



A CRITICAL REVIEW ON THE SPICES MENTIONED IN SHAKA VARGA (CLASS OF VEGETABLES) OF SUSHRUTA SAMHITA

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Article Received on 26/09/2018

Article Revised on 17/10/2018

Article Accepted on 07/11/2018

ABSTRACT

Properly prepared food is the ultimate source of life. It promotes strength to the body, nourishes the *dhatu*(tissue), promotes complexion and keeps the mind in a cheerful frame, supports the higher functions and above all, it protects the body like a pillar. Hence, it has been considered as one among the *traya upastambha*(three pillars). The food will do so when and only when it kindles the interest to have it. This happens when the food is prepared with a perfect blend of odour and flavour. *Acharya Sushruta*, while writing *anna pana vidhi adhyaya* (a chapter on dietetics), included a list of medicinal substances that are used to bring about certain changes to make the food not only palatable but also adorable. This is a unique way of donating medicinal properties to the food without being understood by the consumer. These medicinal substances are known as spices. This review reveals 12 botanical sources that are used as spices in *shaka varga*(class of vegetables) of *sushruta samhita*.

KEYWORDS: Spices, Botanicals, *Sanskara*, *Deepana*, *Pachana*.

INTRODUCTION

Spices are the integral part of Indian cuisine. Their real meaning is only understood after having tasted the spicy Indian dishes. A spice is a seed, fruit, root, bark or other plant substance primarily used for flavouring, colouring and preserving food.^[1]

In fact, they mean more than the flavouring agents. Even though India is a country of diversity in every aspects, yet, there is no disagreement in using the spices. Hardly there is any Indian dish that is being served without the blend of spices. Indian history always highlights the significance and the reward achieved by the Indian spices. The most important fact of adding spices during processing the food, is not only to make it fragrant and delightful, but also as an ingredient which acts as appetizer, digestive, carminative and what not. Perhaps, this fact is keenly observed, analysed and acknowledged by the great sages of *Ayurveda*. Hence, they included then famous spicy, aromatic substances with the purpose to bring in *sanskara* in the food. *Sanskara*, literally means the changeover of the properties (*gunantardhana*).^[2]

Ayurveda- the science of life not only talks about the diseases and the treatment, but also hints at different aspects for healthy life. The sum and substance of *Ayurveda* is to bestow a long healthy contented life to

those who follow its guidelines with all the humility and faith. The ancient authors of *Ayurveda*, who wrote *sutrasthana* in their compendiums, have not omitted the mentioning of the importance of spices in the diet. *Acharya Sushruta*- a renowned surgeon also devoted a chapter named as *anna pana vidhi adhyaya* (a chapter on dietetics) in his work in order to brief the properties and actions of different classes of food grains, meat, vegetables and fruits. Interestingly, he included a list of few substances that are said to be used during the preparation of different palatable food stuffs ^[3], which are nothing but the spices. Though, they are used in a small quantity yet, they produce an immense influence on the food and also bestow certain properties that help to maintain the health.

As the time goes by, the most of the spices are added to the food without knowing their medicinal values. This review is an earnest attempt to explore the medicinal value of the spices mentioned in *shaka varga* (class of vegetables) of *sushruta samhita*.

Table 1: Botanical source and family of the spices.

S.no	Sanskrit name	Botanical source ^[4]	Family ^[4]
01	Pippali	<i>Piper longum</i> L.	Piperaceae
02	Maricha	<i>Piper nigrum</i> L.	Piperaceae
03	Shunti	<i>Zingiber officinale</i> Roscoe	Zingiberaceae
04	Hingu	<i>Ferula narthex</i> Bioss	Apiaceae
05	Jeeraka	<i>Cuminum cyminum</i> L.	Apiaceae
06	Krishna Jeeraka	<i>Carum carvi</i> L.	Apiaceae
07	Upakunchika	<i>Nigella sativa</i> L.	Ranunculaceae
08	Kustumburu	<i>Coriandrum sativum</i> L.	Apiaceae
09	Shigru	<i>Moringa oleifera</i> Lam.	Moringaceae
10	Tilaparnika	<i>Angelica glauca</i> Edgew	Apiaceae
11	Rasona	<i>Allium sativum</i> L.	Amaryllidaceae
12	Palandu	<i>Allium cepa</i> L.	Amaryllidaceae

Table 2: Habit and botanicals of the plants used as spices.

S.No	Botanical source of spices	Habit	Botanical as spice
01	<i>Piper longum</i> L.	Climber	Fruit
02	<i>Piper nigrum</i> L.	Climber	Fruit
03	<i>Zingiber officinale</i> Roscoe	Herb	Rhizome
04	<i>Ferula narthex</i> Bioss	Herb	Oleo-resin
05	<i>Cuminum cyminum</i> L.	Herb	Fruit
06	<i>Carum carvi</i> L.	Herb	Fruit
07	<i>Nigella sativa</i> L.	Herb	Seed
08	<i>Coriandrum sativum</i> L.	Herb	Fruit
09	<i>Moringa oleifera</i> Lam.	Tree	Seed
10	<i>Angelica glauca</i> Edgew	Herb	Root
11	<i>Allium sativum</i> L.	Herb	Bulb
12	<i>Allium cepa</i> L.	Herb	Bulb

Table 3: Botanical source of spices and major chemical constituents.

S.No	Botanical source	Major Chemical constituents
01	<i>Piper longum</i> L.	Essential oil, mono- and Sesquiterpenes, Caryophyllene (mainly), Piperine, Piplartine, Piperlongumine, Piperlonguminine, Pipernonaline, Pipericide ^[5] etc
02	<i>Piper nigrum</i> L.	Piperine, Piperethine, Piperolein A&B, feruperine, dihydroferuperine, Citronellol, Cryptone, Pipericide ^[5] etc
03	<i>Zingiber officinale</i> Roscoe	α -curcumene, β -D-curcumene, Citral, α & β zingiberenes Ginger glycolipids A, B & C, Citronellol, d-borneol ^[5] etc
04	<i>Moringa oleifera</i> Lam	Stigmasterol, moringyne ^[7]
05	<i>Ferula narthex</i> Bioss	α -pinene, phellandrene, butyl propenyl disulphide, a trisulfide, asaresinotannol, farnesiferol A, gummosin kamolonol, mogoltadone, polyanthinin ^[5] etc
06	<i>Cuminum cyminum</i> L.	Cuminin, diacyl glycerol, imperatorin, isoimperatorin, isoimpinellin, oxypeucedanin, apigenin, apiin; oxalic, cuminaldehyde, p-cymene ^[5] etc
07	<i>Carum carvi</i> L.	Carvone, limonene, germacrene-D, β -elemene, p-cymene, cuminal, trans- and cis-carveol, carveol ^[5] etc
08	<i>Nigella sativa</i> L.	Essential oil contains Cymine, nigellone, crvone, Limonene, nigellimine ^[5]
09	<i>Coriandrum sativum</i> L.	Carotene cugenol, bergapten, coriandrinol, citronellol, coriandrin, dihydrocoriandrin, coriandrone A & B, gnaphalosides A&B ^[5] etc.
10	<i>Angelica glauca</i> Edgew	Isoimperatorin, prangolarin, angeolide, angelicolide, archangelin, oxypeucedanin ^[5] .
11	<i>Allium sativum</i> L.	Alliin, carbohydrates (arabinose, galactose etc) vitamins (folic acid, niacin, riboflavin, thiamine, vit.c); aminoacids (arginine, asparagic acid, methionine etc.) enzymes (allinase) volatile compounds (allyl alcohol, allylthiol, allyl propyl disulphide etc) thioglycosides, ajoene ^[5]
12	<i>Allium cepa</i> L.	Cycloallin, quercetin, oleanolic acid ^[5] etc

Table 4: Prime actions of spices.

S.no	Spices	Prime action
01	<i>Shushka Pippali</i>	<i>Deepana, Pachana, Vrishya, Mootrala, Krimighna, Rasayana, Pleehaghna, Jwaraghna</i>
02	<i>Shushka Maricha</i>	<i>Deepana, Pachana, Krimighna, Kasahara</i>
03	<i>Shigru beeja</i>	<i>Cakshushya, Vishaghna, Shiro arti nashaka</i>
04	<i>Shunti-ardraka</i>	<i>Deepana, Pachana, Swarya, Shoolahara, Kasahara, Shwasahara, Grahi, Hridya, Ruchya, Vrishya</i>
05	<i>Hingu</i>	<i>Shwasahara, Sajnasthapana, Deepana, Pachana,</i>
06	<i>Jeeraka</i>	<i>Deepana, Sangrahi, Medhya, Ruchya, Pachana</i>
07	<i>Krishna jeeraka</i>	<i>Deepana, Pachana, Ruchya, Chardighna, Hridya</i>
08	<i>Upakunchika</i>	<i>Adhmanahara, Gulmahara, Grahi, Krimighna</i>
09	<i>Kustumburu</i>	<i>Dipana, Pachana, Trishnanigrahana, Chardighna</i>
10	<i>Tilaparnika</i>	<i>Krimighna, Kanduhara, Kusthaghna, Hridya</i>
11	<i>Rasona</i>	<i>Balya, Shulahara, Gulmahara, Krimighna, Kusthaghna</i>
12	<i>Palandu</i>	<i>Vrishya, Rasayana, Pramehahara</i>

DISCUSSION

Spices are used in small quantity, promote proper digestion, metabolism and absorption of the food by altering the different bodily mechanisms such as increasing the saliva and gastric juices. Their action not only confined to the gastrointestinal system, but, involve different systems of the body.

Acharya Sushruta mentioned mainly 12 botanical sources of spices. Almost all act as *kapha-vatahara* which are usually responsible for *agnimandya* (hypofunctioning of agni) in their vitiated state. Even in healthy state, the variation of doshas (humours) occurs in relation to the food.

Usually, before taking food, the stomach is empty and is occupied by the *vata* in an aggravated form. Similarly, soon after taking the food, *kapha* gets aggravated. The main purpose of adding spices in the food, is to keep these doshas at normal levels with their *kapha* and *vatahara* properties.

Among the 12 botanical sources mentioned as spices, 9 of them are herbs, 2 are climbers and a tree.

Synonyms illustrating the spicy nature of the botanical sources

Pippali

Synonym	Interpretation
<i>Ushana</i> ^[6]	it has got pungent taste
<i>Kola</i> ^[6]	Pungent in nature
<i>Teeksna tandula</i> ^[6]	its seed (fruit) is spicy

Maricha

Synonym	Interpretation
<i>Ushanam</i> ^[6]	it causes burning sensation and pain due to the pungency
<i>Teekshnam</i> ^[6]	it has sharp and penetrating qualities
<i>Katukam</i> ^[6]	It has pungent taste and under goes katu vipaka
<i>Shakangam</i> ^[6]	It is commonly used as spice and stored in kitchen

Ardraka-Shunti

Synonym	Interpretation
<i>Katu bhadram</i> ^[6]	One of the best pungent substances
<i>Utkata</i> ^[6]	It possesses sharp and penetrating qualities
<i>Ushanam</i> ^[6]	It is pungent in nature
<i>Katu granthi</i> ^[6]	the nodular rhizome is pungent
<i>Katu</i> ^[6]	it possesses katu rasa

Hingu

Synonym	Interpretation
<i>Uragandha</i>	It has very strong odour ^[7]
<i>Sahasra vedhi</i>	It has strong odour that it cannot be covered by any means. ^[7]

Jeeraka

Synonym	Interpretation
<i>Deepaka</i> ^[6]	It stimulates appetite
<i>Ajaji</i> ^[6]	It augments appetite
<i>Jarana</i> ^[6]	It acts as a digestant
<i>Ruchyam</i> ^[6]	It increases taste

Krishna Jeeraka

Synonym	Interpretation
<i>Bahugandha</i> ^[6]	It has very strong odour
<i>Sugandha</i> ^[6]	It is aromatic in nature
<i>Udgarashodhana</i> ^[6]	It induces eructuation
<i>Ruchya</i> ^[6]	It augments taste
<i>Jarana</i> ^[6]	It acts as a digestant

Upakunchika

Synonym	Interpretation
<i>Deepya</i> ^[9]	it augments digestive fire
<i>Jarani</i> ^[9]	it acts as Digestant
<i>Jeerna</i> ^[9]	it promotes digestion
<i>Manojna</i> ^[9]	It has agreeable odour

Kustumburu (Dhanyaka)

Synonym	Interpretation
<i>Sugandhi</i> ^[6]	It is aromatic in nature
<i>Hridyagandha</i> ^[6]	it has a pleasant odour
<i>Veshanagrya</i> ^[6]	it is one of the best spice

Rasona

Synonym	Interpretation
<i>Uragandha</i> ^[6]	It has a strong odour

Palandu

Synonym	Interpretation
<i>Deepana</i> ^[9]	it augments digestive fire
<i>Teekshna kanda</i> ^[9]	the bulb has penetrating qualities
<i>Vishwagandha</i> ^[9]	its odour spreads quickly
<i>Rochana</i> ^[9]	it increases taste

Shigru

Synonym	Significance
<i>Teekshna gandha</i> ^[6]	It has strong odour
<i>Krishna gandha</i> ^[10]	Its fragrance resembles <i>maricha</i>

The spicy nature of *Choraka* (*Angelica glauca* Edgew) is portrayed in the verse explaining the properties and actions as *Uragandha*(8) rather than in the verse containing its synonyms. *Uragandha* refers to its strong odour.

On the two species of spices that belong to Piperaceae

Dried fruits of *Pippali* (*Piper longum* L) and *Maricha*(*Piper nigrum* L) act as spices with their acrid taste and volatile oil. *Pippali* (*Piper longum* L.) has tremendous effect on the body if it is used in small quantity for a smaller duration. It has been praised as *Apatabhadrā*(very much useful) by the great sages of *Ayurveda*. But, it's regular, continuous and use in large quantity for longer duration is forbidden. For the reason, it possesses *anushna veerya* (neither cold nor hot potency) which in long run, produces *doshotklesha*(aggravating the humours). After analysing the therapeutic uses of *Pippali* (*Piper longum* L) in different *ayurvedic* works, it is evident that it is advised mainly either with honey or jaggery or milk or butter milk. This fact can be taken as a basis for considering *pippali* as a proper spice for the dishes which include jaggery or milk or butter milk or honey to derive augmented effect. Though, *Sushruta* mentioned the properties of the fresh fruit in the same context, yet, its use as spice is not highly appreciable, for the reason, it possesses *guru*(heavy), *madhura rasa*(sweet taste), *sheeta veerya*(cold potency), and acts as *vata-kapha vardhaka*.

Maricha(*Piper nigrum* L.) is known as king of spice. Its spicy nature never gone unnoticed in the ancient times. The dried fruit possesses *laghu*(Light), *teekshna*(sharp) *guna*(property), *Katu rasa*(pungent taste), *katu vipaka*(pungent post digestive effect) and *ushna veerya*(hot potency). The different therapeutic uses of *maricha* (*Piper nigrum* L.) is documented either with ghee or jaggery or sour curd or honey or milk as its *anupana*(vehicle). This directs towards a thought that *maricha* (*Piper nigrum* L.) can be a best spice for the dishes prepared of ghee or jaggery or sour curd or honey or milk to obtain its amplified effect. While, the fresh fruit possesses *guru* (heavy), *kinchit teekshna*(a little

sharp) *guna*(property), *katu rasa*(pungent taste),*madhura vipaka*(sweet post digestive effect) and *natyushna*(not hot in excess) *veerya*(potency).Hence, fresh fruits of *maricha* (*Piper nigrum* L)will bestow very little pungency to the food.

On a Species of spice that belong to zingerberaceae

Rhizome of (*Zingiber officinale* Roscoe) occurring in both forms i.e fresh rhizome (*Ardraka*) and dry rhizome (*Shunti*) possess all the essential phytochemicals to be grouped under the class of spice. Both forms act as *vata-kaphahara*. Ongoing through the therapeutic uses of *ardraka*, it is a common observation that *ardraka* is advised either with *saindhava lavana*(rock salt) or *kulatha kwatha*(decoction of *Dolichos biflorus* L) or old jaggery as its *anupana*(vehicle). While, *shunti* is advised along with jaggery or rock salt or milk. Hence, the fresh rhizome can be added in the dishes prepared with jaggery, *saindhava lavana*(rock salt), *kulatha*(*Dolichos biflorus* L) or honey. While, *shunti* can be added to the dishes which contain jaggery or rock salt or milk to obtain amplified effects. Interestingly, it undergoes *madhura vipaka*(sweet post digestive effect) inspite of possessing *Katu rasa*(pungent taste). However, it acts as *vrishya*(aphrodisiac). Fresh ginger should be avoided in persons who suffer with *Pandu*(anemia), *Rakta pitta*(haemorrhagic disorders) and *Daha*(burning sensation).

On the five species of spices that belong to Apiaceae

The resin of *Hingu*(*Ferula narthex* Bioss), the dried fruit of *Jeeraka*(*Cuminum cyminum* L), the dried fruit of *Krishna jeeraka*(*Carum carvi* L) the dried fruit of *Dhanyaka*(*Coriandrum sativum* L) and the root of *Choraka*(*Angelica glauca* Edgew) are used to improve the aroma of the food. Oleo-resin of *Hingu* (*Ferula narthex* Bioss) should be subjected to the process of purification before being consumed. Hence, it should be fried in ghee before it is used. It brings about *vatanulomana* (carminative) with its *snigdha*(unctuousness), *teekshna*(sharp) and *ushna*(hot) *guna*(property). *Jeeraka* (*Cuminum cyminum* L) and *Krishna jeeraka* (*Carum carvi* L) also work wonder with either *ghrita* (ghee) or *guda*(jaggery) or *suvarchala lavana*(black salt) or *madhu*(honey). Hence, using *jeeraka dwaya* (*Jeeraka* (*Cuminum cyminum* L) and *Krishna jeeraka* (*Carum carvi* L)) with the food prepared with either *ghrita* (ghee) or *guda*(jaggery) or *suvarchala lavana* (black salt) or *madhu*(honey) will produce its optimum effects. The dried fruit of *Dhanyaka* (*Coriandrum sativum* L) is advised with *amla* (sour) and *lavana* (salt) *dravyas*(substances) to produce enhanced effects. Hence, the dishes prepared with sour substance should better contain fruits of coriander as one of the spices. The root of *Choraka* (*Angelica glauca* Edgew) is considered as *Tilaparnika* by the commentator of *Sushruta samhita*. The root of *Choraka* (*Angelica glauca* Edgew) possesses the aromatic oil and acts mainly as spasmolytic. It possesses *katu rasa* (pungent taste), *katu*

vipaka(pungent post digestive effect) and *ushna veerya* (hot potency).

On a species of spices that belongs to Ranunculaceae

Seed of *Upakunchika*(*Nigella sativa* L) is commonly used with either sugar or jaggery or salt as its *sahapana/anupana*(vehicle). Thus, it can be added to the sweet dishes. It acts as *Shoolahara*(antispasmodic)with its *katu rasa*(pungent taste), *katu vipaka*(pungent post digestive effect) and *ushna veerya*(hot potency).

On two species of spices of Amaryllidaceae

Earlier, *Rasona* (*Allium sativum* L.) and *Palandu* (*Allium cepa* L) were grouped under Liliaceae by the taxonomists. With the advances in the understanding the phylogenetic characters, these two plants are shifted to Amaryllidaceae recently. The bulbs of these two plants possess sulphur compound as their important chemical constituent which is responsible for their strong odour. *Rasona*(*Allium sativum* L) possesses *ushna veerya*(hot potency), While, *Palandu*(*Allium cepa* L) is *ishat ushna*(a little hot) in nature. *Rasona*(*Allium sativum* L) is added as a spice in the foods prepared either with milk or oil or ghee to obtain the maximum effects.

On the controversial spice

Sita maricha(*shweta maricha*) is a controversial drug since *Dridhabala's* period(4th century A.D). Few *ayurvedic* experts accept the decorticated fruit of *maricha*(*Piper nigrum* L) as *shweta maricha*. While, others opt the seeds of *shigru*(*Moringa oleifera* Lam). Interestingly, *Amarakosha* (4th century A.D) has cleared the controversy by considering *shigruja* i.e *shigru beeja* as *shweta maricha* (*sita maricha*). In the list of spices mentioned by *sushruta*, *sita maricha* finds its place along with *maricha* proving its different identity other than the fruit of *maricha* (*Piper nigrum* L).

CONCLUSION

Spices not only make the food delicious and fragrant but also bestow the medicinal properties to promote the health and prevent the diseases. *Acharya Sushruta* has mentioned 12 botanical sources as the spices in the *shakavarga*. This review gives an idea about the importance of spices in food and also directs to look up to them as preventive medicine for different diseases.

CONFLICT OF INTEREST

Nil

SOURCE OF SUPPORT

Nil

ACKNOWLEDGEMENT

I thank Hon. Prof. Dr.Gopal dutt sharma, director of V.Y.D.S Ayurveda mahavidyalaya for encouraging to write this review.

I thank my wife Dr. M.K. Sampada Shekhar for extending the help during the study.

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