different species, origin & habitat for treatment purpose all over the world. The above discussed aim can only be fulfilled if

Ayurvedic principles are applied with modern parameters in practice.

Today, lot of new and unknown diseases with different mutated strains are emerging, hence it must be our duty to introduce new medicinal plants to maintain overall health of the mass population.

CONCLUSION

It can be concluded that *Rasapanchaka* plays a vital role in studying clinical *Ayurveda*. Therefore, utilising the basic principles and applying them practically with the help of modern parameters will create a firm base and help in yielding even more globally acceptable results.

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Conflict of Interest: Non / Source of funding: Nil

Cite this article:

*"Assesment of Rasapanchaka in accordance with Ayurvedic & modern parameters."
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Ayurlog: National Journal of Research in Ayurved Science- 2022; (10) (02): 01-06