ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Review Article

ASSESSMENT OF *RASAPANCHAKA*: A COMPREHENSIVE REVIEW BRIDGING AYURVEDIC WISDOM WITH MODERN SCIENTIFIC TECHNIQUES

Gunjan Dhiman[1]*, Chandni Gupta[2], Tanvi Sood[3], Akanksha Dhiman[1]

*[1]PG Scholar, [2]Associate Professor, [3]Lecturer, Department of Dravyaguna, R.G.G.P.G. Ayurvedic College and Hospital, Paprola, Kangra (H.P.), India.

Article info

Article History:
Received: 17-06-2026
Accepted: 20-07-2026
Published: 15-08-2026

KEYWORDS:
Rasapanchaka, Rasa, Guna, Virya, Vipaka, Dravya Guna, Phytochemistry, Pharmaco-dynamics, Integrative medicine.

ABSTRACT

Rasapanchaka (*Rasa, Guna, Virya, Vipaka, Prabhava)* are the basic framework of Ayurvedic pharmacodynamics, which helps in classifying *Dravya's* based on their taste, qualities, potency, post-digestive effect, and specific action. While modern pharmacology and phytochemistry have advanced analytical techniques for assessment of taste, quality and therapeutic action of *Dravya.* **Aim and Objective:** Assessing the Ayurvedic concept of *Rasapanchaka* by correlating it with modern techniques, is helpful in establishing a scientific and evidence-based understanding of drug action. **Data Source:** This review analyzed classical Ayurvedic texts and modern scientific literature on phytochemistry and pharmacognosy. **Conclusion: *Rasa* (taste)** can be correlates with specific phytochemical groups and each *Rasa* targeted specific taste receptors on tongue. *Madhura rasa* acts on (T1R2/T1R3) receptors. *Amla rasa* act on PKD2L1 channels. *Guna* influences biological actions such as nourishment, scraping etc. These can be assessed by using physicochemical tests (e.g. specific gravity, viscosity etc.). *Virya* (potency) measurable via thermography, TRP channel studies etc. *Vipaka* (post-digestive effect) can be assessed in vivo by monitoring food intake, body weight and excretory parameters etc. *Prabhava* can be correlated to non-specific pharmacological actions observed in modern pharmacology such as isomerization etc. Integrating *Rasapanchaka* assessment with modern scientific techniques enhances understanding of Ayurvedic pharmacodynamics, provides a framework for evidence-based integrative medicine. Such correlations support drug development, helpful in standardization of herbal drugs.

INTRODUCTION

The science of Ayurveda, the ancient Indian system of medicine, is fundamentally based on the understanding of *Dravya* (substance) through its intrinsic properties known as *Rasapanchaka*, which includes *Rasa* (taste), *Guna* (quality), *Virya* (potency), *Vipaka* (post-digestive effect), and *Prabhava* (specific action). [1] This classification is not merely descriptive but provides deep insights into the therapeutic potential and pharmacological actions of drugs. *Dravya Pariksha* (assessment of drug) is a very important aspect for the field of clinical Ayurvedic practices and

Access this article online

Quick Response Code

https://doi.org/10.47070/ijapr.v14i8.4334

Rasapanchaka helps to assess the therapeutic action of the drugs.[2] *Dravya* is described in *Padachatushya* (4 aspects that contributes in treatment i.e. Physician, Drug, Nursing staff and Patients)[3] and *Rasapanchaka* are useful for standardization of herbal drugs, as *Guna* and *Prabhava (Rasapanchaka)* are basis of *Dravya Pariksha*.[4]

Modern pharmacology and phytochemistry have developed advanced methods to assess the physicochemical and pharmacodynamic properties of medicinal plants. However, an integrative approach correlating Ayurvedic principles of *Rasapanchaka* with contemporary scientific parameters is of great importance. This approach can enhance the understanding of Ayurvedic pharmacodynamics, provide a scientific base for traditional therapeutic claims, and contribute to evidence-based integrative medicine.

This review aims to compile classical concepts of *Rasapanchaka*, methods of their assessment in Ayurveda, and correlate them with modern pharmacognostical, phytochemical and pharmacological parameters. This evaluation will strengthen the bridge between traditional knowledge systems and modern scientific system, helps to establish a comprehensive understanding of drug action for research, education and clinical practices.

MATERIAL AND METHODS

This article is a narrative, integrative type of review article. Classical Ayurvedic texts (*Charaka Samhita, Sushruta Samhita, Upanishads*) and modern scientific literature on phytochemistry, pharmacognostical parameters were analyzed thematically. Electronic databases such as PubMed, ResearchGate, and Google Scholar.

RESULT

Rasa

Rasa refers to the taste perceived immediately upon contact with the tongue, derived from *Prithvi* and *Jala Mahabhuta* predominance. [5] *Rasa*, their dominant *Mahabhuta* and effect on *Dosha* are listed in Table 1.

Table 1: *Rasa* their dominant *Mahabhuta* and effect on *Dosha*

***Rasa* (Taste)**	**Components (*Mahabhuta*) [6]**	**Effect on *Dosha*[7]**
Madhura (sweet)	*Prithvi + Jala*	Increases *Kapha,* pacifies *Vata* and *Pitta*
Amla (sour)	*Prithvi + Agni*	Increases *Pitta* and *Kapha*, pacifies *Vata*
Lavana (salty)	*Jala + Agni*	Increases *Pitta* and *Kapha*, pacifies *Vata*
Katu (pungent)	*Agni + Vayu*	Increases *Vata* and *Pitta*, decreases *Kapha*
Tikta (bitter)	*Akasha + Vayu*	Increases *Vata*, decreases *Pitta* and *Kapha*
Kashaya (astringent)	*Prithvi + Vayu*	Increases *Vata*, decreases *Pitta* and *Kapha*

Assessment of *Rasa* (taste)

In *Charaka Shamita Sarava Rasa Ahara* is described as *Balyakara* (promotes health) whereas *Ek Rasa Abhayasa* is *Dorbalyakar.* [8] In Ayurveda *Rasa* can be assessed by:

a) *Paratyaksha Pramana/ Nipata*: Through direct taste [9] (example: *Madhu* is *Madhur Rasatmak*).
b) *Anumana Pramana*: By logical inferences (*Deepan Dravya* are *Katu Rasatmak).*
c) *Aptopadesh*: As mentioned by the *Acharyas* in the classical texts.

By modern technique *Rasa* is assessed by taste threshold method [10], advanced taste sensors like artificial-lipid membrane and e-tongue etc. The six *Rasa* described in Ayurveda correlate with specific phytochemical groups identifiable in modern pharmacognosy by electronic tounge, which chemical is present is check by nuclear magnetic resonance, Fourier transform infrared spectroscopy etc. [11]

Rasa (taste) of a substance can be scientifically used to hypothesize its pharmacological and therapeutic action, which will reduce the time and cost in a drug discovery process as it can provide lead optimization for drug discovery and standardization. [12] *Rasa*, their correlation with secondary metabolites, taste receptors on which they act and their effect on body is listed in Table 2

Table 2: *Rasa*, their correlation with secondary metabolites, taste receptors on which they act and their effect on body

Rasa	**Correlated with secondary metabolites**	**Taste receptors**	**Effect on body**
Madhura (sweet) *rasa*	Sugars, glycosides and amino acids	Activate sweet taste receptors (T1R2 / T1R3)	Provide nutritive, anabolic effects essential for tissue building and energy.
Amla (sour) *rasa*	Organic acids such as citric, malic, tartaric, and ascorbic acids	Stimulating sour taste receptors (PKD2L1 channels)	Enhancing digestion, and improving mineral absorption, especially iron.
Lavana (salty) *rasa*	Correlated with mineral salts like sodium chloride and potassium chloride	Activating epithelial sodium channels (ENaC)	Maintaining electrolyte balance, enhancing taste perception and aiding digestion.
Katu (pungent) *rasa*	Correlated with terpenoids (volatile oil)	Stimulate TRP channels, particularly TRPV1 [14]	Producing thermogenic, digestive stimulant, and analgesic effects.
Tikta (bitter) *rasa*	Correlated with alkaloids, flavonoids, and	Interacting with bitter taste receptors (T2R	Detoxifying, antimicrobial, hepatoprotective and mild appetite-

	saponins	GPCR family)	suppressant effects
Kashaya (astringent) *rasa*	Due to tannins and other phenolic compounds	No specific receptors. They create astringency perceived via trigeminal nerve-mediated pathways	Reduction of excessive secretions, and anti-diarrheal, antioxidant, and wound-healing actions

Guna

Guna refers to the inherent qualities or attributes of a *Dravya* (substance) that determine its actions (*Karma)* and pharmacological effects. *Guna* is the inseparable and intrinsic to *Dravya*, they are responsible for action of a drug, but they don't act independently. [14] In *Charak Shamita Gunas* are classified as: *Sardha Guna* (5), *Gurvadi Guna* (20), Paradi *Guna* (10), *Adhatmik Guna* (06). [15] Gunas are physical, chemical and pharmacological properties of the drugs.

Assessment of *Gunas*

20 types of *Gurvadi Gunas (Sharir Guna)* have been explained which contributes immensely in Ayurvedic treatment.[16] Effect of all *Gurvadi Gunas* observed after consumption or after application. [17]

1. *Pratyaksha* (Direct observation)
   - (*Sparsha grahya* (by touch): *Mridu, Sheeta* and *Ushna*) [18]
   - (*Chakshu-Sparsha grahya: Vishda* and *Pichala*)
   - (*Chakshu grahya: Singhda* and *Ruksha*)
2. *Anumana* (Inference)
3. *Aptopadesh* (Authoritative testimony)

(*Karma* of *Gurvadi Guna* explains by *Hemadri*) *Guna* and their effect on body (Ayurvedic prospective) are listed in Table 3.

Table 3: *Guna* and their effect on body (*Ayurvedic* prospective)

Guna	**Effect of *Guna* on body by Hemadri [19]**
Guru	*Bhriyan*
Laghu	*Langhan*
Snigdha	*Kledan*
Ruksha	*Shoshan*
Shita	*Sthambana*
Ushna	*Svedana*
Tikshna	*Shodhana*
Manda	*Shamne*
Mridu	*Salathne*
Kathina	*Dridne*
Sthira	*Dharan*
Sara	*Prarnan*
Sandra	*Parsadan*
Drava	*Vilodan*
Sthula	*Sanvaran*
Sukshma	*Viveran*
Slakshna	*Roopan*
Khara	*Lakhen*
Visheda	*Shalne*
Pichila	*Leepan*

For example, for assessment of *Guru* and *Laghu Guna* 2 types of parameters (subjective and objective) are used in modern science. Subjective parameters are: BMI, waist to hip circumference ratio, mid arm circumference, Skin fold measurements. Objective parameters for assessment of *Guru -Laghu Guna* are specific gravity, bulk density, viscosity of solid and liquid. *Guna* and their physicochemical test (modern prospective) are listed in Table 4.

Table 4: *Guna* and their physicochemical test (Modern prospective)

S.No.	*Guna*	Physicochemical test
1	*Guru-Laghu*	Specific gravity, bulk density, tap density [20]
2	*Manda-Tikshna*	Viscosity, pH, chemical reactivity [21]
3	*Sheeta-Ushna*	Calorimetry, thermogenic tests.
4	*Snigdha-Ruksha*	Moisture content, fat content, water absorption index, oil absorption index and swelling index. [22]
5	*Shlakshna-Khara*	Texture analysis, microscopy
6	*Mridu-Kathina*	Hardness, compressibility
7	*Sthira-Chala*	Flowability, sedimentation rate
8	*Sukshma-Sthula*	Particle size analysis
9	*Sandra-Drava*	Physical state, viscosity
10	*Vishada-Picchila*	Mucilage/stickiness tests

Virya

Virya refers to the potency or active energy of a *Dravya* (substance) which brings about pharmacological action. [23] *Ushna virya* pacifies *Vata* and *Kapha*; aggravates *Pitta* where as *Shita virya* pacifies *Pitta*; aggravates *Kapha* and *Vata*.[24] *Ushna virya* show thermogenic effect, vasodilation, metabolic stimulation, CNS stimulant, enhances enzyme activity,[25] whereas *Shita virya* act on TRPM8 channels, vasodilation via suppression of RhoA/ROCK pathway effect, anti-hypertensive. [26]

Assessment of *Virya*

In Ayurveda it is explained that *Virya* of a drug is assessed by *Nipata, Adhivasa* and *Nipata-Adhivasa* which is established by using *Pratyaksha* and *Anumana Pramana*. *Virya* of *Marich* (Piper *niger*) i.e. *Tikshna* is found out by *Pratyaksha* and its *Ushna Virya* is assessed by *Pratakshya* and *Anumana Pramana*.[27] *Virya* of a drug can be assessed on the bases of *Aptopdesh* also, as it is mentioned in Ayurvedic texts that *Virya* of *Madhur rasa Dravyas* is mostly *Shita* and *Dravyas* that have *Amla* and *Katu rasa* have *Ushna Virya*.[28] Modern parameters used to assess *Virya* are listed in Table 5.

Table 5: Modern parameters used to assess *Virya*

Parameters	*Ushana virya*	*Shita virya*
Organoleptic test (sensory evaluation)	Produces warmth and burning sensation in mouth, skin or mucosa	Produces cooling effect.
Thermographic studies (infrared thermography)	Increased skin or mucosal temperature after application.	Reduction in temperature skin.
Phytochemical analysis [29]	Presence of pungent, thermogenic compounds (e.g. piperine, gingerol, capsaicin etc.).	Presence of menthol, santalol etc.
Thermogenic effect measurement (calorimetry / metabolic studies) [30]	Increases basal metabolic rate (BMR) and thermogenesis.	No increase or slight decrease in BMR.
Pharmacological activity [31]	Enhances circulation, increases enzyme activity, CNS stimulation	Vasoconstriction, CNS depression, sedation, anti-inflammatory and anti-pyretic.
Thermo chemical reaction [32]	Show exothermic reaction	Show endothermic reaction
7.Ellman's method [33]	Increase AchE activity, often have CNS stimulant effects, increasing cholinergic transmission breakdown.	Decrease AchE activity (inhibition), have CNS calming, neuroprotective, anticholinesterase activity, leading to inhibition of AChE. Example: Metanolic extract of leaf of *Psidium guajava* show AchE inhibitory effect.

8. Franz diffusion cell apparatus	Show high penetration rate i.e. *Ushna virya Dravya* have high Membrane transmission.	Show moderate penetration activity through mucosa and skin.
9. TRP Channels Activation	Activation of TRPV1 receptors (heat receptors) by Piperine etc.[34]	Activation of TRPM8 receptors (cold receptors). [35]

Vipaka

Vipaka is the final transformation or post-digestive effect of a *Dravya* (substance) after it undergoes complete digestion and metabolism in the body, producing specific effects on *Dosha, Dhatu*, and *Mala*.[36] *Vipaka* and its effect on *Dosha, Dhatu and Mala* are listed in Table 6.

Table 6: *Vipaka* and its effect on *Dosha, Dhatu and Mala*

Vipaka	**Effect on *Dosha* [37]**	**Effect on *Dhatu*[38]**	**Effect on *Mala* [39]**
Madhura Vipaka	Increases *Kapha*	Nourishes tissues, *Sukra vardhaka*	*Srusta vinmutrata*
Amla Vipaka	Increases *Pitta*	Mildly nourishes, digestive stimulant, *Sukra nasana*.	*Srusta vinmutrata*
Katu Vipaka	Increases *Vata*	Catabolic effect on *Dhatus, Sukranasana.*	*Badha vinmutrata*

Assessment of *Vipaka*

In Ayurveda by the knowledge of *Rasa* we are able to assess the *Vipaka* of any *Dravya*. As mentioned in Ayurvedic texts *Madhura* and *Lavana rasa Vipaka* is mostly *Madhura. Amla rasa* dominating *Dravyas Vipaka* is mostly *Amla. Katu Vipaka Dravyas* mostly have *Katu, Tikta, Kashaya rasa*.[40] Second method is by action produced on *Dosha, Dhatu* and *Mala.*[41] In vivo parameters which are used for the assessment of *Vipaka* are consumption of water, Quantity of fecal matter per day, urine output, quantity of water content in expelled fecal matter per day and body weight of the animal.[42] Assessment of *Vipaka* by In Vivo Model are listed in Table 7.

Table 7: Assessment of *Vipaka* Can Be Done In Vivo Model by Considering Following points

S.No	Parameters	***Madhura vipaka***	***Amla vipaka***	***Katu vipaka***
1	Consumption of food	Increases appetite due to nourishing *(Brihana)* and anabolic effect	Moderately increases appetite by enhancing digestive fire (*Depana)*	Decreases appetite due to drying (Ruksha) and *(Lekhana)* properties
2	Consumption of water	Increases due to sweet post-digestive effect causing *Kapha* enhancement and need for hydration	Moderately increases as it enhances *Pitta* and thirst	Decreases due to drying, pungent post digestive effect reducing *Kapha*
3	Quantity of fecal matter/ day	Increases	Moderately increases	Decreases
4	Urine output	Increases	Moderately increases	Decreases
5	Quantity of water content in expelled fecal matter / day	High water content in stool	Moderate water content in stool	Low water content in stool
6	Body weight	Increases	Moderately increases	Decreases

Assessment of *Vipaka* by in vitro techniques

Some studies attempt to simulate the digestive process in a laboratory setting (in-vitro) to understand the chemical changes, which are further useful in In-Vivo and further studies. These experiments focus on chemical analysis, such as using specific chemical reagents and physical processes (e.g., heating, neutralizing pH) to observe the transformation of the substance, rather than a single technique.

For example, in vitro study is conducted on *Shunthi (Zingiber officinale*), *Adraka* and *Haridra (Curcuma longa)* in this study In-vitro digestive end product of *Shunthi* gives glucose and oily sensation on tongue with the absence of pungent taste. In-vitro digestive end product of *Adarka* gives a rough and burning sensation on tongue with a pungent taste. In-vitro digestive end product of *Haridra* gives pinching sensation on tongue like *Aakarakarbha* (*Anacyclus pyrethrum*) as that of undigested *Haridra* gives a bitter taste[43]. Hence, it can be concluded the end product of in-vitro digestion of *Shunthi, Adraka,* and *Haridra*

parallel to the *Vipaka* Ayurvedic texts i.e., *Shunthi* have *Madhura Vipaka* where as *Adraka* have *Katu Vipaka*.[44]

Prabhava

Prabhava denotes as a specific, unique action of a substance that cannot be explained merely by its *Rasa, Guna, Virya,* and *Vipaka*. It is considered an inexplicable specific effect of *Dravya*.[45] *Acharya* P.V.Sharma mentioned some of *vichitra prathyarabdha Dravyas*[46] *Dravyas* which shows *Vichitra prathyarabdha* are listed in Table 8.

Table 8: *Dravyas* which shows *Vichitra prathyarabdha*[46]

S.No	*Dravya*	*Prathyarabdha*	*Guna*	*Karma*
1	*a) Godhooma* *b) Yava*	*Samanya prathyarabdha* *Vichitra prathyarabdha*	*Madhura, Guru* *Madhura, Guru*	*Vata hara* *Vata kara*
2	*a) Dugdha* *b) Matsya*	*Samanya prathyarabdha* *Vichitra prathyarabdha*	*Madhura, Guru* *Madhura, Guru*	*Shita virya* *Ushna virya*
3	*a) Dhataki* *b) Haritaki*	*Samanya prathyarabdha* *Vichitra prathyarabdha*	*Kashya rasa* *Kashya rasa*	*Shita virya, Ghari* *Ushna virya, Rechak*
4	*a) Amalki* *b) Kapitha*	*Samanya prathyarabdha* *Vichitra prathyarabdha*	*Amla rasa* *Amla rasa*	*Sara karma* *Ghari karma*
5	*a) Shukar masa* *b) Simha masa*	*Samanya prathyarabdha* *Vichitra prathyarabdha*	*Madhura, Guru* *Madhura, Guru*	*Madhura vipaka* *Madhura vipaka*

***Prabhava* in modern pharmacology**

The concept of *Prabhava* can be correlated with the modern concept of isomerization, receptor specific or genomic interactions etc. Network pharmacology is useful in explaining why some drugs show specific action that cannot be predicted by their known properties.

Isomers are compounds that have the same chemical formula but different structures. Because of their different structure, they exhibit different therapeutic actions, despite of same chemical formula.

In *Lavanga (Syzygium aromaticum)* eugenol (allyl side chain) and isoeugenol (propenyl side chain) are structural isomers with molecular formula $C_{10}H_{12}O_2$, instead of having same molecular formula but exhibits different therapeutic actions as isoeugenol shows higher reactive oxygen species production and cytotoxicity in In vitro study. [48] Structure of Eugenol and Isoeugenol are shown in fig 1.

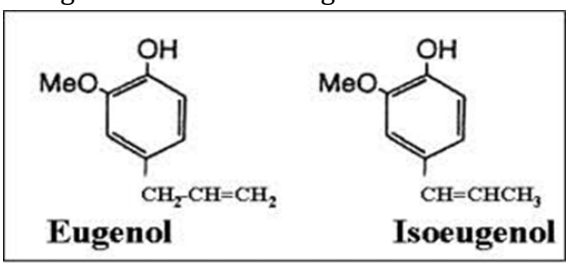

Fig 1: Structure of Eugenol and Isoeugenol[49]

In *Gugglu (Commiphora mukul*) E-guggulsterone and Z-guggulsterone are geometrical isomers, share the same molecular formula of $C_{21}H_{28}O_2$. They differ in their spatial arrangement around a carbon-carbon double bond, which results in differences in their physical and biological properties. They both have different retention factor (Rf) values of E- guggulsterone in chromatography (e.g., Rf of 0.38 by HPTLC in one study) and Rf values of Z -guggulsterone in chromatography is 0.46 by HPTLC in the same study).[50] Z-guggulsterone significantly reduced depressive-like behavior in mice in behavioral tests (tail suspension and forced swim). It activated brain-derived neurotrophic factor (BDNF) signaling and supported hippocampal neurogenesis-mechanisms important in mood regulation but E-guggulsterone does not exhibits such therapeutic property.[51] The structural difference between E-guggulsterone and Z-guggulsterone is shown in figure 2[52] Structure of E-guggulsterone and Z-guggulsterone[49] shows in fig 2.

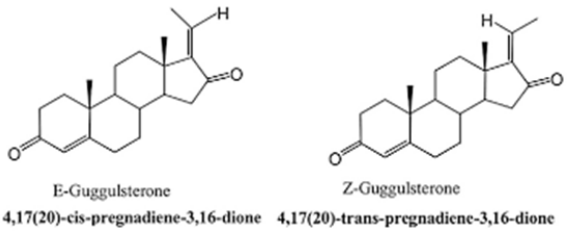

Fig 2: Structure of E-guggulsterone and Z-guggulsterone [52]

Cisplatin and Transplatin are geometric isomers, having same structural formula Pt $(NH_3)_2Cl_2$. Cisplatin has a cis configuration, meaning the two ammine (NH_3) ligands are adjacent to each other, as are the two chloride (Cl) ligands. Transplatin has a trans configuration, with the identical ligands opposite each other. This structural difference is critical for their interaction with biological molecules. Cisplatin is anticancer agent, its trans-isomer, Transplatin is clinically ineffective.[53] The structural difference between Cisplatin and Transplatin is shown in figure

3.[54] Structure of Cisplatin and Transplatin are shown in figure 3.

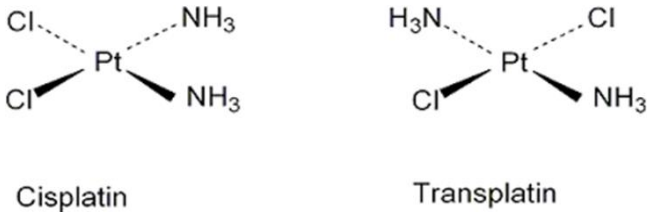

Fig 3: Structure of Cisplatin and Transplatin[54]

DISCUSSION

In *Dravya Guna* there is a principal of *Sapta padartha* in which *Rasapanchaka* is also included. *Raspanchaka (Rasa, Guna, Virya, Vipaka, Prabhava)* provides basis to understand pharmacological action of a drug. When *Rasapanchak* is assessed on the modern parameters it shows similar results which are already explain by *Acharyas* a long ago. When all components of *Rasapanchaka* is measure through modern scientific parameter, each component is aligned with measurable biochemical and physiological principals. But in Ayurveda *Rasapanchaka* is not only focus on molecules and receptor mechanism like modern pharmacology but it interprets therapeutic action through experiments (*Partyaksha*). *Rasa* (*Madhura* (sweet*) rasa* is primarily due to sugars, glycosides, and amino acids, which activate sweet taste receptors (T1R2/T1R3) and provide nutritive, anabolic effects essential for tissue building and energy). It can be measurable modern concept of sensory receptor activation. *Guna* can be measured by physiochemical properties (specific gravity, solubility, viscosity etc.). *Veerya* can be accessed by biochemical method (Ellman's method), thermochemical reactions, Franz diffusion cell apparatus, TRP Channal activation studies. *Vipaka* can be accessed by both in vitro and in vivo models and *Prabhava* can be explained by the phenomena of isomerization, receptor specific or genomic interactions seen in molecular pharmacology, where a minor change in structure leads to unique pharmacological actions.

The justification of *Rasapanchaka* through modern parameters bridges classical Ayurvedic wisdom with contemporary science. This convergence promotes a holistic pharmacological approach that appreciates both Ayurvedic and molecular dimensions of drug activity. Establishing these correlations opens the way for evidence-based Ayurveda, innovative drug discovery, and a deeper scientific appreciation of ancient pharmacological principles in modern healthcare.

CONCLUSION

This review highlights that the Ayurvedic concept of *Rasapanchaka- Rasa, Guna, Veerya, Vipaka,* and *Prabhava*- can be interpreted through modern pharmacological and biochemical parameters. Establishing these parallels bridges between traditional Ayurvedic wisdom and modern scientific understanding, transforming classical descriptive knowledge into quantifiable pharmacodynamic insights.

By linking ancient principles with measurable biological mechanisms, *Rasapanchaka* emerges as a comprehensive and integrative model of pharmacology. This approach not only validates Ayurveda's old concepts but it also promotes its evidence-based researches, helpful in global acceptance of Ayurvedic formulations. Future studies may be done on large scale and in vivo and in vitro studies can be done. Integrating *Rasapanchaka* with modern parameters unites the wisdom of traditional medicinal therapy with the precision of science, enriching both domains of medical knowledge which is helpful in creating holistic and integrative approach.

Ackowledgement

I sincerely acknowledge the guidance and academic support of my teachers who contributed to my understanding of the concept of *Rasapanchaka*. I also extend my thanks to my institution for providing a supportive research environment so that I'm able to complete this article.

REFERENCES

1. Bhavamishra. Bhavaprakasha, Purva Khanda. Varanasi: Chaukhamba Sanskrit Series; Chapter 6, Verse 163.
2. Vaidya S, Ramteke AD, Gavand R. Assessment of Rasapanchaka in accordance with Ayurvedic and modern parameters. [National Journal of Research in Ayurveda Science]. [April-June 2022]; Volume: 10th [Issue: 2nd]
3. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Vimanasthana, Rogavisheshaniya Vimana. Varanasi: Chaukhambha Bharati Academy; 2015. Chapter 8, Verse 87, p. 769. Available from: http://niimh.nic.in/ebooks/ecaraka
4. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Khudagachatushpada Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2015. Chapter 9, Verse 3, p. 191. Available from: http://niimh.nic.in/ebooks/ecaraka
5. Kushwaha HCS, editor. Charaka Saṃhita, Sutrasthana, Chikitsaprabhritya Adhyaya. Varanasi: Chaukhambha Orientalia; 2016. Chapter 26, Verse 40, p. 275. Available from: http://niimh.nic.in/ebooks/ecaraka
6. Kushwaha HCS, editor. Charaka Saṃhita, Sutrasthana, Chikitsaprabhritya Adhyaya. Varanasi: Chaukhambha Orientalia; 2016. Chapter 26, Verse 40, p. 275. Available from: http://niimh.nic.in/ebooks/ecaraka
7. Kushwaha HCS, editor. Charaka Saṃhita, Sutrasthana, Dirghajeevitiya Adhyaya. Varanasi: Chaukhambha Orientalia; 2016. Chapter 1, Verses 66–67, p. 30. Available from: http://niimh.nic.in/ebooks/ecaraka

8. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Yajpurushiya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2015. Chapter 25, Verse 40, p. 476. Available from: http://niimh.nic.in/ebooks/ecaraka
9. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2015. Chapter 26, Verse 66, p. 513. Available from: http://niimh.nic.in/ebooks/ecaraka
10. Joshi PR, Shukla VJ, Patel BR, Kulkarni A, Chatterjee B. Probable Rasanirdharana model (dilution method) in Ayurveda for crude drugs: a preliminary study. Ayurpharm Int J Ayur Alli Sci. 2012; 1(5): 117–123.
11. Jayasundar R, Ghatak S. Spectroscopic and E-tongue evaluation of medicinal plants: A taste of how rasa can be studied. J Ayurveda Integr Med. 2016 Oct-Dec; 7(4): 191-197. doi: 10.1016/j.jaim.2016.09.003. Epub 2016 Nov 23. PMID: 27889428; PMCID: PMC5192283
12. Rath SK, Panja AK, Nagar L, Shinde A. The scientific basis of rasa (taste) of a substance as a tool to explore its pharmacological behavior. Anc Sci Life. 2014 Apr-Jun; 33(4): 198-202. doi: 10.4103/0257-7941.147419. PMID: 25593398; PMCID: PMC4293745.
13. Jayasundar R, Ghatak S. Spectroscopic and E-tongue evaluation of medicinal plants: A taste of how rasa can be studied. J Ayurveda Integr Med. 2016 Oct-Dec; 7(4): 191-197. doi: 10.1016/j.jaim.2016.09.003. Epub 2016 Nov 23. PMID: 27889428; PMCID: PMC5192283
14. Dong Y, Yin Y, Vu S, Yang F, Yarov-Yarovoy V, Tian Y, Zheng J. A distinct structural mechanism underlies TRPV1 activation by piperine. Biochem Biophys Res Commun. 2019 Aug 20; 516(2): 365-372. doi: 10.1016/j.bbrc.2019.06.039. Epub 2019 Jun 15. PMID: 31213294; PMCID: PMC6626684
15. Vaidya Harish Chandra Singh Kushwaha, editor. Charak Sutra Sthana, Deeragjeevtiya Adhya, Chaukhambha Orientalia, Varanasi; 2016. Chapter 1, Verse 51, p.21
16. Vaidya S, Ramteke AD, Gavand R. Assessment of Rasapanchaka in accordance with Ayurvedic and modern parameters. [National journal of research in Ayurved Science]. [April-June 2022]; Volume: 10th [Issue: 2nd]
17. Shastri KA, editor. Sushruta Saṃhita of Maharṣi Suśruta with Ayurveda-Tattva-Sandipika Hindi commentary. Part I. Varanasi: Chaukhambha Sanskrit Sansthan; 2020. Chapter 46, Verse 514.
18. Shastri KA, editor. Sushruta Saṃhita of Maharṣi Suśruta with Ayurveda-Tattva-Sandipika Hindi commentary. Part I. Varanasi: Chaukhambha Sanskrit Sansthan; 2020. Chapter 41, Verse 15, p. 200.
19. Tripathi B, editor. Aṣṭāṅga Hṛdaya of Vāgbhaṭa with Hemadri's commentary. Sutrasthana. Varanasi: Chaukhambha Sanskrit Pratishthan; 2012. Chapter 1, Verse 18.
20. Harini A, Hegde PL. Practical Dravyaguna Vijnana. Vol. II. New Delhi: Chaukhambha Publications; 2024.
21. Harini A, Hegde PL. Practical Dravyaguna Vijnana. Vol. II. New Delhi: Chaukhambha Publications; 2024.
22. Harini A, Hegde PL. Practical Dravyaguna Vijnana. Vol. II New Delhi: Chaukhambha Publications; 2024.
23. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2015. Chapter 26, Verse 66, p. 513. Available from: http://niimh.nic.in/ebooks/ecaraka
24. Singh R, Singh G. Biological significance of Ayurveda concepts of Rasa, Guna, Virya and Vipaka. Int J Ayush. 2021; 10(2): 45–52.
25. Mansour MS, Ni YM, Roberts AL, et al. Ginger enhances thermic effect of food and satiety. Metabolism. 2012; 61(10): 1347–1352. doi:10.1016/j.metabol.2012.03.016.
26. Silva H. Current knowledge on vascular effects of menthol. Front Physiol. 2020; 11: 298. doi:10.3389/fphys.2020.00298.
27. Pandit Kashinath Panday, Dr. Gorakhnath Chaturvedi, editor, Charak Sutra Sthana, Atryabhderkapya adhya, Chaukhambha Orientalia, Varanasi; 2020, Chapter 26, Verse 66, p.no.-513 Also Available from: https://niimh.nic.in/ebooks/ecaraka
28. Pandit Kashinath Panday, Dr. Gorakhnath Chaturvedi, editor, Charak Sutra Sthana, Atryabhderkapya adhya, Chaukhambha Orientalia, Varanasi; 2020, Chapter 26, Verse 66, p.no.-508 Also Available from: https://niimh.nic.in/ebooks/ecaraka
29. Abhay Gandhi. Pharmacological insights into Virya: correlating Ayurvedic potency with active principles. Asian J Dravyaguna Pharmacol. 2024; 1(3): 34–37.
30. Abhay Gandhi. Pharmacological insights into Virya: correlating Ayurvedic potency with active principles. Asian J Dravyaguna Pharmacol. 2024; 1(3): 34–37.
31. Abhay Gandhi. Pharmacological insights into Virya: correlating Ayurvedic potency with active principles. Asian J Dravyaguna Pharmacol. 2024; 1(3): 34–37.
32. Gupta AK, Gupta T, Goyal C. Empirical analysis of veerya by exothermic reaction in Ayurvedic drugs. Int J Herb Med. 2020; 8(2): 12–13.
33. Varshini M, Kumudavalli N, Pandy V. Ellman's assay using chicken and fish brain extracts an alternate to rodent brain extract: acetylcholinesterase inhibitory activity of methanolic extract of Psidium guajava Linn. Clin Phytosci. 2025; 11: 11. Available from: https://clinphytoscience.springeropen.com/articles/10.1186/s40816-025-00398-x
34. Dong Y, Yin Y, Vu S, Yang F, Yarov-Yarovoy V, Tian Y, Zheng J. Structural mechanism underlying TRPV1 activation by piperine. Biochem Biophys Res Commun. 2019; 516(2): 365–372. doi:10.1016/j.bbrc.2019.06.039.

35. Watanabe T, Terada Y. Food compounds activating thermosensitive TRP channels. J Nutr Sci Vitaminol. 2015; 61(Suppl): 86–S88.
36. Pandit Kashinath Panday, Dr. Gorakhnath Chaturvedi, editor Charak Sutra Sthana, Atreyabhderkapya adhya, Chaukhambha Orientalia, Varanasi; 2020. Chapter 26, Verse 13, p.371
37. Singh R, Singh G. Biological significance of Ayurveda concept of Rasa, Guna, Virya and Vipaka. Int J Ayush. 2021; 10(2): 45-52.
38. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2020. Chapter 26, Verse 66, p. 444 Available from: http://niimh.nic.in/ebooks/ecaraka
39. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2020. Chapter 26, Verse 66, p. 444 Available from: http://niimh.nic.in/ebooks/ecaraka
40. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2020. Chapter 26, Verse 66, p. 444 Available from: http://niimh.nic.in/ebooks/ecaraka
41. Shastri K, Chaturvedi G, editors. Charaka Saṃhita, Sutrasthana, Atreyabhadrakapya Adhyaya. Varanasi: Chaukhambha Bharati Academy; 2020. Chapter 26, Verse 66, p. 447 Available from: http://niimh.nic.in/ebooks/ecaraka
42. Sarath SA, Jayanthi CK. Assessment of Vipaka of Drynaria quercifolia Linn. in animal models. Int J Ayurvedic Herb Med. 2021; 11(6): 4087–4096. doi:10.47191/ijahm/v11i6.05
43. Handibag DK. Studies on the effect of in vitro digestion of some dravyas with respect to their Vipaka. J Ayurveda Integr Med Sci. 2023; 8(4): 5. doi:10.21760/jaims.8.4
44. Sharma PV, editor. Dravyaguna-Vijnana. Part 2 (Audbhida Aushadha-Dravya). Varanasi: Chaukhambha Bharati Academy; 2017. p.no.-331
45. Vaidya Harish Chandra Singh Kushwaha, Charak Sutra Sthana, Atryabhderkapya Adhya, Chaukhambha Orientalia, Varanasi; 2016, Chapter 26, Verse 67, p.395
46. Sharma PV, editor. Dravyaguna-Vijnana. Part 2 (Audbhida Aushadha-Dravya). Varanasi: Chaukhambha Bharati Academy; 2017. p.283
47. Kishimoto T, Yoshikawa Y, Yoshikawa K, Komeda S. Effects of cisplatin and transplatin on DNA structure. Int J Mol Sci. 2019; 21(1): 34. doi:10.3390/ijms21010034.
48. Atsumi T, Fujisawa S, Tonosaki K. Antioxidant and pro-oxidant activities of eugenol and isoeugenol. Toxicol In Vitro. 2005; 19(8): 1025–1033. doi:10.1016/j.tiv.2005.04.012
49. ResearchGate. Eugenol causes melanoma growth suppression through inhibition of E2F1 transcriptional activity [Internet]. [cited 2025 Dec 17]. Available from: https://www.researchgate.net/figure/Structure-of-eugenol-and-the-isomeric-isoeugenol_fig1_8154044
50. Dave PN, Chopda LV. Review on biological activity and determination of E & Z-guggulsterones concentration by HPLC and HPTLC methods. Int J Chem Stud. 2013; 1(3): 166–175.
51. Liu FG, Hu WF, Wang JL, Wang P, Gong Y, Tong LJ, Jiang B, Zhang W, Qin YB, Chen Z, Yang RR, Huang C. Z-guggulsterone produces antidepressant-like effects in mice through activation of the BDNF signaling pathway. Int J Neuropsychopharmacol. 2017; 20(6): 485–497. doi:10.1093/ijnp/pyx009. PMID: 28339691; PMCID: PMC5458345.
52. ResearchGate. Variation in E and Z-guggulsterones of Commiphora wightii [Internet]. 2010 [cited 2025 Dec 17]. Available from: Structure of E and Z-guggulsterone
53. Kishimoto T, Yoshikawa Y, Yoshikawa K, Komeda S. Different effects of cisplatin and transplatin on the higher-order structure of DNA and gene expression. Int J Mol Sci. 2019; 21(1): 34. doi:10.3390/ijms21010034. PMID: 31861648; PMCID: PMC6981875.
54. Cisplatin and transplatin [Internet]. Wikimedia Commons; 2009 [cited 2026 Mar 23].

Cite this article as:
Gunjan Dhiman, Chandni Gupta, Tanvi Sood, Akanksha Dhiman. Assessment of Rasapanchaka: A Comprehensive Review Bridging Ayurvedic Wisdom with Modern Scientific Techniques. International Journal of Ayurveda and Pharma Research. 2026;14(8):57-61.
https://doi.org/10.47070/ijapr.v14i8.4334
Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**
Dr. Gunjan Dhiman
PG Scholar,
Department of Dravyaguna,
R.G.G.P.G. Ayurvedic College and Hospital Paprola, Kangra (H.P.).
Email: gunjandhiman1998@gmail.com