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Analytical review of difference in physiological action of Deepan and Pachan dravya on GI tract

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Abstract

Health comprises of balanced state of Dosha, Dhatu, Mala and Agni. For digestion process balanced Jatharagni is immensely important. Root cause of all diseases is diminished Jatharagni, so it is important to correct the Jatharagni if it gets disturbed. For this purpose Deepan and Pachan Dravyas are recommended. Both these Dravyas modify and balances state of Jatharagni, improves digestive secretions, facilitates peristaltic movements etc. Though the action of Deepan and Pachan Dravyas appears to be similar, it is very necessary to differentiate Deepan and Pachan Karma on physiological basis.

Keywords: deepan, pachan, jatharagni, cephalic phase, gastric phase, GI Tract

1. Introduction

Ayurveda is first medicinal science, which emphasize on health as well as cure of diseases. Healthy status can be maintained with proper diet and regime. Aahar, Nidra and Brahmacharya are three pillars of life (Trayopasthambh), which should be meticulously followed by every individual [1]. According to Ayurveda, every substance on the earth has got medicinal property if used appropriately. Our food also can act as a good medicine [2]. In a day to day life, many food stuffs (animal/herbal/mineral origin) like ginger, garlic, table salt etc are incorporated to enhance taste and flavor of food and these food stuffs are often advised by Ayurvedic physicians to enhance functioning of digestive system. Food we consume has to undergo transformation for its complete assimilation. This transformation is called as 'Pachan' and it is termed as 'Digestion' according to modern science [3]. Pachan depends on well functioning of Jatharagni and Paachak Pitta. Prana Vayu and Saman Vayu assist Jatharagni and Paachak Pitta for digestion and absorption but before digestion and absorption, body and mind must get prepared for ingestion of food. Flavor, aroma and appearance of food play important 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 [4]. According to Ayurveda root cause of all diseases is diminished Jatharagni (Mandagni) [5]. Good appetite (Kshudha) is the marker of balanced state of Jatharagni. Whenever patient complaints of poor appetite often Deepan and Pachan Dravyas are prescribed to enhance appetite. 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.

2. Review of literature

According to Sharandghar Samhita, Deepan karma is that, which stimulates Jatharagni (Agni Sandhukshan) [6]. According to Monier Williams, meaning of word "Deepan" is given as '*inflaming the fire, setting on fire or stimulating*' [7]. According to Bhavaprakash, Deepan Dravya stimulates jatharagni but it is unable to digest 'Aama' (undigested food). Why Deepan Dravya can't digest Aama? Bhavaprakash has answered this question by giving example of lamp. Dim lamp which can light the room and removes the darkness is unable to cook the rice, though it is symbol of Teja Mahabhuta [8]. In the same way Deepan Dravya can generate hunger by stimulating Jatharagni, in such way that mind will motivate person to eat food, but this stimulation is insufficient for the digestion of that food. It is interesting to analyze 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 foetida*) which is Dravya of Deepaniy Gana induces hunger and salivary secretions by its aroma only. Deepaniya Gana described by Charaka, contains Nagar/Ardrak (*Zingiber officinale*),

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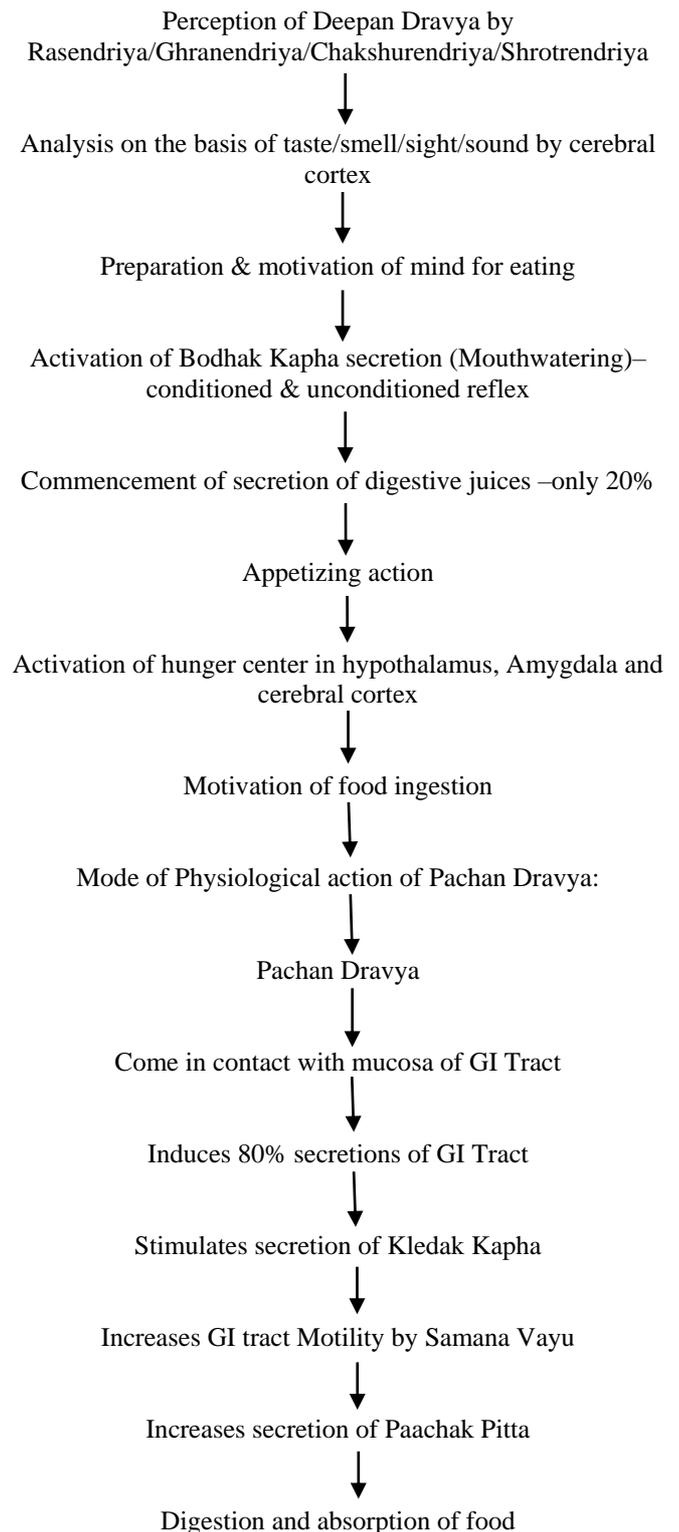
Marich (*Piper nigrum*), Ajmoda (*Carum roxburghianum*) and Hingu^[9] which are used in daily cooking to enhance flavor and aroma of food, eventually it would lead to digestive and salivary secretions. Bhavprakash has advised to chew ginger along with salt to intensify (Sandeepan) Jatharagni and to increase appetite^[10]. Chewing of ginger and salt not only increases appetite but also stimulates Bodhak Kapha secretion. Secretion of Bodhak Kapha is an important step towards beginning of digestion. When person starts eating food, Bodhak Kapha gets mixed with food and act as facilitator for digestion. From the above examples, physiological action of Deepan Dravya can be summerised in the following manner- Smell of food (Asafoetida), taste of food (ginger+table salt) activates salivary secretion to a greater quantity, this phase of saliva secretion is a cephalic phase^[11] 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 Deepan Dravya. Smell, taste and visual stimuli also leads 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. Cephalic phase results from sight, smell, taste or thought of food. Neurogenic signals that causes cephalic phase originate in cerebral cortex and in the appetite center of Amygdala, Hypothalamus. They transmit signals to dorsal motor nuclei of vagus nerves to the stomach. 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 (appetizer) food stuff /drug is like dim lamp explained by Bhavaparakasha. This dim lamp that light up the room is unable to cook food, in the same manner Deepan Dravya will prepare mind for eating food, enhances saliva secretion, ignites Jatharagni by secreting 20% of gastric secretions but its role in digestion is very poor. Fragrance or taste of Deepaniya Dravya elicits conditioned and unconditioned reflex which activates hunger center in Hypothalamus. Substance which digests undigested food lodged in intestine (Aama) without stimulating Jatharagni is Pachak Dravya^[12]. Pachaniya Gana (group of substances which are potent digestive) is not described independently. Few examples of Pachan Dravya are Jeerak (*Cuminum cyminum*)^[13], Dhanyak (*Coriandrum sativum*)^[14], and Nimbuk (*Citrus acida*)^[15]. Action of Pachan Dravya is like that of smoldering coal. Smoldering 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 on the basis of *Panchabhautik* constitution of six types Rasa (Taste). Out of six Rasas, Amla, Lavana and Katu Rasa perform the function of Pachan /Digestion the most. Amla Rasa (Sour taste) has dominance of Teja and Prithvi Mahabhuta. Lavana Rasa (salty taste) has dominance of Jala and Teja Mahabhuta. Katu Rasa has dominance of Teja and Vayu Mahabhuta. Agni is the common Mahabhuta among these Paachak Rasas^[16]. This particular dominanace of Teja, Jala, Prithvi and Vayu Mahabhuta in Amla, Lavan and Katu Rasa stimulates secretion of Bodhak, Kledak Kapha and Paachak Pitta. Lavana, Amla and Katu Rasa also trigger gastric and intestinal secretion which leads to generation of peristaltic

movements by the action of Samana Vayu. Tej (Fire element), Jala (Water element) and Vayu Mahabhuta (Air element) in Amla, Lavana and Katu Rasa triggers 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.

3. Discussion

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

Mode of physiological action of Deepan Dravya:



Deepaniya Gana is described in Charak Samhita, but Pachaniya Gana is not mentioned by Charaka. According to Arundatta, drug which empowers 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 period of Laghutrayi, in which Agnimandya and Ajirna are described separately. Agnimandya is treated with Deepaniy Dravya (drugs) and Ajirna is treated with Pachaniya Dravya.

4. Conclusion

Deepan and Pachan dravya means substances having appetizing and digestive potency correspondingly. Ayurveda has clearly defined the difference in action of appetizers and digestants in the form of Deepan and Pachan respectively. Deepan Dravyas acts physiologically on mind and cerebral cortex, by initiating cephalic phase of digestive secretions which accounts only 20% of total digestive secretions. Physiologically Pachan Dravyas are responsible for 80% of digestive juice secretions in the gastric and intestinal phases. In Ayurvedic compendia, Pachan Dravyas (digestants) are described with contest to AmaPachan, but they also can enhance physiological activity of GI tract. Deepan Dravyas (appetizers) like Hingu, Ardrak possess strong Deepaniya action on Agni so these Dravyas also should be incorporated in routine diet. Nimbuk (lemon) and Rason (Garlic) are strong Pachaniya Dravyas so these Dravyas also should be part of routine diet for digestion and absorption of food.

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