Rasa Nirdharana Of A Classical Hridya Yoga Of Bhavamisra

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ABSTRACT

Rasa refers to the total subjective experience arising on placing any substance in the mouth. Rasa concept described is a pharmacodynamic principle and serves as a tool to explain panchabhoutic constitution of the drug. A reputed formulation of Bhavaprakasha mentioned in hridroga adhikara is taken up to assess the rasa based on the lakshanas mentioned in classical ayurvedic texts. The formulation (2g) was administered to 30 participants and their responses after intake of the drug were recorded using a structured questionnaire. On analyzing the data it was found that the classical hridya yoga possesses katu rasa as the primary taste and tikta rasa as the secondary taste.

INTRODUCTION

Rasa (taste), guṇa (quality), virya (potency), vipaka (transformation)and prabhava (inexplicable nature) are the principles of Ayurvedic pharmacology based on which every action of a dravya has been explained. Among them Rasa is the only quality which is directly perceivable. There are six tastes (Madhura-Sweet, Amla-Sour, Lavana-Salty, Katu-Pungent, Tikta-Bitter, Kashaya-Astringent) and each one is made out of two of the five panchamahutas (Table I). Each of the taste has an effect on dosha. According to modern science, human beings are considered to recognize five basic tastes, sweet, sour, salty, bitter and umami. The Rasa which is cognized first (by impact with tongue) is considered as Rasa(Primary taste) and the rasas which are less apparent or cognizable are called Anurasa (Secondary taste)[1].The characteristics (Lakṣaṇas) for the identification of each rasa is well documented in Ayurvedic classics. At least three to five characteristics have been specified for each rasa .Some of the characteristics are unique whereas certain characteristics are found common amongst two or more rasas. This overlap, many a times hinders objective judgment. Moreover very few substances possess just a single rasa. According to Charaka a physician who is well equipped with the knowledge about rasa and dosha can be successful in treating diseases[2]. Every dravya is formed by panchamahabhutas and the pancabhautika composition of a substance can be assessed based on the rasa identified in that substance which in turn helps in judging its other physical and biological properties (gurvadiguṇas).Modern methods in assessing taste of water include the threshold odor number test, flavor profile analysis, flavor threshold test, attribute rating test, 2-of-5 test and flavor rating assessment[3]. Ayurvedic treatise documented drugs employed in Hridroga (Heart disease). Heart diseases are categorized according to doshik dominance and Krimi[4]. In the present paper one of the reputed formulations of Bhavaprakasha hridroga adhikara is taken up to assess the rasa based on the lakshanas mentioned in classical ayurvedic texts. The yoga consists of Harithaki (Terminalia chebula), Vacha (Acorus calamus), Rasna (Alpinia galanga), Pippali(Piper longum), Nagaram/Shunthi (Zingiber officinale), Shati (Hedychium spicatum) and Pushkaramool (Inula racemosa)[5](Table II)

Table I: Characteristics of Individual rasa and their Panchabhoutik constitution[6]

No	Taste	Panchabhoutik constitution	Characteristics documented in Ashtanga sangraha
1	Madhura	Prithwi+Jala	Mukham upalimpathi (Besmears the mouth), Indriyani prasadayati (Soothing to sense organs), Deham prahladayati(Soothing to the body)
2	Amla	Prithwi+Agni	Jihwam udvejayati (Stimulates the tongue), Urakantam vidahati (Burning sensation in chest and throat), Mukham sravayati (Salivation in mouth), Akshibruvam sankochayati (Constriction of eyes and eyebrows), Dasanan harshayati (Tingling sensation in teeth), Roman harshayati (Generates horripilation)
3	Lavana	Jala+ Agni	Mukham vishyandayati (Moistens the buccal cavity), kantakapolam vidahati(Causes burning sensation in throat and buccal cavity),Annam prarochayati(Generates taste in food)
4	Katu	Agni+Vayu	Bhrisamudvejayati jihwagram(instant irritation to tongue tip),Cimicimayati kantakapolam(tingling sensation in throat and buccal cavity),Sravayati mukha akshi nasikam(causes salivation and lacrimation),vidahati deham(burning sensation in the body).
5	Thikta	Akasha+ Vayu	Visadayati vadanam(Cleanses the mouth).visodhayati kantam(cleanses the throat), Pratihanti rasanam(Obstructs taste perception).
6	Kashaya	Vayu+Prithwi	Jatayati jihwam(Stiffness of tongue),Badhnatikantam(obstructs the throat),peedayati hridayam(pressure on chest)

Table:II Composition of Test drug with rasa of individual drugs[7]

No.	Drugs	Botanical source	Part Used	Rasa
1.	Haritaki	Terminalia Chebula	Fruit rind	Kashaya pradhana pancharasa except lavana
2.	Vacha	Acorus calamus	Rhizome	Katu,tikta
3.	Rasna	Alpinia galanga	Root	Tikta
4.	Pippali	Piper longum	Fruit	Katu
5.	Shunthi	Zingiber officinale	Rhizome	Katu
6.	Shathi	Hedychium spicatum	Rhizome	Tikta,katu
7.	Pushkaramoola	Inula racemosa	Root	Katu,tikta

MATERIALS AND METHODS

Preparation of the drug

The individual drugs of the classical hridya yoga were personally collected and identified by the scholar. Individual powder microscopy was done to prove the authenticity of the drug. All the drugs were powdered separately and the powder was sieved through mesh size #85. All the seven drugs were taken in equal quantity and mixed together to make the formulation.

Preparation of questionnaire

Those characteristics which are local or reflex reactions experienced on the tongue, buccal cavity, throat, palate, nose and eyes described in the context of characteristics of rasa in Carakasaṃhita, Susrutatasaṃhita, Aṣṭaṅgasaṅgraha, Aṣṭangahṛidaya and Bhavaprakasa were incorporated into a structured questionnaire. Individually 2, 4, 3, 5, 2 and 3 characteristics were identified and attributed for madhura, amla, lavaṇa, kaṭu, tikta and kaṣaya rasas respectively. The characteristic, "causes salivation" is common to Amla, Lavaṇa and Kaṭurasa . Similarly the characteristic, "cleanses the mouth" is common to Amla and Tiktarasa. Thus 16 characteristics were included in the questionnaire. Further, a direct response from the participant with respect to his/her perception of the taste of the given sample was also noted.

Selection of volunteers

The volunteers were senior Ayurvedic students pursuing their MD (Ayu.) or Ph.D at the Institute for Post Graduate Teaching and Reaseach in Ayurveda, Gujarat Ayurved University, Jamnagar. All participants provided informed voluntary consent.

The participants who volunteered for the study were explained about the study and their role in the study. Every volunteer was then asked to cleanse their mouth with water prior to the onset of the experiment. Five minutes after cleansing the mouth they were given 2 g of the test drug and asked to record their inputs in the questionnaire

Statistical analysis

The answer (Yes/No) obtained for each characteristic and the perceived Rasa judged by each volunteer were tabulated and analyzed.

RESULTS AND DISCUSSION

Table III: Volunteer's experiences of lakṣaṇas of Rasa-frequency distribution

No	Lakshana experienced	Lakshana type	Corresponding rasa	No.reported (N=30) with percentage
1	Besmears the mouth/Causes stickiness in mouth(Vaktram anulimpati)	Indivudual	Madhura	8(26.66%)
2	Pleasant or soothing to the nose, mouth ,throat, lips and tongue (ghrana mukha kanta oshta jihwa prahladano)	Indivudual	Madhura	4(13.33%)
3	Causes salivation(Aasyam aasravayati)	Common	Amla, Lavana, Katu	23(76.66%)
4	Cleanses the mouth (Visadayati vadanam)	Common	Amla,tikta	22(73.33%)

5	Tingling sensation of teeth (dasanaan harshayati)	Indivudual	Amla	17(56.66%)
6	Constriction or Shrinking of eyebrows and eyelids (akshibruvam samkochayati)	Indivudual	Amla	9(30%)
7	Softens the buccal cavity (mardavam ca aapadayati)	Indivudual	Lavana	8(26.66%)
8	Burning sensation in buccal cavity and throat (kanta kapolam vidahati)	Indivudual	Lavana	20(66.66%)
9	Instant irritation to tongue tip (bhrisham udvejayati jihwagram)	Indivudual	Katu	25(83.33%)
10	Irritation in throat and buccal cavity (chimichimayati kantakapolam)	Indivudual	Katu	19(63.33%)
11	Secretion from nose (Sravayati naasikaam)	Indivudual	Katu	0(0)
12	Lacrimation (Sravayati akshi)	Indivudual	Katu	3(10%)
13	Distastefu l(Arochishnu)	Indivudual	Tikta	11(36.66%)
14	Dryness of mouth (Vaktram parisoshayati)	Indivudual	Kashaya	6(20%)
15	Feeling of stiffness in tongue (jadayati jihwaam)	Indivudual	Kashaya	10(33.33%)
16	obstructive feeling in throat(kantam badhnaati)	Indivudual	Kashaya	7(23.33%)

Table IV-Direct responses on Rasa - frequency distribution

No	Rasa reported	Total respondents
1	Katu	26(86.66%)
2	Tikta	8(26.66%)
3	Kashaya	4(13.33%)
4	Amla	1(3.33%)

TableV-Direct responses on Anurasa - Frequency distribution

No	Anurasa reported	Total respondents
1	Katu	1 (3.33%)
2	Tikta	9 (30%)
3	Kashaya	7 (23.33%)
4	Amla	2 (6.66%)
5	Madhura	3 (10%)
6	Lavana	1 (3.33%)

Rasa of the indivudual drugs (herbs) used in medicine are recorded in various Samhitas and Nighantus. In the traditional system of Indian medicine, polyherbal formulations are used more rather than individual ones. Scientific studies have revealed that these plants of varying taste and potency when combined may theoretically produce a greater result, as compared to individual use of the plant and also the sum of their individual effect. This phenomenon of positive herb-herb interaction is known as synergism[8]. Combination of herbals may act on multiple targets at the same time to provide a thorough relief. The rasa (taste) of a

polyherbal formulation depends on the individual constituents of the formulation. Identification of 'Rasa' of the formulation helps to infer other attributes like guna, virya, vipaka and karma. Taste and odour assessment using sensory methods is apparently a basic and simple test which everyone can do themselves. However, it is essentially a subjective assessment which has considerable uncertainty.

A total of 30 volunteers aged between 25 – 35 years participated in the study. Data shows the highest frequency in the characteristics of Katu rasa (Instant irritation to tongue tip 83.3%) as experienced by the respondents (Table III). Burning sensation in buccal cavity and throat was experienced by 66.6% of the respondents. Due to the dominance of Agni mahabhuta in both katu and lavana rasa a confusion arises in identifying the individual characteristics of these rasas. The individual drugs of the formulation are of katu and tikta rasa dominance. Lavana rasa is not present in any of the individual constituents of the formulation. Similarly, when the data was analyzed for the direct response on perceived taste of the drug, a high number of respondents (26) have pointed out katu rasa as the perceived taste (Table IV).Out of the 30 volunteers four identified both katu and tikta as the pradhana rasa. 30% of the respondents identified tikta rasa as the anurasa.

CONCLUSION

According to Ayurveda, rasa of a dravya has a bearing on its karma (pharmacological action) and the identification of rasa could be one of the subjective means for inferring pancabhautika constitution of a substance which in turn could help in tentatively inferring guṇa, virya and vipaka of the dravya. Based on the responses elicited using the structured questionnaire, the rasa of the classical hridya yoga is found to be Katu (Pradhanarasa) and Tikta (Anurasa).

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