



Physiological activity of *Deepan* and *Pachan Dravyas* on *Jatharaagni*: A Systemic review

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ABSTRACT

Ayurveda is dealing with treating the mind and body as well as soul to ensure an overall state of health. The wisdom of Ayurveda consists of ancient and scientific knowledge. This science explains that health is a harmony between *Dosha*, *Agni*, *Dhatu* and *Mala*. The feeling of hunger, digestion, formation of *Ahara rasa* and *kitta bhaga*, distribution of *Ahara rasa* to various *dhatu*s, etc, these all processes depend upon *Agni*. Among all *Agnis* present in body, *Jatharagni* is the prime *Agni* to maintain others. Generally, all diseases arise whenever there is disturbance in *jatharagni*. Diminished *jatharagni* is the root cause of any diseased condition in body. *Deepan* and *Pachan* are endorsed to modify and balance the state of *jatharagni* and improves the digestive secretions, facilitates the peristaltic movement, helps to avoid formation of *Aama*, etc. The functions of *Deepan* and *Pachan dravyas* seems to be similar, but these are different from each other on the level of their mode of action. *Deepan* enlightens the *jatharaagni* by secretion of only 20% digestive juices and secretion of saliva where, *Pachan* depends on harmony between *Jatharagni* and *Paachak Pitta*. The *Prana Vayu* and *Saman Vayu* plays a good role in assisting *Jatharagni* and *Paachak Pitta* for digestion and absorption.

Keywords: Ayurveda, *jatharagni*, *deepan*, *pachan*, GI Tract, *aama*, hunger, etc.

INTRODUCTION

Ayurveda is a whole science having abundant wisdom and according to this every substance, including food, on this earth is medicine if used appropriately. [1] The food we eat also has good medicinal property. According to *Ayurveda*, *Aahar*, *Nidra* and *Brahmacharya* are *Trayopasthambh* (three pillars of life), [2] which should be followed by every individual and very important to prevent disease. For proper digestion of *Aahar*, *Agni* is very important. The concept of *Agni* is inconsistently described in different texts, but the basic principles remain same. The significance of *Aama* can be understood, as in *Ashtang hriday*, it is mentioned that the reason behind every disease is the weakness of this *Agni*. [3] In daily life routine, many food stuffs like ginger, garlic, table salt etc, are incorporated to enhance taste and flavour of food and these food stuffs are often advised by *Ayurvedic* physicians according to ones prakriti and vikriti, to enhance functioning of digestive system. Whatever food we eat has to undergo some process for its complete assimilation and absorption. This transformation is called as '*Pachan*' and it is termed as 'Digestion' according to modern science. [4] *Pachan* depends on harmony between *Jatharagni* and *Paachak Pitta*. *Prana Vayu* and *Saman Vayu* plays a good role in assisting *Jatharagni* and *Paachak Pitta* for digestion and absorption. But before digestion and absorption, body and mind must get prepared for ingestion of food. Flavour, aroma and appearance of food play major role in generation of *Kshudha Vega* (Hunger). This stage of generation of *Kshudha Vega* is important because after that, person feels to eat food. Balanced state of *Jatharagni* is very much important for *Kshudha Vega Pravartan*. [5] Good appetite (*Kshudha*) is the marker of balanced state of *Jatharagni*. Whenever patient complaints of poor appetite, often *Deepan* and *Pachan Dravyas* are given to generate or enhance appetite. These two terms are very near to each other as per their function but there is a thin borderline

between *Deepan* and *Pachan* terminology. *Bhavaprakash* and *Sharandghar Samhita* clearly defined the terms *Deepan* and *Pachan Karma*. From these references efforts are taken in this review article to explain physiological basis of *Deepan* and *Pachan Karma* with respect to digestion.

Materials and Methods-

- Review of *Ayurvedic* literature- Review the relevant references mentioned in *Brihtrayi*, *laghutrayi* and other *Ayurvedic* reference books like *Bhavaprakash* and *Sharandghar Samhita*
- Review of Modern literature- Modern science textbooks, Journals, Research articles and different online matter of relevant topic.

Review of literature

According to *Sharangdhar Samhita*, *Deepan karma* is that, which stimulates *Jatharagni* (*Agni Sandhukshan*) but do not digest the food. for example- *Mishi* (*Foeniculum vulgare*),

‘पचेत न आमं वह्निकृत् च दीपनं’ [6]

According to Monier Williams, meaning of word “*Deepan*” is given as ‘inflaming the fire’, setting on fire or stimulating. [7] According to *Charaka Samhita* commentator *Yogindranathsen*, *Antaragni Sandhukshan* means *Deepana*. [8] According to *Asthang Hridaya*, *Deeapna* means to stimulate *Agni* and it may digest *Ama* or not. [9] According to *Bhavaprakash*, *Deepan Dravya* stimulates *jatharagni* but it is unable to digest '*Aama*' (undigested food). Why *Deepan Dravya* can't digest *Aama*? *Bhavaprakash* gave an example of lamp to answer this question. He said, a dim lamp, which can light the room and removes the darkness is unable to cook the rice, though it is symbol of *Teja Mahabhuta*. [10] In the same way *Deepan Dravya* can generate hunger by stimulating *Jathraagni*, in such way that it generates a good will to eat food, but this stimulation is not that much sufficient which can digest the food. It is

interesting to analyse *Deepan* action with the help of modern physiology of mechanism of digestive juice secretion and reflex action. Sight, smell or thought of food stimulates hunger contractions and salivary secretions are induced. For example *Hingu* (*ferula asafoetida*) which is *Dravya* of *Deepaniya Gana* induces hunger and salivary secretions by its aroma only.

Deepaniya Gana mentioned in *Charaka Samhita*, contains *Nagar/Ardrak* (*Zingiber officinale*), *Marich* (*Piper nigrum*), *Ajmoda* (*Carum roxburghianum*) and *Hingu*, etc ^[11] which are used in daily cooking to enhance flavor and aroma of food, eventually it would lead to digestive and salivary secretions.

Table 1:- Acharya *Charaka* has mentioned *Deepan mahakashaya*

Sn o.	<i>Deepan Dravya</i>	Latin name	Family	Rasa	Guna	Virya	Vipaka
1	<i>Pippali</i> ^[12]	<i>Piper longum</i>	<i>Piperaceae</i>	<i>Katu</i>	<i>Laghu, Snigdha</i>	<i>Anushna</i>	<i>Madhur</i>
2	<i>Pippali-Mula</i>	Root of <i>Piper longum</i>	<i>Piperaceae</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>
3	<i>Chavya</i> ^[13]	<i>Piper retrofractum</i>	<i>Piperaceae</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>
4	<i>Chitraka</i> ^[14]	<i>Plumbago zeylanika</i>	<i>Piperaceae</i>	<i>Katu</i>	<i>Laghu, Ruksha, Teekshna</i>	<i>Ushna</i>	<i>Katu</i>
5	<i>Shunthi</i> ^[15]	<i>Zingiber officinale</i>	<i>Zingiberaceae</i>	<i>Katu</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Madhur</i>
6	<i>Amalvetas</i> ^[16]	<i>Garcinia pedunculata</i>	<i>Guttiferae</i>	<i>Katu</i>	<i>Laghu, Ruksha, Teekshna</i>	<i>Ushna</i>	<i>Amla</i>
7	<i>Maricha</i> ^[17]	<i>Piper nigrum</i>	<i>Piperaceae</i>	<i>Katu</i>	<i>Laghu, Teekshna</i>	<i>Ushna</i>	<i>Katu</i>
8	<i>Ajmoda</i> ^[18]	<i>Carum roxburghianum</i>	<i>Umbelliferae</i>	<i>Katu, Tikta</i>	<i>Laghu, Ruksha, Teekshna</i>	<i>Ushna</i>	<i>Katu</i>
9	<i>Bhallatak-asthi</i> ^[19]	<i>Semecarpus anacardium</i>	<i>Anacardiaceae</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu, Teekshna</i>	<i>Ushna</i>	<i>Madhur</i>
10	<i>Hinguniryasa</i> ^[20]	<i>Ferula narthex</i>	<i>Umbelliferae</i>	<i>Katu</i>	<i>Teekshna</i>	<i>Ushna</i>	<i>Katu</i>

There is involvement of different *Doshas* in generating appetite and digestion. For example- Chewing of ginger and salt increases appetite as well as stimulates *Bodhak Kapha* secretion. Secretion of *Bodhak Kapha* is an important step towards beginning of digestion. *Bodhak Kapha* mixed with food, whenever a person eats and facilitates digestion. From the above examples, physiological action of *Deepan Dravya* can be summarised in the following manner- Smell of food (*Asafoetida*) and taste of food (ginger+table salt) activates salivary secretion to a greater quantity, this phase of saliva secretion is a

cephalic phase ^[21] in which appetite centre 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 mouth-watering effect of *Deepan Dravya*. Taste and smell of food, and stimulus by visual are the reason for secretion of *Kledak Kapha* and *Pachak*

Pitta to some extent. This can be compared with the cephalic phase of Gastric secretion as it occurs even before food enters the stomach. Cephalic phase starts with the smell, sight, taste or thought of food. There are neurogenic signals that causes cephalic phase originate in cerebral cortex and in the appetite centre of Amygdala, Hypothalamus. Signals transmitted to dorsal motor nuclei of Vagus nerves to the stomach by them. As the gastric secretion in Cephalic phase accounts only 20% of total gastric secretions, which is not sufficient for complete digestion of food. Appetizing action of *Deepan dravyas* are like a lamp which has explained by *Bhavaparakasha*. As, a lamp can light up the room but it is unable to cook the food, in the same manner *Deepan Dravya* activates the mind to eat food. So, it enhances saliva secretion thus enhance *Jatharagni* by secreting 20% of gastric secretions. Its role in digestion is very poor. Fragrance or taste of *Deepaniya Dravya* elicits conditioned and unconditioned

reflex which activates hunger centre in Hypothalamus.

Those substance which digests *Aama* (undigested food) without stimulating *Jatharagni* is *Pachak Dravya*.^[22] *Pachaniya Gana* (group of substances which are potent digestive) is not described independently. Few examples of *Pachan Dravya* are *Jeerak* (*Cuminum cyminum*)^[23], *Dhanyak* (*Coriandrum sativum*)^[24], and *Nimbuk* (*Citrus acida*)^[25]. We can understand the action of *Pachan Dravyas* by an example of smouldering coal. Smouldering coal can cook the food but do not illuminate like fire, in the same way, *Pachaniya Dravya* digest *Aama* (undigested food) but is unable to perform *Agnideepana*. Action of *Pachan Dravya* can be understood according to their *Panchabhautik* constitution of six types *Rasa* (Taste). Out of six *rasas*- *Amla*, *Lavana* and *Katu rasa* have the property to perform the function of *Pachan*.

Table 2:- *Rasa* and their *Panchabhautik* constitution^[26]

<i>Rasa</i>	<i>Mahabhutas</i>
<i>Amla</i>	<i>Teja and Prithvi</i>
<i>Lavana</i>	<i>Jala and Teja</i>
<i>Katu</i>	<i>Teja and Vayu</i>

Agni is the common *Mahabhuta* among these *Paachak Rasas*.

This particular dominance of *Prithvi*, *Jala*, *Teja*, and *Vayu Mahabhuta* in these three *Rasas* stimulates secretion of *Bodhak kapha*, *Kledak Kapha* and *Paachak Pitta*. By the action of *Samana Vayu*, peristaltic movements generate, as these *Lavana*, *Amla* and *Katu Rasa* trigger gastric and intestinal secretion. *Tej* (Fire element), *Jala* (Water element) and *Vayu Mahabhuta* (Air element) in *Amla*, *Lavana* and *Katu*

Rasa have a role in triggering the secretion of *Paachak Pitta*. As *Paachak Pitta* is the medium of *Jatharagni*, so it can be said that *Paachak Dravyas* in food induces 80% of digestive juice secretions which aids digestion as well as absorption. Further, it also can be said that 80% of digestive juice secretions induced by *Paachak Dravyas* in food, which is gastric and intestinal phase of digestive juice secretions.

Deepaniya Gana is described in *Charak Samhita*, but *Pachaniya Gana* is not mentioned by *Charak Samhita*. According to *Arundatta*, drug which give powers *Agni*

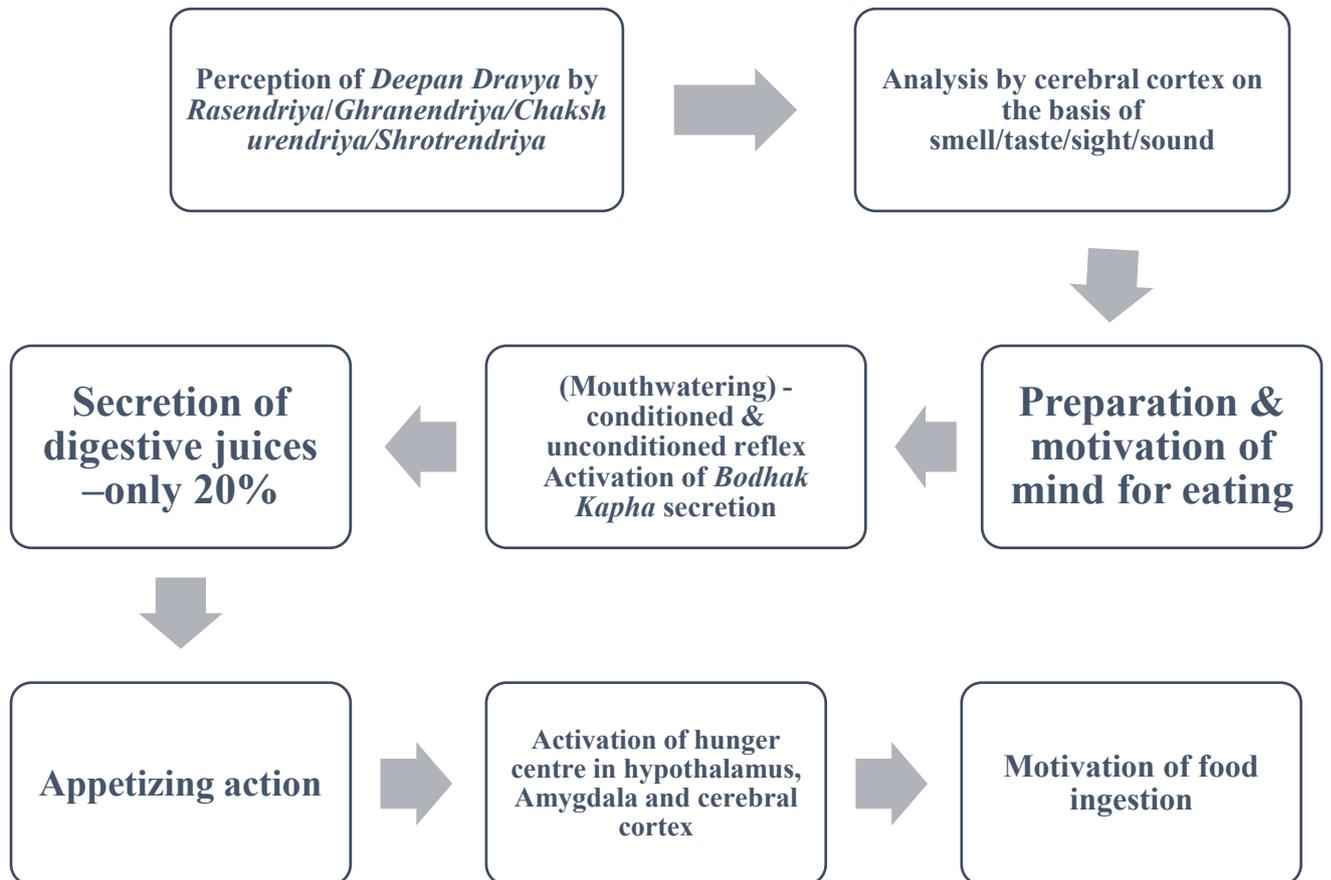
and improves digestion is called as *Pachan Dravya*. *Sushruta* has explained *Pippalyadi*, *Dashmuladi* and *Mustadi Gana* as '*Aampaachak*'. So, utility and applicability of *Deepan* and *Pachan Dravya* are elaborated in detail during the

DISCUSSION

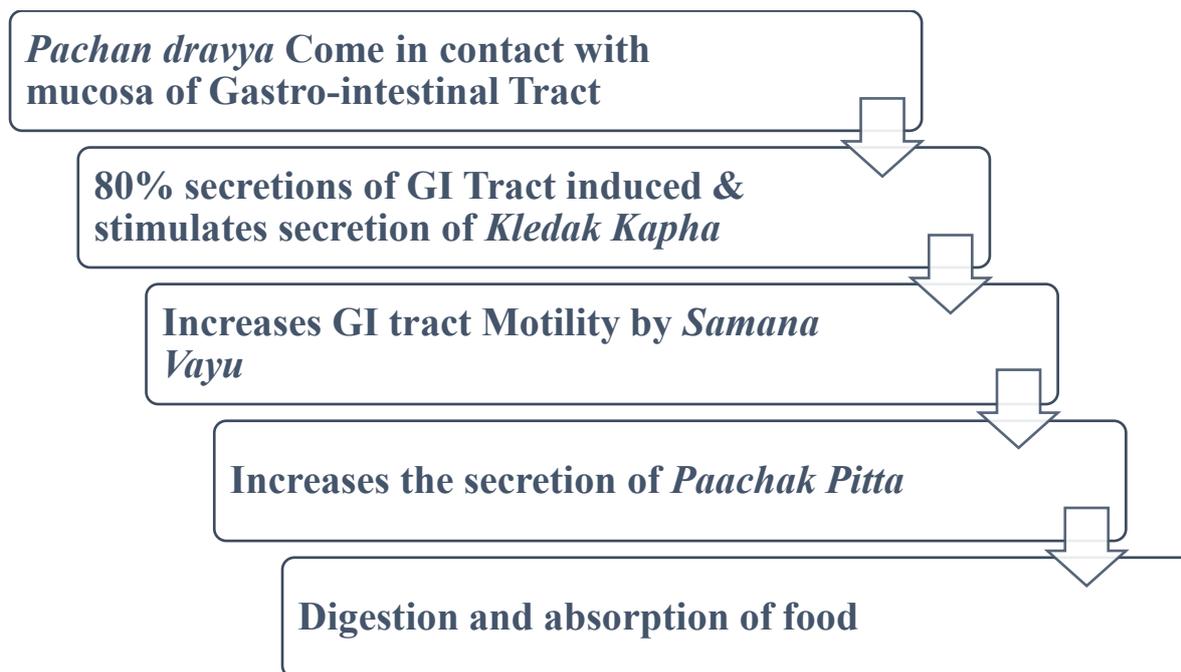
period of *Laghutrayi*, in which *Agnimandya* and *Ajirna* are described separately. *Agnimandya* is treated with *Deepaniya Dravya* (drugs) and *Ajirna* is treated with *Pachaniya Dravya*.

Physiological difference in action of *Deepan* and *Pachan Dravya* are summarized as:

Mode of physiological action of *Deepan Dravya*:



Mode of Physiological action of Pachan Dravya:



Deepan & Pachan drugs having almost same properties *katu rasa, katu vipaka & usna virya*, but their mode of action is different. *Deepaniya dravya* like *Chitraka, Maricha, Pippali, Pippalimula* and *Jiraka* having *katu rasa, katu vipaka & usna virya* are taken before the meals, so that they excite the salivary glands for secretions and stimulate the appetite centre to take the meal. *Pachana* drugs like *Hingu*,

Guduchi, Nagkeshar, Musta & Ajmoda also having *katu-tikta rasa, ushana virya, katu vipaka* are prescribed after meal therefore increase secretion of digestive enzymes which helps to digest the food properly. These drugs also stimulate peristaltic movement of intestine, increases local blood supply and absorption of nutrients from the tract. So, the basic difference between *deepan* and *pachan dravyas* are-

<i>Deepan karma</i>	<i>Pachan karma</i>
Stimulate <i>Jatharagni</i>	Digestion of food
<i>Agni Sandhukshan</i>	<i>Pachan of Aama</i>
Unable to digest <i>Aama</i>	Unable to <i>Agnideepana</i>
Act as Appetiser	Act as Digestant
Stimulate salivary glands	Stimulate peristaltic movement

CONCLUSION

Sedentary life style, incompatible and faulty food habits, daily life stresses related to work or family etc are the leading cause of misbalancing in normal functioning of *Agni* and there is *jathragnimandya* which also affects the *dhatwagni* of body and cause misbalance in different *dhatu*s. This *agnimandya* is the main etiological factors of most of the disease because of *agnimandya*, the food isn't get digested properly and gives rise to formation of *Aama*. It accumulates in different parts of the body and further leads to origin of multiple diseases. So, the Ayurveda has described *Deepan* and *Pachan karma*, to keep the *Jatharaagni* (digestive fire) in appropriate condition. *Deepan karma* promotes the *Jatharaagni* which creates urge for food and increases appetite. *Pachan karma* helps in proper digestion of food because of their digestive potency. *Tej* (Fire element), *Jala* (Water element) and *Vayu Mahabhuta* (Air element) in *Amla*, *Lavana* and *Katu Rasa* have a role in triggering the secretion of *Paachak Pitta* and on the action of *Samana Vayu* which generates peristaltic movements. Ayurveda has clearly explained the difference in action of appetizers and digestants in the form of *Deepan* and *Pachan* respectively. *Deepan dravyas* act on mind and cerebral cortex, by initiating cephalic phase of digestive secretion. But *Pachan Dravya* are responsible for 80% of digestive juices secretion in gastric and intestinal phases. The herbs of *Deepaniya Mahakashaya* are mostly belongs to the group of spices, if used as ingredient adds flavour to our food and increases interest to take food which also enhances the appetite, whereas the medicinal compositions of these drugs are used to treat the state of anorexia in case of *Agnimandya*.

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