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Review Article

A CRITICAL REVIEW ON *DEEPANIYA MAHAKASHAYA* BASED ON THEIR *RASAPANCHAK* IN RELATION TO *NIGHANTU*

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ABSTRACT

Importance of *Agni* has been mentioned univocally in almost all classical treatises in Ayurveda. It has also been mentioned that hypo-functioning *Agni* is the root cause of every diseases. *Agni* plays a vital role in maintaining health and balancing the equilibrium of *Dosa, Dhatu* and *Mala*. So, to bring the function of *Agni* to normalcy, besides maintaining proper diet and regimen, *Deepaniya* drugs are advised. Ten members of *Deepaniya mahakashaya* are discussed here critically based on their *Rasapanchak* i.e., *Rasa, Guna, Virya, Vipaka* and *Karma*. In this review article a comparative study has been done on *Deepaniya mahakashaya* as mentioned in *Charaka Samhita* and discussed in relation to *Bhavaprakash Nighantu, Dhanwantari Nighantu, Raj Nighantu and Kaiyadev Nighantu*. Along with this, the functions of the drugs mentioned in these classics in the light of modern perspectives are also discussed critically.

KEYWORDS: Agni, Deepaniya Mahakashay<mark>a,</mark> Nigha<mark>ntu</mark>, Rasa<mark>p</mark>anchak.

INTRODUCTION

The literally meaning of *Agni* is fire. However, in Ayurveda the word Agni is used unfailingly in various contexts. Acharya Charak has mentioned thirteen types of Agni namely, one Jatharagni or Antaragni (site of digestion and metabolic component), five Bhutagnis (to digest and assimilate nutrient into tissue from food based upon their respective components) and seven Dhatwagnis (for formation and nourishment of tissues). Acharya Charak asserts that, Agni is in the form of liquid which is represented by Pitta itself and it acts accordingly based upon its normal or abnormal state. According to Acharya Susruta, Pitta located in an area between Amasaya and Pakwasaya which digests, assimilates, and separates the excretory products from the nutritive part and being in its place, monitors function of other four Pittas- is termed as *Agni. Susruta* coins the term *Pachakagni* for it [1].

Agni is the pivotal force of life and death occurs if it stops functioning. Health and longevity of a person relies on proper functioning of Agni and its derangement easily succumbs a person to disease. So Dehagni is the reason for life, vigour, health, immunity etc. The food which provides nourishment

to the body and builds tissues is the result of proper functioning of *Agni*^[2]. So, if *Agni* gets deranged, tissue elements like rasa cannot be formed from undigested food and results into *Rasa Pradosaja vikaras* due to incomplete metabolism of *Rasa dhatu* from food like *Ashradha, Aruchi, Pandu, Sthaulva, Mandagni* etc^[3].

Jatharagni has been classified into four categories according to its power of digestion namely, Samagni, Vishamagni, Tikshnagni and Mandagni^[4]. Out of these four Agnis, Samagni is the natural and desired state of Agni, where all the Doshas act in equilibrium condition. Remaining three types of *Agni* are pathological state of *Agni* and result diseases due to abnormal functioning. It is asserted in Ayurveda that, *Mandyagni* is the root cause for all the diseases [5]. Wrong dietary habits such as *Adhyashana* (eating after meal), Vishamashana (diet on irregular time and quantity), and wrong behavioral pattern such as Vegadharana (suppression of urges) leads to vitiation of Doshas independently or together causing Agnimandya (indigestion)[6]

Deepaniya drugs are those drugs which enhance the Manda agni (poor digestive fire) and restores its normalcy for maintaining health. Acharya

Charaka has mentioned Deepaniya Mahakashaya, a group of ten Deepaniya drugs, in Sutra Sthana of Charaka Samhita. These are Pippali, Pippalimoola, Chavya, Chitrak, Shringavera, Amlavetas, Marich, Ajmoda, Bhallatak asthi and Hingu niryas^[7]. Though these have different parts for use, they have very similarities in their Rasapanchak. In this article, different opinions about their Rasapanchak in different Nighantus are discussed and a study has been carried out on Deepana karma of these drugs.

MATERIALS AND METHODS

This study endeavors critical review on Deepaniya Mahakashaya as mentioned in Charaka samhita in relation to Bhavaprakash Nighantu, Dhanwantari Nighantu, Raj Nighantu and Kaiyadev Nighantu based on their Rasapanchaka i.e. Rasa, Guna, Virya, Vipaka, Karma; along with their phytochemical composition, and pharmacological properties. Properties of Deepania dravya in relation to Agni has been discussed and analyzed from Ayurvedic and modern pharmacological perspectives using Ayurvedic treatises as well as various journals

and monographs. Google search was also used. Books and other online materials were also considered.

Review of Literature

Definition

According to *Acharya Sharagadhara*, *Deepaniya* drug is the one which ignites the *Agni* (digestive power) but does not digest *Aama* (undigested food)^[8]. According to *Bhavaprakasha*, *Deepana Dravya* stimulates *Jatharagni* but it is unable to digest '*Aama*'.

Characteristics of Deepaniya dravya

According to *Susruta Samhita, Deepana dravya* is dominant of *Agni mahabhuta* and hence it resembles the characteristics of *Agneya dravyas* like *Ushna* (hot in potency), *Tikshna* (sharp), *Sukshma* (subtle), *Ruksha* (dry), *Khara* (rough), *Laghu* (light), *Visada* (clear), *Amla* (sour), *Lavana* (salty), *Katu* (pungent) in taste and *Urdhwa gati* (moves in upward direction)[9]. Acharya *Charak* in his treatises has mentioned about ten drugs under *Deepaniya mahakashaya* which are discussed here.

Table 1: List of *Deepaniya Mahakashaya*[7][10]

	Table 1: List of Deepaniya Manakasnaya (1)[10]									
S.No	Name	Botanical Name	English Name	Active Ingredients						
1.	Pippali	Piper longum Linn	Long pepper	Piperine, piperlonguminine ^[11]						
2.	Pippalimoola	Roots of <i>Piper longum</i> Linn	Root of Long pepper	Piperine, piperlonguminine [11]						
3.	Chavya	Piper chaba Hunter	Java long pepper	Lignan, piperamine-2, Chabamide pipernonaline, guineensine [12]						
4.	Chitrak	Plumbago zeylanica.L	White Leadwort	Plumbagin [13]						
5.	Shringavera	Zingiber officinale Rose	Ginger	Gingerol, shogaol, zingerone[11][14]						
6.	Amlavetas	Garcinia pedunculata Roxb.	Mangosteen	Garcinol, cambogin ^[15]						
7.	Marich	Piper nigrum Linn	Black pepper	Piperine, Chavicine ^[16]						
8.	Ajmoda	Apium graveolens Linn	Celery fruit	Caffeic acid, chlorogenic acid, apiin, apigenin ^[17]						
9.	Bhallatak asthi	Semecarpus anacardium Linn	Seed of Marking nut	bhilawanols, sterols ^[18]						
10.	Hingu niryas	Ferula narthex Boiss.	Asafoetida	Hydroxyumbelliprenins, Asafoetidin, Ferocolicin, Disulphides ^[11]						

Table 2: Properties of *Deepaniya Mahakashaya* as per Bhavprakash Nighantu [19]

S.No	Name	Varga	Rasa	Guna	Virya	Vipaka	Karma
1.	Pippali	Haritakyadi	Katu	Snigdha, Laghu	Anushna	Madhura	Agni Deepak, Vata kapha hara, Ama vata nashaka
2.	Pippali moola	Haritakyadi	Katu	Laghu, Ruksha	Ushna	Katu	Agni deepak, Pachak, Krimihara, Pittakarak
3.	Chavya	Haritakyadi	Katu	Laghu, Ruksha	Ushna	Katu	Agni deepak, Pachak, Krimihara, Pittakarak
4.	Chitrak	Haritakyadi	Katu	Laghu, Ruksha	Ushna	Katu	Agni deepak, Pachak, Krimihara, Vata shleshmahara.

5.	Shringavera	Haritakyadi	Katu	Teekshna, Ruksha	Ushna	Madhura	Agni Deepak, Ruchi karak, Vata kaphahara
6.	Amlavetas ^[20]	Amraadiphala	Amla	Laghu, Ruksha	Ushna		Agni Deepak, Bhedan, Pittakaarak
7.	Marich	Haritakyadi	Katu	Teekshna	Ushna	Katu	Agni Deepak, Pitta kaarak krimihara,
8.	Ajmoda	Haritakyadi	Katu	Teekshna	Ushna	Katu	Deepani, Kaphavatahara, Krimighna,
9.	Bhallatak asthi	Haritakyadi	Madhur, Kashaya	Laghu	Ushna	Madhura	Deepani, Kaphavatahara, Krimighna,
10.	Hingu niryas	Haritakyadi	-	Teekshna	Ushna	-	Pachaka, Ruchikarak, Krimighna, Pitta bardhak,

Table 3: Properties of *Deepaniya Mahakashaya* as per Dhanwantari Nighantu^[21]

	Table 3. Froperties of Deepuniya Munukushaya as per Dhanwantari Nighantu								
S.No	Name	Varga	Rasa	Guna	Virya	Vipaka	Karma		
1.	Pippali	Shatapushpadi dwitiya	Katu	Snigdha	Shita	Madhura	Tridoshhara, Krimighna, Ama dosha hara		
2.	Pippali moola	Shatapushpadi dwitiya	katu	-	Ushna	-	Agnideepaka, Krimihara		
3.	Chavya	Shatapushpadi dwitiya	Katu		Ushna	-	Agni Deepaka, Krimi hara		
4.	Chitrak	Shatapushpadi dwitiya	Katu	Teekshna	Ushna	Katu	-		
5.	Shringavera	Shatapushpadi dwitiya	Katu	S <mark>nigdh</mark> a	Ushna	-	Ruchikarak, Shlipadhara, Vatahara,		
6.	Amlavetas	Shatapushpadi dwitiya	Kas <mark>ha</mark> ya, Katu	Ruksha	<u>U</u> shna	-	Kapha vata hara, krimihara		
7.	Marich	Shatapushpadi dwitiya	Katu, Teekta	MAPR UP	Ushna	-	Kapha vata shamak, krimihara		
8.	Ajmoda	Shatapushpadi dwitiya	Teekta	-	Ushna	-	Agnidipak, ruchikarak, Krimihara		
9.	Bhallatak asthi ^[22]	Chandanishya Tritiya varga	Katu Tikta	-	Ushna	Madhura	Kriminashak, vata Kapha nashak,		
10.	Hingu niryas	Shatapushpadi dwitiya	Katu	-	Ushna	-	Vata kapha hara, Krimighna		

Table 4: Properties of *Deepaniya Mahakashaya* as per Raj *Nighantu* [23]

S.No.	Name	Varga	Rasa	Guna	Virya	Vipaka	Karma
1.	Pippali	Pippalyadi	Katu, Tikta	Snigdha	Ushna	- -	Agni deepak, Shleshmahara (alleviates Kapha)
2.	Pippali moola	Pippalyadi	Katu	-	Ushna	-	Agni Deepak, Shleshmahara, Krimihara
3.	Chavya	Pippalyadi	Katu	Laghu	Ushna	-	Agni Deepak, Krimihara, Ruchikarak
4.	Chitrak	Pippalyadi	-	-	Ushna	Katu	Kapha janya roga hara, Krimi roga nashak
5.	Shringavera	Pippalyadi	Katu	-	Ushna	-	Vata kapha janya roga hara
6.	Amlavetas	Pippalyadi	Amla, Kashaya	-	Ushna	-	Ruchikarak, Vata roga hara
7.	Marich	Pippalyadi	Katu, Tikta	-	Ushna	-	Kaphahara, Ruchikarak, Krimihara
8.	Ajmoda	Pippalyadi	Katu	-	Ushna	-	Ruchikarak, Udar roga nashini

9.	Bhallatak asthi ^[24]	Amradi varga	Katu, tikt kashaya	7, -	ushna	-	Agni Deepak, Ruchi kara, krimihara
10.	Hingu niryas	Pippalyadi	Katu	Ruksha	Ushna	-	Krimighna, Kapha vata vriddhi hara

Table 5: Properties of *Deepaniya Mahakashaya* as per Kaiyadeva *Nighantu*^[25]

S.No	Name	Varga	Rasa	Guna	Virya	Vipaka	Karma
1.	Pippali	Aushadhi	Katu	Laghu, Snigdha	Anushna	Madhura	Deepana, Pachana
2.	Pippali moola	Aushadhi	Katu	Laghu, Ruksha	Ushna	Katu	Agni deepaka, Pachaka, Krimihara,
3.	Chavya	Aushadhi	Katu	Laghu, Ruksha	Ushna	Katu	Agni deepaka, Pachaka, Krimihara
4.	Chitrak	Aushadhi	Katu, Tikta	Laghu, Ruksha	Ushna	Katu	Agni Deepaka, Tridosha shamak, Krimighna
5.	Shringavera	Aushadhi	Katu	Guru	Ushna	-	Agni Deepaka, Pachaka, Kapha vata hara
6.	Amlavetas	Aushadhi	Amla	Laghu, Tikshna	Ushna	-	Deepana, Pachana
7.	Marich	Aushadhi	Katu	Laghu, Tikshna, Ruksha	Ushna	Katu	Agnideepaka, Ruchikarak, Krimihara
8.	Ajmoda	Aushadhi	Katu, Tikta	Ruksha	Ushna	Katu	Agni Deepaka, Pachaka, Krimihara
9.	Bhallatak asthi	Aushadhi	Madhura, Tikta, Kashaya	Laghu, Snigdha	Ushna	Katu	Agni Deepaka, Kapha vata hara, Kriminashak
10.	Hingu niryas	Aushadhi	Katu, Tikta	Laghu	Ushna	Katu	Agni Dipak, Pachak, Krimihara

Probable mode of action of Deepana dravya

A human feeding behavior is a complex phenomenon which involves both psychological and physiological factors. Psychological factors like sociocultural influences (eating habit, time of the day, religion), environmental factors, characteristics of food (appearance, smell, texture etc), emotional factor (stress), along with physiological mechanism regulate feeding behaviors^[26].

Hunger is physiological condition associated with contraction of stomach. This most commonly perceived hunger signals originate in the stomach where electrical (vagus nerve) signals relate the state of emptiness (or fullness), reinforced by the secretion of the hormone, ghrelin and by metabolic signals such as blood glucose (hypoglycaemia). [27] Appetite has physiological components controlled hormonally, but it is basically a psychological state. It is less easily localized than hunger, is often felt in mouth or palate. It depends more on odour or flavour and the pleasant memory of food [11][27].

The Cephalic phase of gastric secretion occurs with salivary secretion in response to stimuli like sight, smell, or taste. The neurogenic signal which

triggers the cephalic phase, originates in the cerebral cortex and in the appetite centre of the amygdala and hypothalamus. They transmit signal to dorsal motor nuclei of vagus nerve to the stomach. Other regions of the hypothalamus (the paraventricular nucleus and lateral hypothalamus) and higher centers (such as amygdala, limbic system and cerebral cortex) are stimulated to change feeding behavior by influencing the functions of the same hypothalamic nuclei. The two types of neurons in the arcuate nucleus are either orexigenic [e.g., contain neuropeptide Y via Y₁ receptors or agouti-related peptide (AgRP)] or anorexigenic [e.g., contain pro-opiomelanocortin (POMC)], cocaine-amphetamine-related transcript (CART)][28]. The gut hormone ghrelin regulates appetite and other physiological functions. Gastric secretion of Cephalic phase accounts for about 30 percent of the gastric secretion in association to intake of meal[29].

Physiology of *Deepan dravya* can be explained by drawing an example from *Bhaisajya Ratnavali, Agnimandya chikitsa* as well as *Dinacharyadi prakaranam* of *Bhavaprakasha*, where it has been advised to chew ginger along with salt before meal to intensify (Sandeepan) Jatharagni and to increase appetite^[30]. Taste of food (ginger+table salt) activates the cephalic phase in which appetite center in Hypothalamus, Amygdala and cerebral cortex activates salivary glands to secrete salivary juice (Bodhak Kapha) through Vagus nerves. Vagus nerve also stimulates gastric mucosa. Smell, taste and visual stimuli generates desire to eat that particular food stuff, due to which mind gives command to Rasanendriya to consume food and secretion of Bodhak Kapha begins in the mouth, which can be called as mouthwatering effect of Deepana Dravya. Smell, taste and visual stimuli also lead to secretion of Kledak Kapha and Pachak Pitta to some extent, which is a cephalic phase of gastric secretion as it occurs even before food enters the stomach[31].

DISCUSSION

In this review work, it has been observed that as mentioned in different *Nighantus*, most of the *Deepana Dravyas* are having *Katu rasa* followed by *Tikta rasa* (taste), *Teekshna* (sharp), *Ushna* (hot) and *Ruksha* (dry) *Guna*, *Ushna virya* (hot potency), *Katu vipaka* (bio transformation of drugs inside body) and *Karma* (pharmacological properties) like *Agni deepana* (intensifies digestive fire), *Ruchikarak* (appetizer), *Pachak* (digestive), *Krimihara* (antihelminthic) and *Vata-kapha hara* (which subsides excess *Kapha* and *Vata*) etc mostly. Since none of these *Deepaniya dravyas* possess any *Prabhav*, *Karma* of these *Deepaniya dravyas* have been considered under *Rasapanchaka*.

Katu rasa has dominance of Vayu and Agni Mahabhuta. Ruksha, Ushna and Laghu guna control movement of Vata, stimulate digestive fire, improve taste perception, scratches sticky material, clear channels in the body^[32]. Tikta rasa also improves taste. Ushna virya pacifies Kapha-vata and enhances Pitta. All these properties attribute greatly towards the biological effects of Deepaniya dravya and hence prove their usefulness in disease management as appetizer in Rasapradoshaja vyadhis.

Deepana Dravya cannot digest Aama but ignites digestive power. This statement can be supported by an example by Bhavaprakasha for a lamp. Dim lamp which can light the room and removes the darkness is unable to cook the rice, though it has the property of Teja Mahabhuta^[33]. Similarly, Deepana Dravya generates hunger by stimulating Jatharagni, in such way that It could be either by following a systematic diet, exercise or by using certain herbs and medicines mind motivates a person to eat food, but this stimulation is insufficient for the digestion of that food. So, Agni Deepana can be stated as something which stimulates Agni.

Research Work and Studies on These Herbs

A study on Long pepper shows that the isolate of Long pepper exhibits anti-bacterial activity. It further suggests that *Piper longum* also has other pharmacological and medicinal significance on intestinal disorder and Hepatitis. It also has anti-diabetic, anti-amoebic and immunomodulatory effect^[14].

In a study with aqueous suspension of *P. longum* root powder (200, 400 and 800mg/kg) orally to mice and rat evaluates that the analgesic effects the plant root produces a weak opioid-type but potent nonsteroidal anti-inflammatory drug-type of analgesia^[11].

A study on *Chavya*, where a unique piperine dimer Chabamide, separated from stem bark of the plant shows anti-microbial and anti-hyper lipidemic effect^[12].

P.zeylanica has been reported to possess wide range of pharmacological activities like antimicrobial, anti-inflammatory, anti-cancer, larvicidal and anti-diabetic effects^[13].

A study on pharmacological effect of Ginger suggests that, it is effective in treating nausea, vomiting and gastro hypo-motility^[14]. Another study on ginger suggests that consumption of Ginger enhances thermic effect of food and promotes feeling of satiety^[33].

Fruit of *G. pedunculata* has been found effective as hepato protective, cardio protective, hypoglycemic and improves iron deficiency anemia^[15].

In a study on *Piper nigrum* and its bioactive compounds finds to possess important pharmacological properties like anti-microbial activity, antioxidant effects against a series of reactive oxygen and nitrogen species. The same study also reported its anti-cancer, anti-diabetic and hypolipidemic property^[16].

In a study on *A. graveolens* extract finds that it attenuates the rise in various hepatotoxicity markers including aspartate transaminase, alanine transaminase, alkaline phosphatase, albumin, and total protein as compared with silymarin [17].

It is reported that *Semicarpus anacardium* extract possesses Immunomodulatory potency in hepatocellular carcinoma. It also reduces tissue and serum hyperlipidemia by the inhibition of intestinal cholesterol absorption coupled with peripheral disposal [18].

Clinical trial with *Ferula narthex* results that it is an effective remedy for several diseases of the stomach. It is one of the best remedies available for flatulence and is an essential ingredient for most of the digestive powders. Pharmacological and

biological studies have also shown that asafoetida possess several activities, such as antioxidant, antiviral, antifungal, cancer chemopreventive, antidiabetic, antispasmodic, hypotensive and molluscicidal^[11].

CONCLUSION

Deepaniya Mahakashay acts physiologically and psychologically, and kick starts the Cephalic phase of digestion, which accounts for close to 30 percent of total digestion. *Deepaniya dravyas* play the vital role in stimulating Jatharagni in case of Mandagni and Mandagni induced Rasa pradoshaja diseases. Guna (therapeutic properties) and Karma (action) of Deepaniya Mahakashay well explains its importance in treating disorders of Gastro-intestinal tract and its complications if prescribed correctly. Advanced research works on these herbs indicate the same. By reviewing the Rasapanchak of these drugs and the research updates it can be stated that Deepana Dravyas (appetizers) have multifaceted actions. Besides their applicability as appetizers, Deepana dravyas (appetizers) can be used in new drug development with respect to anti-microbial, anti-helminthic and immunomodulatory diseases as well. Thus, ancient treatises serve as a repository for the new drug development and an alternative to mankind for treating such diseases where modern medicines have limitations.

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