



# Critical Evaluation of Ayurvedic Rasa Pariksha (Gustatory Examination) in Diagnosis and Prognosis of Diseases WSR to Modern Gustometry

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**Review Article**

**Volume 6 Issue 3**

**Received Date:** June 06, 2022

**Published Date:** July 05, 2022

**DOI:** 10.23880/jonam-16000352

## Abstract

Ancient Ayurvedic acharyas have described many clinical methods to diagnose the disease. Rasa Pariksha (Gustatory examination) is one of them. Acharya Charaka, described this test in Vimansthana and Indriyasthana separately. The sense of taste and smell are related to each other as both use same type of receptors. There are two aspects of gustatory examination. One is about the taste of body fluids as and another is loss or alteration of taste on tongue. Acharya Charaka, is of the view that, although Gustation is sensory subject, but while testing the taste of various body fluids like urine, sweat, stool etc, it should be tested by inference. For e.g. the sweetness of urine (glycosuria) may be tested by observing the ants to it. By observing the flies on patient's body physician should assume sweet taste of the body (hyperglycemia). If there is doubt of disease being Raktapitta (coagulopathy), the little amount of blood should be fed to either dog or crow. If they taste it then it is the pure blood. If they do not intend to taste it then it is the Rakta-Pitta. In Ayurveda, animal model was developed to test the taste. It is observed and concluded that, Ayurvedic Rasa pariksha is helpful in diagnosing and prognosing the diseases. As per modern medical science, the four taste qualities, sweet (with sucrose), salty (with sodium chloride), sour (with citric acid), and bitter (with quinine hydrochloride) are assessed. Modern gustometry methods such as

- Magnitude Matching
- Spatial Testing
- Electrogustometry may be used to test the particular loss of taste.

**Keywords:** Rasa; Tongue; Taste; Gustation

## Introduction

In Ayurveda, Rasa Pariksha is used to diagnose the disease and also to decide the prognosis of the disease.

Acharya Charaka, described this test in Vimansthana and Indriyasthana separately. The sense of taste and smell are related to each other as both use same type of receptors. The message of taste (chemical secreted as neurotransmitter)

moves from the taste buds in the tongue to the gustatory area of brain through the cranial nerves. Each class of receptors on tongue send specific signal to the brain where it is perceived as sweet or bitter. True loss of taste is very rare. Most of the time, patient with loss of taste is actually suffering from olfactory loss as there is inability to perceive the smell of the food. Patient with true loss of taste is very much uncomfortable. Depending upon the gustatory pathway involved, alteration of taste could be complete loss (ageusia), partial loss (hypogeusia), sensation of altered taste (dysgeusia), taste distortion with stimulus (parageusia) or without stimulus (phantgeusia).

There are two aspects of gustatory examination. One is about the taste of body fluids as and another is loss or alteration of taste on tongue. Acharya Charaka, is of the view that, although Gustation is sensory subject, but while testing the taste of various body fluids like urine, sweat, stool etc, it should be tested by inference. For example the sweetness of urine (glycosuria) may be tested by observing the ants to it. By observing the flies on patient's body physician should assume sweet taste of the body (hyperglycemia). If there is doubt of disease being Raktapitta (coagulopathy), the little amount of blood should be fed to either dog or crow. If they taste it then it is the pure blood. If they do not intend to taste it then it is the Rakta-Pitta.

## Review of Literature

Acharya Charaka, is of the view that, although Gustation is sensory subject, but while testing the taste of various body fluids like urine, sweat, stool etc, it should be tested by inference. For example the sweetness of urine (glycosuria) may be inferred by observing the ants to it. By observing the flies on patient's body physician should infer sweet taste of the body (hyperglycemia). If there is doubt of disease being Raktapitta (coagulopathy), the little amount of blood should be fed to either dog or crow. If they taste it then it is the pure blood. If they do not intend to taste it then it is the Rakta-Pitta [1].

The examiner, who is interested in knowing the remained life span of the patient with respect to taste, should inquire about it to the patient. It can also be inferred. The body taste of the person, who is about to die, changes in two ways. In some patients, it becomes unpleasant whereas in some it becomes exceedingly sweet. Flies, lice, stinging insects and mosquitoes get away from the body of the patients who have unpleasant taste. Whereas, in some patients, taste becomes exceedingly sweet and flies are constantly attracted towards them even after bath and application of cosmetics [2].

The diseases which are produced due to inadequate, excessive or perverted contact of sensations with the respective sensory organ, are called as Sensory diseases. The examples of inadequate, excessive or perverted gustation are as follows [3,4]

### Heena Yoga

Lack of balanced diet leads to malnutrition and emaciation.

### Ati Yoga

**Rasanam Atyadanam:** The excessive intake of particular taste (rasa) leads to particular diseases. As per Ayurveda;

- Excessive intake of Madhur rasa (sweet) may lead to obesity and diabetes.
- Excessive intake of Lavan (salty) rasa leads to Shotha (swelling), Khalitya (balding) and Palitya (greying)
- Excessive intake of Tikta (bitter) rasa leads to emaciation and Vatavikaras.
- Excessive intake of Katu (Acrid) rasa leads to GERD, vertigo, infertility.
- Excessive intake of Amla (sour) leads to teeth sensitivity [5].

### Mithya Yoga

**Rasanam Visham Aadanam:** Consumption of rasas in disproportionate manner and consuming incompatible rasas.

Olfaction and gustation is commonly affected during the old age. Particularly there is partial loss of bitter and sour tastes in old age. Smoking also affects the taste sensitivity and discrimination. Patients with diabetes mellitus may experience taste disturbances due to diabetes-related neuropathies. Cancerous lesion of floor of the mouth or infratemporal area may produce a loss of taste. Patients with chorda tympani injuries complain of phantom taste like metallic, sometimes salty or bitter. Injury to the chorda tympani can occur secondary to chronic otitis media, Bell's palsy, Ramsay Hunt syndrome, or Lyme disease. Trauma to the lingual or pharyngeal branches of cranial nerve IX during tonsillectomy also can result in the taste dysfunction. Pathologic involvement of cranial nerves IX and X with other neurologic deficits, may give rise to loss of taste.

As per Ayurveda, inadequate, excessive or perverted gustation may result in gustatory abnormalities. Heena Yoga (Inadequate contact) of Rasa is as like long term deprivation of food, Ati Yoga (Excessive Contact) of Rasa is as like long term over nourishment and Mithya Yoga (Perverted contact) of Rasa is as like consumption of incompatible and

disproportionate tastes.

### Evaluation of Taste of Body Fluids As Per Ayurveda

By feeding it to animals and by objective inference.

### Evaluation of Taste of Tongue As Per Modern Science

Generally, the four taste qualities, sweet (with sucrose), salty (with sodium chloride), sour (with citric acid), and bitter (with quinine hydrochloride) is assessed. The differences between the right and the left sides of the mouth are evaluated [6].

Usually, two testing methods are used,

- Magnitude Matching
- Spatial Testing

#### Magnitude Matching

This test depends on patients having normal hearing. Magnitude matching involves one sensory modality that is normal (e.g., hearing) compared with deficiency in another sensory modality (eg, taste). In this test, the patient tastes each solution of sodium chloride, sucrose, citric acid, and quinine hydrochloride acid of several concentrations and at the same time the sound tones with several loudness levels up to 1000 Hz are presented through headphones. The patient estimates the perceived magnitude for each

stimulus. The results are scored in relation to the loudness function. Patients having hypogeusia require stronger taste concentration with weaker tones than normal patients.

#### Spatial Testing

In this test, taste function in various areas of the tongue and oral cavity is measured, using a spatial test. Cotton-tipped swabs soaked with a strong concentration of four basic tastes are placed randomly on the four quadrants of the tongue and both sides of the soft palate. Patients then identify the quality of the taste and rate the intensity with a number from 1 to 10, with 10 being the strongest. The concentration is titrated to obtain the threshold of sensitivity. Recently, several tests have been developed in Germany that resemble this technique but are more standardized. Another important factor to determine in gustatory testing is the differentiation between the genuine stimulus and the phantom taste. Patients are asked to rinse their mouth with water. Elimination of the unpleasant taste suggests that the stimulus is real. Available spatial and magnitude matching tests of gustatory function are subjective and unable to detect psychogenic disease or malingering.

#### Electrogustometry

Electrogustometry is based on a weak electrical stimulus producing a sour taste when applied to the taste receptors. It is very to administer but it is applicable for evaluation of sour taste only.

### Observations (Table1-3)

Rasa Pariksha – Ayurvedic View	
Diagnostic Aspect	Prognostic Aspect
Sweetness of urine ( <b>glycosuria</b> ) may be inferred by observing the ants to it.	Flies may attract towards the dying patient whose body becomes sweet exceedingly.
By observing the flies on patient's body physician should infer sweet taste of the body ( <b>hyperglycemia</b> ).	Insects, mosquitoes, flies, lice may go away from the dying patient whose body had developed the unpleasant taste
In true <i>Raktapitta</i> ( <b>coagulopathy</b> ), dog or crow doesn't eat the blood	

**Table 1:** Ayurvedic View of Rasa Pariksha.

Sensory Organ	Inadequate Contact	Excessive Contact	Perverted Contact
<i>Rasna-Indriya</i> (Tongue)	Less intake of compatible tastes	Over consumption of compatible tastes	Consumption of incompatible tastes

**Table 2:** Asatmya Indriyarthasanyoga of Tongue.

Gustometry – Modern View	
Magnitude Matching	Spatial Testing
Normal hearing is compared with altered taste.	Taste function in various areas of the tongue and oral cavity is measured.
In this test, the patient tastes each solution of sodium chloride, sucrose, citric acid, and quinine hydrochloride acid of several concentrations and at the same time the sound tones with several loudness levels up to 1000 Hz are presented through headphones.	Cotton-tipped swabs soaked with a strong concentration of four basic tastes are placed randomly on the four quadrants of the tongue and both sides of the soft palate.

**Table 3:** Modern View of Gustometry.

## Discussion

In Ayurveda, Rasa Pariksha is used to diagnose the disease and also to decide the prognosis of the disease. Acharya Charaka, described this test in Vimansthana and Indriyasthana separately. Acharya Charaka, is of the view that, although Gustation is sensory subject, but while testing the taste of various body fluids like urine, sweat, stool etc, it should be tested by inference. This is rationalistic also as it is absurd to taste these body fluids. As there were no biotechnical advances to test the sugar present in urine (glycosuria) in ancient times, hence, physicians use to feed these body fluids to the animals and use to draw inferences to reach to diagnosis. For e.g. the sweetness of urine may be inferred by observing the ants to it. Similarly, to test the elevated sugar in blood (hyperglycemia), physician use to observe the flies on patient's body and use to infer the sweet taste of the body. To test, the pure blood ancient physicians use to feed the little amount of blood to either dog or crow. If they taste it then it is the pure blood. If they do not intend to taste it then it is the impure blood. This test was done in context of Raktapitta (coagulopathy).

The coagulopathy results due to various pitta aggravating causes ranging from pungent acidic foods to various microbial and biochemical toxins. As there was no biotechnical advances to test the toxin in the blood, ancient physician use to feed the blood to the dog or crow to reach to the diagnosis. This test was based on the fact that animals by their inborn virtue to sniff the abnormal things, do not lick the impure blood.

To know the prognosis of the disease, also, ancient physicians use to apply the Rasa Pariksha. They were of the opinion that unpleasant taste developed to the body in fatal conditions will repel the flies, insects, mosquitoes away from the body. This might be due to the pungent aroma of toxic waste produced in different diseased conditions ranging from septic toxemia to uremia. Whereas, body develops pleasant i.e. sweet taste in fatal conditions like diabetic ketoacidosis and flies, insects, mosquitoes gets attracted to the body.

There are two aspects of gustatory examination. One is about the taste of body fluids as and another is loss or alteration of taste on tongue. The first aspect is very well described in Ayurveda. Whereas, the second aspect is well explored in modern science on the basis of qualitative tests like magnitude and spatial tests for knowing the taste alterations. Electrogustometry is a quantitative test but limited to only sour taste. The modern medical science is yet to develop such biomedical tool which will give idea about the taste of body fluids whereas in Ayurveda, animal model was developed to test the taste. Future exploration to develop such model to test the taste in laboratory is most warranted.

## Conclusion

- Ayurvedic Rasa pariksha is helpful in diagnosing the diseases.
- Ayurvedic Rasa pariksha is helpful in making the prognosis the diseases.
- Modern gustometry methods are useful in detecting the loss of particular taste.
- Gustatory abnormalities are associated with olfactory dysfunction.

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