

## International Research Journal of Ayurveda & Yoga

An International Peer Reviewed Journal for Ayurveda & Yoga



### To Explore The Mode Of Action Of *Kshara Basti* In *Medoroga* w.s.r. To **Dyslipidemia**

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VOLUME 4 ISSUE 7

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Article received on 8<sup>th</sup> July 2021

Article Accepted 27<sup>th</sup> July 2021

Article published 31<sup>st</sup> July 2021

#### ABSTRACT: -

Dyslipidemia, defined as high total or LDL cholesterol levels or low HDL cholesterol levels, is a major risk factor for CHD and stroke (cerebrovascular disease). Dyslipidemia is caused by causative factors such as high fat diet and sedentary lifestyle, which can be compared to *Ahara* having *Snigdha*, *Guru*, *Picchila*, *Sheet Guna*, and *Chestha Dvesha* (lack of exercise), which lead to *Kapha and Medo Dosha Vridhi* (*Gunataha Vridhi*), that can be correlated to *Medodosha* and subsequently as *Medoroga*. As a result, *Medoroga* can be classified as “*Santarpannimittajvikara*” (diseases due to over nutrition). *Aptarpana* is one of the key therapeutic treatment of *Santarpana Nimittaja Vyadhi*. *Basti* that falls under *Yuktivyapashraya Chikitsa*, has *Achintya Shakti*, and is referred to in Ayurvedic scriptures as *Ardhachikitsa*. *Basti* prepared with *Aptarpaka Dravya* (medicated enema) is beneficial in eradicating vitiated *Doshas* and eliminating obstructions in *Srotasa*, eliminating *Ama* (harmful metabolites) from the body, and interrupting disease propagation. Because of its direct influence on *Pakvashaya* (*Vata Sthana*), *Basti* may be the most effective therapy procedure for correcting *Medavrita Vata Dosha*, which is the primary factor involved in the pathophysiology of *Medoroga*. Therefore, *Basti* with contents *Haridra*, *Daruharidra*, *Triphala*, *Musta*, *Shyonaka* with *Yavakshara*, *Gomutra*, *Madhu* and less amount of *Sneha*, described for treatment in *Kaphaja Roga* by *Acharya Charaka* is taken for review.

**Key Words** – *Achintya Prabhava*, *Anuvasana*, Free fatty acids, Lipids, *Niruha Basti*



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**How to cite this article:** Sharma S, Saroj UR, Joshi RK' "To Explore The Mode Of Action Of Kshara Basti In Medoroga W.S.R. To Dyslipidemia IRJAY. [Online] 2021;4(7): 101-110. Available from: <http://irjay.com> ;

**DOI:** <https://doi.org/10.47223/IRJAY.2021.4714>

## INTRODUCTION

Dyslipidemia is a condition characterized by unusually high levels of total cholesterol, VLDL, LDL, triglycerides, and low levels of HDL in the blood due to faulty lipid and lipoprotein metabolism. It may happen at any stage of life. Sedentary lifestyles and drastic changes in food intake are the leading causes of non-communicable diseases such as Dyslipidemia, Type-2 Diabetes Mellitus (DM), Hypertension, and Obesity, which frequently co-exist in an individual and are difficult to manage, and also pose as risk factors for diseases such as cardiovascular disease, atherosclerosis, and stroke (Cerebrovascular disease). According to recent studies, elevated cholesterol is seen in 25-30% of urban and 15-20% of rural people. In urban people, the prevalence of probable familial hypercholesterolemia ranges from 1:125 to 1:450.<sup>[1]</sup> According to *Madhavanidana*, *Medoroganidana Adhyaya*, and *Charaka Samhita Sutrasthana Santarpannimitaja Roga Adhyaya*, the signs and symptoms of "Medovridhi or Medo Dushti have striking similarities to Dyslipidemia as described in current texts. Dyslipidemia can be classified as *Medoroga* under *Santarpanjanya Vyadhi* based on the etiological components and symptom complexes. *Chikitsa sutar* of *Santarpanjanya Vyadhi* primarily comprise *Samshodhana Chikitsa* and *Apatarpana*., "Basti" appears to be the best among all treatment modalities under *sanshodhana chikitsa* as since it is the fastest *Apatarpana*

*Chikitsa* that can eliminate excessively high *Meda* when made with *Apatarpaka* medications. *Kshara Basti* mentioned by *Acharya Charaka* for treating vitiated *Kapha Dosh* is selected for reviewing its probable role on *Medoroga* with special reference to dyslipidemia based on individual properties of its contents.

## AIMS AND OBJECTIVES

To discuss, evaluate and elaborate the probable role of *Kshara Basti* in *Medoroga* w.s.r. to Dyslipidemia.

## MATERIALS AND METHODS

*Ayurvedic* classical text such as *Charaka Samhita*, *Sushruta Samhita*, *Ashtang Hridaya*, *Nighantu* etc. and related articles published online in Pubmed and Google Scholar were reviewed critically and scientifically compiled to establish the role of *Kaphashamaka Basti* in *Medoroga* w.s.r. to dyslipidemia.

**Review of Basti**—*Basti* is best treatment modality among five *Sanshodhana Karma* under *Panchkarma*, for vitiated *Vata* related disorders, it performs various other functions with different drugs combinations like *Vrihana*, *Doshanirharana*, *Lekhana* etc. can be used in different diseases like *Piccha Basti* in *Grahani*, *Vaitarana Basti* in *Ama* related conditions, *Madhutailika Basti* in *Shosha* in *Sukumara* patients, *Lekhana Basti* in *Sthoulya* etc. *Basti Chikitsa* is said to be *Ardha Chikitsa* by *Acharya Sushruta*. According to *Acharya*

*Charaka*<sup>[2]</sup>, *Achintya Prabhava* of *Basti*, as treatment delivered through anus by virtue of its *Prabhava*, pulls out all the vitiated *Doshas* even from the head to the *Pakvashaya*, much as the sun evaporates water from the earth's surface (*Niruha Basti*). *Basti*, by its *Ushna* and *Tikshnaguna*, eliminates vitiated *Doshas* in the body, together with *Basti Dravya*, *Mala*, and *Apana Vayu*<sup>[3]</sup>. When discussing *Basti*, *Vagbhata*<sup>[4]</sup> says that just as a plain fabric absorbs the colour of the water it is soaked in, so does *Basti* take out all the *Doshas* that are liquefied by *Snehana* and *Swedana*. *Basti* cleanses *Ama* and corrects *Srotorodha*, repairs gastro-intestinal glands, and improves digestion and absorption of digested dietary stuff. When taken through the rectum, *Basti Drava* reaches the levels of *Nabhi*,<sup>[5]</sup> *Kati*, *Parshva*, and *Udara Pradesha* and remains in *Pakvashaya*, *Shroni*, and *Nabhi*, eliminating *Dosha* by dissolving them in *Purisha*.<sup>[6]</sup>

When given through anus *Basti Drava* is absorbed from superior hemorrhoidal veins in the rectal mucosa, passes through the duodenum, enters systemic circulation, and then portal circulation, corrects liver metabolism, facilitates bile salt synthesis, and results in regularization of emulsification of fats, thereby avoiding fatty accumulation in the liver and blood cells. *Basti* is beneficial in the treatment of a variety of ailments. The medicine is absorbed by the capillaries in the intestine, bypassing the enzymes released in the stomach; the medicine reaches the target tissues directly and is more effective. Because the rectal mucosa is rich in vasculature, the medications used to produce *Niruha Basti Drava* are rapidly absorbed through the rectal mucosa due to selective permeability. The gut is divided into four layers: Muscular, Sub-mucosal, Serosal, and Mucosal. The Mucosal layer is the most superficial and comes into touch with the *Basti Drava*. When the gut is cleansed by *Basti*, the layers of the gut and villi

get more nourishment, and subsequent absorption of micronutrients may be improved, allowing these micronutrients to enter the circulation and eventually reach the target organ. The intestine's mucous membrane quickly absorbs lipid-soluble substance and eventually pushes it into circulation. In *Niruhabasti* the contents of *Basti* are *Makshika*, *Saindhava*, *Sneha*, *Kalka*. *Saindhava* by its *Sukshma*, *Tikshna* and *Vyavayi Guna* spread in the minute channels of the body.<sup>[7]</sup> Some of the *Dravyas* used to prepare *Basti* are water-soluble and some are fat-soluble and get absorbed accordingly.

Composition of *Basti (KsharaBasti)* <sup>[8]</sup> (See-Table No. 1)

#### **Preparation of Basti Dravya - Anuvasana Basti-**

*Tila Taila* 100 ml. is made lukewarm by keeping it in a hot water bath. Then *Saindhava Lavana* (1gm.) is added and mixed till a homogenous mixture is obtained, again *Basti Dravya* is made luke warm, patient is told to lie in left lateral position with right leg bent from knee, then *Basti* is administered through anal route using enema syringe fitted with rubber catheter (no.08).

#### **NiruhaBasti-**

Ayurvedic Pharmacodynamics of constituents of *Basti Dravya* (See- Table No. 2)

**Method of preparation**– Take 30 ml. of honey and 12 gm. of *Saidhava* in a *Kharala*. Mix it properly. Add 70 ml. of *Tila Taila* in above mixture then Pour 280 ml. prepared *Kwatha* (lukewarm) of above mentioned *Dravya* and add 12 gm. of *Yavakshara* and lastly add 100 ml. of *Gomutra*. After mixing it well, filter the preparation. Pour this *Basti* contents in *Basti Putaka* and administer it lukewarm to patient in left lateral position after proper *Snehana* and *Swedana*.

**Mode of Action of Kshara Basti Contents Gomutra** due to *Katu*, *Tikta Guna* corrects *Kapha Vridhi* and *Medo Vridhi*. It contains

nitrogen and copper that helps in excretion of fat in the form of *Kleda* through urine by increasing kidney functions and diuretic action. Copper prevents fat deposition in the body and organs.<sup>[9]</sup> *Triphala* due to *Kapha Vatahara* and antilipidemic action, stimulates bile secretion, detoxifies the liver, helps in digestion and assimilation, and significantly reduces serum cholesterol and lipid levels<sup>[10]</sup>.

*Haridra* has been described in *Lekhaniya Gana* proves to be effective in treatment of *Medoroga*. Study on hyperlipidemic rats proved that turmeric powder suspension relieved metabolic syndrome-associated hyperglycemia and dyslipidemia, whereas curcumin, ethanol extract, and volatile oil decreased blood total cholesterol, triglycerides levels and increased HDL-C/TC ratio. Use of turmeric on a daily basis for sixty days reduced both HDL and LDL levels in people who had high baseline levels of both.<sup>[11]</sup>

*Yavakshara* having *Kledahara*, *Chedana*, *Kaphanissaraka*<sup>[12]</sup> properties causes irritation in intestinal epithelium thereby stimulating more excretion of *Malarupi Meda* (cholesterol) in stool, and also prevents reabsorption of fats. Due to its alkaline nature it balances the PH of rectal mucosa, helps in protection of bacterial flora and promotes the production of enzymes for good metabolism of cholesterol, promotes scrapping (*Lekhana*) of lipids in blood vessels, reduce *Sandrata* (density) of blood and prevents fat deposition in vessels (atherosclerosis), a major risk factor of CHD. *Daruharidra* due to anti-hyperglycemic, anti-oxidant and anti-lipidemic agent, proves to be effective in dyslipidemia<sup>[13]</sup>.

*Mustaka*<sup>[14]</sup> has been mentioned in the *Lekhaniya Mahakashaya* by *Acharya Charaka*.<sup>[15]</sup> *Mustaka* due to antilipidemic property is effective in *Sthaulya*. Recent studies on *Mustaka* proved that it reduces fat deposits by burning of fats, corrects lipid metabolism. It contains plant sterols namely  $\beta$ -sitosterols that

inhibits absorption of cholesterol in intestines and increases its excretion with stool.

*Shyonaka* by virtue of its quality of inhibiting lipid and carbohydrate accumulation in adipocytes and releasing an enzyme associated with fat absorption is effective in dyslipidemia<sup>[16]</sup>.

*Madhu*<sup>[17]</sup> alleviates vitiated *Kapha Dosha* and *Medo Dhatu*. *Acharya Sushruta* has stated the *Sthaulyahara* and *Lekhana* properties of *Madhu*<sup>[18]</sup>. Due to its '*Yogavaahitwa*' property, *Madhu* enhances the properties of substances with which it is processed. It is used to form colloid solution in *Basti* as it acts as a natural emulsifying agent used to help stabilize the colloid by binding the liquids together<sup>[19]</sup>.

*Saindhava Lavana* due to *Sukshma* property helps the drug to reach in the micro channels, hence enhances the absorption of *Basti Dravya* at the *Srotasa* level. Due to *Vishyandi* and *Kledahara* property stimulates the evacuation of bladder and rectum.<sup>[20]</sup> Due to *Ushna* and *Tikshna* property, when mixed with honey melts the sticky *Kapha (Dosha Sanghata)* and facilitates its easy removal. Due to *Chedana*, *Vilayana* property, dissolves and expels the *Dosha* from colon thus helps in bio purification process of *Basti*.

*Tila Taila* is effective in *Kapha* and *Meda Pradhana* conditions.<sup>[21]</sup> Due to *Snehatva Guna* lubricates the *Srotasa*, protects the mucous membrane from the irritating effect of *Tikshna* drugs in the *Basti Dravya*, helps in easy removing of waste substances (*Mala*) by *Srotovishodhana* i.e. *Malanama Vinihanti Sangam*.<sup>[22]</sup> Due to *Sukshma Guna* helps the drug to reach into the micro channels and *Kshapana* of *Meda*. By *Samskara* it acquires the properties of the other drugs. Therefore *Murchita Tila Taila (Saindhava Lavana mixed in Tila Taila)* acquiring *Vyavayi Guna*, facilitates easy absorption and transportation in the body, performs *Lekhana* and *Rukshana*,

removes excess *Meda*. (cleansing the deposits of adipose tissue).

## DISCUSSION

According to Ayurveda, excessive intake of *Shleshma Vardhaka Ahara Vihara* and less exercise (*Nidana* for *Medoroga*) leads to improper formation of *Medo Dhatu* in excess (*Sama Meda*), that accumulates in the *Srotasa* causes *Srotavarodha* of *Vata*, leads to *Samana Vata Vridhi* in the *Koshtha* causing *Agnisandhukshana*, requiring frequent meals and in this way, the vicious cycle of *Meda* production continues, due to *Avarana* of *Marga* of *Vata* by the *Sama Meda*, *Poshana* of subsequent *Dhatu* in the body stops, leading to *Upachaya* of *Medodhatu*. *Medodhatvagnimandya* leads to improper formation of *Medo Dhatu* in excess and if not corrected, this *Meda* gets deposited in various sites in the body as *Badha Meda* causes *Sthaulya* (*Medovikara*), *Dhamanipratichaya* (Atherosclerosis), when circulates with *Rasa* and *Rakta Dhatu* in the form of *Abadha Meda* (Abnormal levels of Lipoproteins in plasma) causes dyslipidemia (*Medoroga*). According to Modern view, when free fatty acids (FFAs) are abundantly released from an enlarged adipose tissue mass in the liver, they result in increased synthesis of glucose and triglycerides, as well as the secretion of extremely low density lipoproteins (VLDLs). Lipoprotein abnormalities include a decrease in high density lipoprotein (HDL) cholesterol and an increase in the amount of low density lipoprotein particles. FFAs also impair insulin sensitivity in muscle by blocking insulin-mediated glucose absorption. Associated abnormalities include increased lipid deposition in triglycerides and glucose partitioning to glycogen. *Medoroga* / Dyslipidaemia is a *Kapha- Vata Pradhana*

*Tridoshaja Vyadhi*. *Kapha Dosh*a has *Ashraya Ashrayi Sambandha* with *Meda*. Involvement of vitiated *Pitta* can be referred to as *Jatharagnimandya* and *Dhatvagnimandya*. *Samana* and *Vyana Vayu* involvement can be proved as *Medavrita Samana Vayu* causes *Agnisandhukshana*<sup>[23]</sup> as a result the *Abhyavaharana Shakti* increases. *Vyana Vayu* is responsible for proper circulation and distribution of *Dhatu*.<sup>[24]</sup> Due to *Sanga* in *Medovaha Srotasa* *Vyana Vayu* can not transport the nutrients to their respective *Dhatu*s. Hence improper distribution of fat in the body proves the involvement of *Vyana Vayu*. Therefore for *Samprapti Vighatana*, *Kaphavataghna* treatment is recommended. *Kshara Basti* (*Gomutra*, *Yavakshara*, *Madhu*, *Saindhava*, *Triphala*, *Haridra*, *Daruharidra*, *Mustaka*, *Shyonaka Chaal*) is mentioned for the treatment of *Kapha Dosh*a by *Acharya Charaka* having both *Vatakaphahara* and *Lekhana* properties has been selected for review to prove its role in the treatment of dyslipidemia.

*Gomutra*, *Yavakshara*, *Madhu*, *Saindhava*, *Haridra*, *Daruharidra* due to *Kapha-Vatahara*, *Medohara* properties, perform *Lekhana* of *Sneha*, *Meda* and *Kleda*, as a result body weight reduces and related symptoms of *Medodushti* like *Angasada*, *Trishna*, *Moha*, *Alpaprana*, *Swedadhikya*, *Atinidra*, *Daurgandhya* are relieved. *Triphala*, *Yavakshara* have *Srotoshodhana* property thus remove *Avaranajanya Vataprakopa*, hence relief in *Kshudrashwasa*, *Atipipasa*, *Atikshudha* may be attributed to correction of vitiated *Vayu* which is known to cause *Jatharagni Sandhukshana* and *Trisha*. *Laghu*, *Ruksha Guna*, *Katu-Tikta Rasa*, and *Ushna Virya* of *Haridra* and *Daruharidra* pacify vitiated *Kapha Dosh*a hence attribute to relief in *Kapha* related symptoms like *Alasya* and *Atinidra*. *Mustaka* and *Shyonaka* due to

hypolipidemic property as proved by studies, reduce fat deposits by burning of fats, corrects lipid metabolism. Due to *Deepana-Pachana* property of *Mustaka*, *Dhatvagni* increases, *Medodhatv agnimandya* is corrected, *Ama* in *Srotasa* is removed leading to reduction in *Asthayi Meda*. Lipid profile is associated with *Asthayi Meda*. *Basti Dravya*, which is made up of ingredients such as *Madhu*, *Saindhava*, and *Yavakshara*, acts as a hypertonic solution, creating an osmotic pressure gradient after entering the large intestine, facilitating the transport of waste products (LDL cholesterol) from cellular levels to the large intestine to be removed from the body via the rectum. The basic causative factor for *Medoroga* is the abnormal accumulation of *Samana Vayu* in *Koshtha* due to *Srotorodha* which in turn increases the appetite (*Agnisandhukshana*) resulting in increased calorie intake. Since *Basti* is best for *Vata* related disorders, therefore to regulate the movement of *Samana Vayu*, the best treatment could be *Basti*. The major purpose of cholesterol therapy is to block acetyl Co-A reductase, which may be considered a component of *Vata Dosh*. Furthermore, the *Prakshepa* of *Yavakshara* has an irritating impact on the intestinal mucosa, causing more fluid to be released into the intestinal lumen. A variety of nerve plexuses and the lumbo sacral plexus are found throughout the large intestine. *Vyana Vayu* governs the functioning of these plexuses. Due to *Vatanulomana* of *Vyana Vayu* by *Basti*, Endocrine glands are activated to produce enzymes such as pancreatic lipase and acetyl-a coenzyme, which are responsible for

lipid metabolism. In *Medoroga* excess *Medodhatu* in the form of *Abadha Meda* is circulated all over the body along with *Rasa* and *Rakta* through *Rasavaha* and *Raktavaha Srotasa*. Drugs administered in the form of *Basti* when absorbed in these *Srotasa* eradicate the increased circulating lipids from *Rasa* and *Rakta*. *Ushna*, *Tikshana*, *Laghu*, *Ruksha Gunas*, *Ushna Veerya*, and *Katu Vipaka* and *Tejo Guna Pradhana* drugs used to prepare *Basti* act at the level of *Jatharagni*, thus correcting the *Dhatvagni* (metabolism) and reducing the formation of *Ama*, proper formation of *Uttarottara Dhatu*, and reduction in excess *Medodhatu* production. Furthermore, *Vata Aavarana* is cleansed, easing *Jathragni Sandhukshana*, and the individual does not engage in the causative causes. The metabolism is enhanced as a result of the removal of diseased *Doshas* and *Ama* via *Basti*.

## CONCLUSION

According to *Ayurvedic* literature, *Medoroga* arises as a consequence of *Medodhatu Dushti* and abnormal deposition of *Kapha* and *Meda* in the body as a consequence of *Medo-Dhatwagnimandya*, resulting in *Medovaha Srotodusti Vikara*. It is treatable and preventable with lifestyle changes such as a low carbohydrate and fat diet, frequent physical activity, and *Ayurvedic* therapies such as *Shodhana* and *Shamana Chikitsa*. Based on the foregoing discussion, it is possible to conclude that the *Basti* treatment modality, among *Panchkarma* therapies, has a solution for dyslipidemia, not only in management but also in prevention.

**TABLE NO. 1 COMPOSITION OF BASTI (KsharaBasti)**

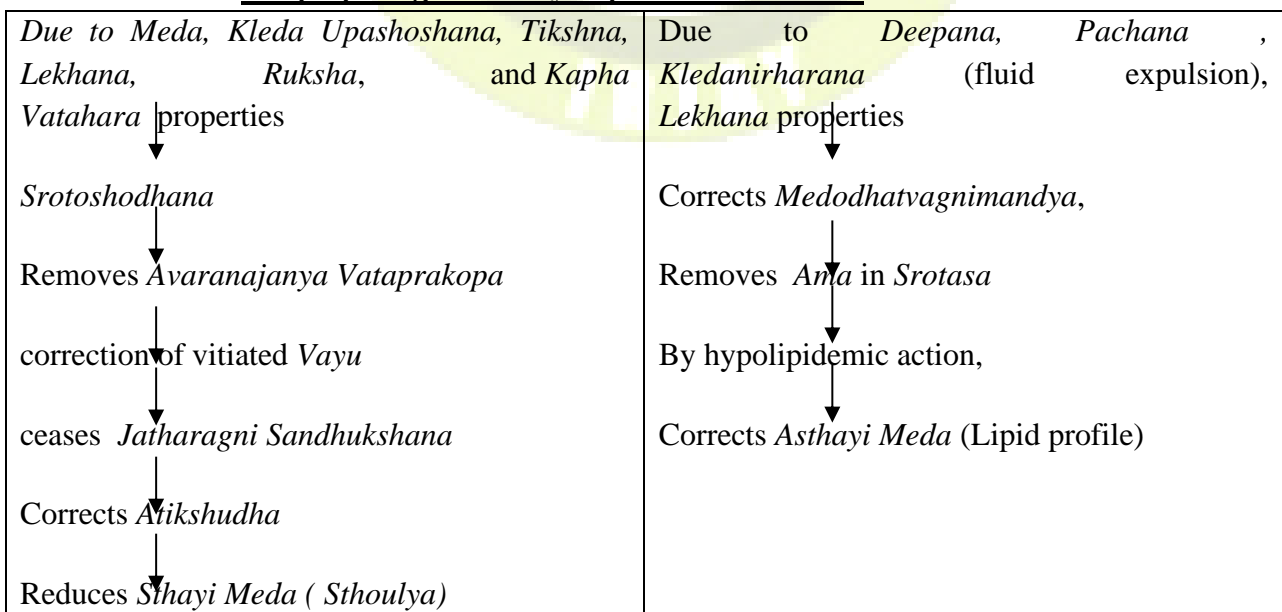
Content Name	Quantity in gm./ml.	Time of Administration
For Anuvasana Basti		
TilaTaila	100 m.l.	Immediately after taking meals.
For Niruha Basti		
Madhu	30 ml.	Empty stomach in morning
Saindhava	12 gm.	
TilaTaila	70 ml.	
Haridra, Triphala, Musta, Daruharidra, Shyonaka Chhaal Kwatha.	280 ml.	
Yavakshara (Prakshepa)	12 gm.	
Gomutra	100ml.	

**TABLE NO. 2****AYURVEDIC PHARMACODYNAMICS OF CONSTITUENTS OF BASTI DRAVYA**

DravyaName	Rasa	Guna	Virya	Vipaka	Doshaghnata	Rogaghnata
Makshika	Madhura Kashaya	Laghu Ruksha , Vishada	Sheeta	Madhura	Kaphavata Shamaka	Medoroga Prameha
Saindhava	Lavana	Laghu Snigdha Sukshma	Sheeta	Madhura	Tridosahara	Aruchi, Adhamana Shool
TilaTaila	Madhura	Kashaya	Ushna	Madhura	UttamVatahara	Vatvyadhi
Haridra	Katu, Tikta	Ushna	Katu,	Ruksha, Laghu	Kaphahara, Pittahara	Kushth Prameha
Amalaki	Madhura Amla Katu Tikta Kashaya	Guru, Ruksha Sheeta	Sheeta	Madhura	Tridoshashama aka Vatpittashamaka	Prameha, Hridroga

<i>Haritaki</i> <sup>[25]</sup>	<i>Lavana Varjita Pancha Rasa</i>	<i>Laghu Ruksha</i>	<i>Ushn a</i>	<i>Madhur a</i>	<i>Tridosahara</i>	<i>Arshas, Vibandha Vatarakta Vishama Jwara</i>
<i>Vibhitaki</i> <sup>[26]</sup>	<i>Kashaya</i>	<i>Laghu Ruksha</i>	<i>Ushn a</i>	<i>Madhur a</i>	<i>Tridoshasham ak kaphashamaka</i>	<i>Shotha Hridroga, Vatavyadhi Vibandha</i>
<i>Mustaka</i> <sup>[27]</sup>	<i>Tikta, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Sheet a</i>	<i>Katu</i>	<i>Pittakaphahar a</i>	<i>Sthaulya Shotha, Medohara</i>
<i>Daruharidra</i> <sup>[28]</sup>	<i>Katu, Tikta</i>	<i>Ushna Ruksha</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Kaphpittshama ka</i>	<i>Madhumeha Medoroga</i>
<i>Shyonaka Chaal</i> <sup>[29]</sup>	<i>Kashaya Tikta</i>	<i>Laghu, Ruksha</i>	<i>Sheet a</i>	<i>Katu</i>	<i>Kaphavathara</i>	<i>Amavata, UdaraRoga, Vatavyadhi</i>
<i>Yavakshara</i>	<i>Kshariya</i>	<i>Laghu Ruksha Tikshn Kledi</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Kaphanashaka</i>	<i>Arsha, Arbuda, Granthi Putimansa</i>
<i>Gomutra</i>	<i>Katu Tikta, Kashaya Kinchit Madhur a</i>	<i>Tikshn a Ushna, Laghu.</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Vatakaphahar a</i>	<i>Gulma Udar Roga Medoroga</i>

**FIGURE NO. 1** *Samprapti Vighatana by Kaphashamaka Basti*





**Acknowledgment:** Nil.

**Financial Support:** Nil.

**Conflict of Interest:** Nil

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