

ASSESSMENT OF RASA, GUNA, VIRYA, VIPAKA OF PLANT WATTAKAKAVOLUBILIS (L.f.) STAPF

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ABSTRACT

Dravya is an essential and inevitable factor to human life. The similarities of *Dravya* and human body from its molecular level made it an integral part of *Ayurveda*. Five fundamental principles viz. *Rasa, Guna, Virya, Vipaka & Prabhava* collectively known as *Rasapancaka* explains pharmacodynamics in *Ayurveda*. *Wattakakavolubilis (L.f.) Stapf* is a very common plant, throughout South India, having synonym of *Dregeavolubilis (L.f.) Benth.exHook.f.* It has many folklore uses in different places of the nation. *Wattakavolubilis (L.f.) Stapf* is fairly new drug to the *Ayurvedic Pharmacopeia*. The accessible textual information regarding the herb *Wattakakavolubilis(L.f.) Stapf* is very minimum. The drug is used in managing various illnesses by folklore practitioners, but to accept it in current *Ayurvedic* clinical practice it is essential to recognize the basic Pharmacodynamics of the drug. By knowing the Pharmacodynamics the physician safely use the drug on apt conditions. *Wattakakavolubilis(L.f.) Stapf* is tonic, aphrodisiac, anti-pyretic and astringent to the bowels; good for dyspepsia and inflammations; cures piles, tumours, leucoderma, asthma and urinary discharges. Leaves are applied to boils and abscesses. Roots and tender stalks are considered emetic and expectorant. The aim of this study to analyze the *Rasa, Guna, Virya, Vipaka* of *Wattakakavolubilis(L.f.) Stapf*. The *Rasa, Guna, Virya, Vipaka* of this drug were assessed as *Tikta, Kashayarasas, Snigdha, Ushnagunas, Ushnavirya* and *Katu vipaka*

Keywords: *Wattakakavolubilis(L.f.) Stapf, Rasa, Guna, Virya, Vipaka.*

INTRODUCTION

India is one of the richest reservoirs of biological diversity in the world. It is home to a great variety of ethno medicinally important plant

species. However several factors are putting India's medicinal plants at risk of extinction. The increasing demand for herbal raw material

and products, the reliance of pharmaceutical companies on plants for drugs, the encroachment of civilization into plant habitat is increasing demand for new folklore medicines.

Ra-

sa(taste), *Gu a*(quality), *V rya*(potency), *Vip k a*(transformation)& *Prabh va*(inexplicable nature) are the principles of *Ayurvedic* pharmacology based on which every action of a *Dravya* has been explained. Amongst this set of parameters, *Rasa* is the only quality manifested by substances that make a gustatory appeal. Tastes of substances are six i.e. *Sv du* (sweet), *Amla* (sour), *Lava a* (salts h/saline), *Tikta* (bitter), *Ka u* (pungent/acrid) and *Ka ya* (astringent). Taste can only be considered as the nearest non-satisfactory equivalent for the term *Rasa* in the context of *Ayurvedic* pharmacology since taste perception and taste sensibility are considered as complex bio-physical and psychological events.¹ Thus *Rasa* refers to the total subjective experience arising on placing any substance in the mouth. The characteristics (*Lak a as*) for the identification of each *Rasa* is well documented in *Ayurvedic* classics.^{2,3,4,5} *Guna* is meant as quality, mode, property, predicament etc. *Virya* is characterized by the drug action because all types of drug actions are under the control of *virya* only. *Vipaka* is the biotransformative phase of *Rasa*.

Wattakakavolubilis(L.f.) Stapf., (Syn. *Dregea-volubilis* (L.f.) Benth. ex Hook.f., *Marsdenia-volubilis* Cooke) belongs to the family *Asclepiadaceae*, is a tall woody climber, with densely lenticellate and pustular branches, leaves opposite, broadly ovate or suborbicular, cordate, acuminate, flowers bright yellowish-green, in lateral drooping, umbellate, cymes, follicle usually 2, lanceolate covered with brown, mealy, tomentum, turgid, 2cm long; seeds yellowish brown broadly ovate or broad elliptic, winged, comose.⁶

The leaves are used in boils and abscesses. The roots and tender stalks are considered emetic and expectorant.^{7,8} It is also used in eye diseases and snake bites.⁹ Roots possess significant Antibacterial and Antifungal activity.¹⁰ Antidiabetic and Antioxidant activity was also reported in leaf ethanolic extract.¹¹ *Wattakakavolubilis*(L.f.) Stapf is tonic, aphrodisiac, anti-pyretic and astringent to the bowels; good for dyspepsia and inflammations; cures piles, tumours, leucoderma, asthma and urinary discharges.

The objective of the present study is to assess *Rasa, Guna, Virya, Vipaka* of *Wattakakavolubilis* by using characteristics described in *Ayurvedic* texts which are simple and easily adoptable method amongst trained *Ayurvedic* physicians for preliminary identification of a plant.

Figure 1: *Wattakaka volubilis*



Figure 2: Inflorescence of *Wattakakavolubilis*



MATERIALS AND METHODS:

Collection of the drug:

Wattakakavolubilis leaves are collected from herbal garden of Dr.B.R.K.R.Govt Ayurvedic Medical College, Hyderabad. The drug was accurately identified by Toxonomist, Department of Botany, Satavahana University, Karimnagar, Telangana. All the collected leaves were washed, shade dried and powdered, stored in the air tight container.

Criteria for Selection of Volunteers:

Thirty healthy volunteers of either sex, irrespective of religion, caste, *prakriti*, *koshta* etc. between the ages of 20-35 yrs were selected.

Study design: The present assessment for *Rasa*, *Guna*, *Virya*, *Vipaka* study conducted as single blind trail.¹² *Rasa* assessment study design is based on symptoms given for each *Rasain* the *Samhithas*. The local reflex actions related to tongue, buccal cavity, throat, palate, nose and eyes were identified. *Guna*, *Virya* and

Vipaka are assessed based on its Pharmacological actions.

Method of administration: To assess the *Rasa*, 30 healthy volunteers were asked to wash their mouth with water. Then drug was administered in a powder form upto 2gms. To assess the *Rasa*, *Guna*, *Virya*, *Vipaka* the same powdered drug was administered in a dose of 5gms twice a day with lukewarm water for duration of one week.

ASSESSMENT OF RASA:

After administering the drug volunteers were requested to record the immediate appraisal of taste as yes/no. characteristic perceived and judged by each volunteer were tabulated and analyzed. The biological changes obtained in this scrutiny were recorded.

Observation and Results: The observations which were found in the evaluation are tabulated.

Table 1: showing the characteristics expressed by the volunteers

RASA	SYMPTOMS	NUMBER OF VOLUNTEER'S RESPONSE
1.Madhura	<i>Vaktramanulimpati</i> (sweet coating inside the mouth.	2
	<i>Sleshmaabhivardanam</i> (feeling of unctuousness)	0
	<i>Dehaphrahladanam</i> (pleasurable sensation in body)	0
2.Amla	<i>Dantaharsha</i> (tingling sensation of teeth)	0
	<i>Mukhasrava</i> (salivation)	1
	<i>Romaharsha</i> (horripilation)	0
	<i>Akshibrusankocha</i> (shrinking of eye brows and lids)	0
3.Lavana	<i>Kaphapraseka</i> (excessive salivation)	0
	<i>Mukhavishyandana</i> (increase liquidity in oral cavity)	0
	<i>Kantakapoladaha</i> (burning sensation in buccal cavity and throat)	0
4.Katu	<i>Jihwagrabadha</i> (stimulation of tip of the tongue)	1
	<i>Kapoladaha</i> (burning sensation of tongue)	0
	<i>Akshinasasyasrava</i> (watering from mouth eyes and nose)	0
5.Tikta	<i>Mukhavaishadyam</i> (cleansing the mouth)	24
	<i>Galachosha</i> (clears the throat)	19
	<i>Bhaktaaruchi</i> (reduce the desire to eat)	7
	<i>Rasapratihanti</i> (feeling of temporary loss of taste perception)	0
6.Kashaya	<i>Jihwajadyata</i> (stiffness of tongue)	9
	<i>Vaktramparisosha</i> (dryness in the tongue)	8
	<i>Badhnathikantam</i> (chocking feeling in throat)	0
	<i>Hridayapeeda</i> (discomfort in heart region)	3

When the drug was given initially for the estimation of *Rasa* based on the direct contact with tongue *Mukhavaishadyam* (cleansing the mouth) was the major subjective reactions reported by the maximum number of volunteers (24 out of 30), *Gala chosa* (clears the throat) experienced by 19volunteers, *Bhaktaaruchi* (reduce the desire to eat) by 7volunteers, *jihwajadyata* (stiffness of tongue) experienced by 9 volunteers, *Vaktramparisosha* (dryness in the tongue) by 8 volunteers, *Hridayapeeda* (discomfort in the region of heart) by 3 volunteers.

ASSESSMENT OF GUNA: The inherent properties of the drug were assessed mainly based on its action over the *Agni* and *Kosta*. When the drug was given for one week orally at the dose of 5gms for 30 healthy volunteers, improvement in both digestion and assimilation was observed in 23 volunteers as symptoms of indigestion like heartburn, incontinence, nausea, pain in the abdomen and bloating subsided. The drug induced the formation of *sweda* in 15 volunteers. This can be attributed to the property of *Ushna*. One of the causes for formation of *sweda* because of raise in the metabolic rate.This once again indica-

tive of *Ushnaguna*. In 20 volunteers there is decrease of dryness in the body, as *lalata* is shiny, *kesa* with *snigdha*, normal secretion of *chakshu mala*, soft *ostha*, *nasabhyantharasnigdha* and *karnabyantarasnigdha* which indicates increase of unctuousness. This can be attributed to the property of *Snigdha*.

ASSESSMENT OF VIRYA: The *virya* of the drug is determined based on Exothermic or Endothermic reaction in the distilled water, appetite, sleep, stool, urine.¹⁴

REACTION IN DISTILLED WATER:

100ml of distilled water is taken in a conical flask and note the temperature. 10gms of leaf powder is added, mix thoroughly and again note the temperature immediately. Note the temperature after 1hr and after 24hrs.

Initially water temperature is 29°C, immediate after adding the drug it was 29.7°C, after one hour it reached to 29.5°C, Temperature after 24hrs was 29.5°C. In this as the temperature of distilled water is increased after adding of leaf powder it is indicative of Exothermic reaction. Appetite: Increased appetite was observed in 23 volunteers out of 30. Sleep: decreased for 13 volunteers, remaining 17 volunteers there is no change in their sleep habit. Stool & urine: 19 volunteers had relative suppression in the passage of bowels and urine when compared to routine pattern.

As *ushnaviryadravyas* shows exothermic reaction in distilled water and increases appetite, decreases sleep, decreases stool and urine based on these observations,

ASSESSMENT OF VIPAKA: the most reliable and adoptable criteria for the judgment of *Vipaka* is the action of the drug in the elimination of urine and faeces. With the current trial drug none of the volunteer had reported to have easy and increased elimination of urine and faeces. Rather 19 volunteers had relative suppression in the passage of bowels and urine when compared to routine pattern. So the *Vipaka* of the drug can be interpreted as *Katu*.

DISCUSSION

The Assessment of *Rasa, Guna, Virya, Vipaka* helps in understanding the probable pharmacological outcome of the drug. *Rasa* is the special sense experienced through *Rasanendriya* (tongue/taste buds) by an individual while consuming *Dravya*. Six principle *Rasas* namely *Madhura, Amla, Lavana, Katu, Tikta, Kashaya*. *Rasa* of any drug will be perceived by their individual characteristics. The present study drug experienced that the tasting of *Wattakakavolubilis* leaf powder produced *Mukhavaishadyam* (cleansing the mouth) in 24 volunteers, *Galachosha* (clears the throat) in 19 volunteers, *Bhaktaaruchi* (reduce the desire to eat) in 7 volunteers which are the characteristics of *Tikta* rasa. In addition to this some of the volunteers also observed the characteristics of *Kashaya* rasa i.e., *Jihwajadyata* (stiffness of tongue) in 9, *Vaktraparisosha* (dryness in the tongue) in 8, *Hridayapida* (discomfort in the region of heart) in 3 volunteers. Based on this data it can be finalized that the *rasa* of the drug *Wattakakavolubilis* is *TiktapradhanaKashaya*-*rasa*. *Guna* is defined as a character which will remain in a *Dravya* with inherent relationship. At the same time it will remain inactive and

maintain noninherent relation with the action. Generally *Tikta* and *kashaya rasa dravyas* will have *Ruksha* and *SitaGunas*. But it is not mandatory to follow this rule. In our observation as there is increased digestion, assimilation, perspiration and decreased dryness it is concluded that the drug *Wattakakavolubilis* is having *Ushna* and *Snigdhas*.

Virya is the factor which is responsible for producing drug action. In our observation as there is exothermic reaction in distilled water and increases appetite, decreases sleep, decreases stool and urine based on these observations, the drug *Wattakakavolubilis* is concluded as *Ushnavirya*.

Vipaka is the factor which is the final outcome of the bio transformation of Rasa through the action of *Jataragni*. *Vipaka* is the action of the drug in the elimination of urine and faeces. With the current trial drug none of the volunteer had reported to have easy and increased elimination of urine and faeces. This suggestive *KatuVipaka* of *Dravya*. The textual reference in this regard also supports the obtained findings that the *Tikta* and *KashayaDravyas* usually exhibit *KatuVipaka*.

CONCLUSION

The drug is used in managing various illnesses by folklore practitioners. *Wattakakavolubilis* (L.f.) Stapf is tonic, aphrodisiac, anti-pyretic and astringent to the bowels; good for dyspepsia and inflammations; cures piles, tumours, leucoderma, asthma and urinary discharges. The current study revealed *Tikta* and *Kashaya* are the rasa of drug, *ushna* and *snigda* are the chief *guna*. It is a *Ushnaviryadravya*

and *vipaka* is *Katu*. Further extensive research study is to be done.

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