



PREVENTIVE AND CURATIVE ASPECT OF DHUMNASYA (NASAL INSUFFLATION OF MEDICATED SMOKE)

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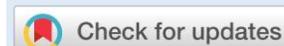
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ABSTRACT

Background- *Panchkarma* is a group of procedures known for its preventive, promotive, prophylactic and rejuvenating properties as well as radicle cure. *Nasya* is one of the *Panchkarma* treatments. Among the various forms of *Nasya*, *Dhumnasya* is a very effective type of *Nasya* which has further been classified into different types based on various potency of herbs with their respective properties. **Aim and Objective:** To find out the role of *Dhumnasya* in the preventive and curative aspects. **Material and Methods:** Classics of *Ayurveda* having references regarding *Nasya*, Modern literature, published articles in peer-reviewed journals, published books and subject-related material available online have been screened, compiled, organized and described systematically. **Result:** In *Dhumnasya* medicinal herbs with other constituents are burnt in such an effective manner to produce a medicated fume containing volatile phytochemical of herbs, which when inhaled through nasal route exerts their efficient role in both prevention and treatment of various forms of disease both at a local and systemic level. **Conclusion:** In this review article, it has been tried to focus on the preventive and curative aspect of *Dhumnasya* so to help to address issues related to poor bioavailability, slow absorption, drug degradation and adverse event in the GIT tract and avoid the first-pass metabolism in the liver and discover the advantage of smoke based therapies as rapid delivery to the brain, more efficient pulmonary absorption and become the suitable substitute for the oral and parental administration.

Keywords: *Panchkarma*, *Dhumnasya*, *Nasya*, Medicated smoke.

INTRODUCTION

Insufflation means is the act of blowing something such as gas, powder, vapour, into the body cavity.¹ Nasal insufflation or inhalation involves the local application of the drug to the mucous membrane of the nose to achieve a local or systemic action.² Administration of drug via nasal route is the novel type of drug delivery known as a suitable substitute for oral and parenteral administration. In *Ayurveda*, *Panchkarma* therapy is used for the maintenance of health and eradication of diseases from their root and *Nasya Karma* is one among them which is unique in the action of elimination of *doshas* from the organs situated above the clavicle by administration of various medicated formulations either in the form of ghee, oil, powder, liquid or smoke through nostrils and thus, *Nasya Karma* also acts as a route of administration of drugs. Since ancient times *Acharyas* are very well known the importance and effectiveness of this route as they said that *Nasa hi shirsodwaram*.³ The word *Nasya* is derived from "*Nasa*" *Dhatu*, which conveys the meaning of 'Gati'. Here the *Gati* is towards the internal structures mainly to head through the nose.

There are various types of *Nasya* is mentioned in the classics based on the use of a different type of *Ayurvedic Kalpana* (preparations) of *Dravya*: - *Choorna*, *Kalka*, *Ksheera*, *Sneha*, *Mamsa*, *Majja*, *Vasa*, *Dhum*, *Madya*. The use of these different substances depends on the individual disease, the level of disease and to what extent effect should be needed. According to different forms of *dravya*, the potency of the drug gradually changes.⁴

Among them is *Dhumnasya* which is described by *Acharya Charaka*⁵ where inhalation of medicated fumes is taken by the nasal route and eliminated by the oral route is done. All through time, humans have used the smoke of medicinal plants to cure illness. The most frequent medical indications for medicinal smoke are pulmonary (23.5%), neurological (21.8%) and dermatological (8.1%). Inhalation is typically used in the treatment of pulmonary and neurological disorders which accounts for 71.5% of indications for administering medicinal smoke.^{6,7}

CONCEPT OF DHUMNASYA IN CLASSICS-

Nasya is categorized into many types according to different *Acharyas*. In the present day, the Nasal administration is in many forms like *Marsha*, *Pratimarsha*, *Pradhamana*, *Avapida*, *Dhum* and *Nasapana*. *Dhum Nasya* is described only by *Acharya Charaka* as a type of *Nasya*. *Acharya Shushutra* has not described it while describing *Nasya*, although in chapter *Dhum Nasya kavalgraha chikitsa* have described *Dhumpana* instead of *Dhumnasya*.

'*Dhum*' Meaning Vapor, Mist, Smoke. '*Pana*' meaning inhalation of medicated smoke through mouth or nose and releasing it only through the mouth as per the protocol mentioned in *Ayurvedic Classics*. In *Ayurveda*, proper medicated Fume inhalation therapy has been not explained but the process of *Dhumpana* and *Nasya* may be analogue to some extent. Thus, *Dhumpana* can also be considered under the broad umbrella of *Nasya*.

TYPES OF DHUMNASYA AND THEIR PREVENTIVE OR CURATIVE ASPECT-^{8,9,10}

Type	Explanation of Sanskrit terminology	Effect / Properties	Herbs	Therapeutic and Preventive indication
<i>Prayogika</i>	Sanskrit word <i>Prayog</i> means application, use daily as a part of <i>Dinacharya</i> (daily regimen) or for specific symptoms	<ul style="list-style-type: none"> As a part of Daily routine regime/ therapeutic use. Drugs with moderate action strength. Soothing, balancing of <i>kapha</i> and <i>Vata</i> 	<i>Shallaki</i> , black cumin (<i>Prithvika</i> or <i>Nigella Sativa</i> Linn), sugar (<i>Sharkara</i> , made from sugarcane), bark of Indian banyan (<i>Nyagrodha</i> or <i>ficus bengalensis</i>)	Helpful in the strengthening of the scalp hair, skull bones, sense organs and voice.

			<p>Linn), Indian fig tree (<i>Udumbara</i> or <i>Ficus Racemosa</i> Linn), sacred fig (<i>Ashvattha</i> or <i>ficus religiosa</i> Linn), mountain fig (<i>Plaksha</i> or <i>Ficus locor</i>), lodh tree (<i>Lodhra</i> or <i>Symplocos Racemosa</i>), Sugar, licorice (<i>Madhuka</i> or <i>Glycyrrhiza glabra</i>),</p>	
<i>Snaihik</i>	Sanskrit word <i>Sneha</i> means oil and <i>Snaihika</i> means that which includes the fat-oily substance as a base	<ul style="list-style-type: none"> • Lubricating palliative soothes respiratory passages of healthy, normal person alleviates dryness and irritation in respiratory passages. • Drugs with mild action strength. • Relieve dryness of vata 	<p><i>Masha</i> (<i>Black gram</i>), Oil obtained from fruits and pith of trees, fat, marrow, muscle-fat, and <i>ghee</i> (butterfat), white dammar (<i>Sarjarasa</i> or <i>vateria indica</i> Linn). nutgrass (<i>Musta</i> or <i>cyperus rotundus</i>), stone flower (<i>Shaileya</i> or <i>Permellia perforata</i>)</p>	<p>The pacification of <i>Vata</i> is done by <i>Snigdha Guna</i> and <i>Uplepa Karma</i>. This type of <i>Dhumpana</i> is prescribed in <i>Vataroga</i>, <i>Vatika Shirashshoola</i>, <i>Dantaharsha</i>, <i>Vataja Kasa</i>, <i>Vaiswarya</i> (hoarseness of voice).</p>
<i>Vairechanika</i>	<i>Virechana</i> means to expel out <i>Vairechanic</i> means Expulsive=expels the excretory=waste material	<ul style="list-style-type: none"> • Especially in diseases of head due to increased <i>Kaphadosha</i> • Drugs of strong action, reduce excessive Kapha, 	<p><i>Shveta</i> (white variety of <i>Clitoria ternatea</i> Linn), <i>Jyotishmati</i> (<i>Celastrus paniculatus</i> Wild), Orpiment, regular and other varieties with fragrant properties such as <i>Patra – Cinnamomum tamala</i>, <i>Agaru</i> (<i>Aquilaria agalocha Roxb</i>), <i>Turmeric</i>, <i>Manashila</i> (Arsenic sulphide), <i>Laksha</i> (<i>Coccus lacca</i>), <i>Triphala</i> (<i>Terminalia chebula</i>, <i>Terminalia Belerica</i>, indian gooseberries)</p>	<p>It works with its <i>Ruksha</i>, <i>Tikshana</i>, <i>Ushna</i> and <i>Vishada</i> properties. This type of <i>Dhumpana</i> is prescribed in <i>Kapha</i> predominant conditions. eg. <i>Kaphaja Shirashshoola</i>, <i>Karnakandu</i>, <i>Kaphaja Sarvasara</i>, <i>Kaphaja Aushtharoga</i>, <i>Adhimansa</i>, <i>Jvara</i>, <i>Kushtha</i>, <i>Santapanottha</i> disease, <i>Murchha</i></p>
<i>Kasahari</i>	<i>Kasa</i> =Ayurvedic name of the disease can be referred to disease Cough	<ul style="list-style-type: none"> • Antitussive-Therapeutic smoking for treatment of <i>kasa</i> • Help in the correction of <i>vata</i>, <i>kapha</i>. 	<p>Sulphates of Arsenic (<i>Haratal</i> and <i>Manashila</i>) licorice (<i>Madhuka</i> or <i>Glycyrrhiza glabra</i>) spikenard (<i>Mamsi</i> or <i>Nardostachys jatamansi</i>), nut</p>	<p>In <i>Vata-Kaphaja Kasa</i> when it is associated with <i>Pratishyaya</i> and <i>Shirashshool</i>. It is also indicated in the treatment of <i>Kaphaja Kasa</i>. <i>Kshataja Kasa</i>, it</p>

		<ul style="list-style-type: none"> Ideally, to be consumed while eating the food. 	grass (<i>Musta</i> or <i>Cyperus rotundus</i>), etc.	removes the aggravated <i>Kapha Dosha</i> from the chest and relieves the coughing.
<i>Vamaneeya</i>	<i>Vaman</i> means vomiting, <i>Vamaneeya</i> vomit inducing	<ul style="list-style-type: none"> Emetic -It is used for inducing vomiting. Elimination of excess <i>Kaphadosh</i> Should be given after the person has filled the stomach full of thick gruel made from sesame and rice. 	horns or hairs of animals like cows, etc.	It is prescribed when accumulated <i>Shleshma</i> has filled the chest and throat. This might be invented for <i>Sukumara</i> people. By inhaling the smoke, it may stimulate the centre which is responsible for emesis and induces <i>Chardana</i> and removes <i>Kapha Dosha</i> .
<i>Vrandhupan</i>	Medicated fumigation	<ul style="list-style-type: none"> To clean the wound and reduce pus formation. 	<i>Nimbavachadi</i>	

DHUM NETRA AND DHUM VARTI (DHUM INSTRUMENT AND DHUM-STICK) (Ca. Su. 5/21-25)

Smoking of the medicinal smoke using a dried roll/wick made from a paste of herbs, (which can be referred to as *Dhum*-stick,) with the help of special apparatus, (which can be referred to as '*Dhum*-instrument') in a systematic, and scientific manner. The smoking sticks (Ayurvedic nomenclature *Dhumvarti*) are made up of essential herbs. The 7 to 8 inches long medicated stick is useful for - A piece of *Shara Kanda* (stick of a type of grass name *Saccharum munja*), 10 to 11 inches' length is soaked for day and night in water. It is wrapped with silk cloth for 7 to 8 inches in length and then coated with the paste of prescribed

herbs. It is allowed to dry up in shade and then *Shara Kanda* is removed. Methods of preparation of *Dhumnetra* are variable according to the types of *Dhumnasya*. According to *Aacharya Charaka* shape of *Dhumnetra* is *Riju* (unbent), *trikoshfalit* (three rounds in it) and *kolasthiagrprmanitum* (like the seed of jujube fruit pass through its anterior orifice).

BENEFITS OF DHUM NETRA- (Ca. Su. 5/51-52) In proper dose (*Matra*) and duration (*Kala*) when *Dhumnetra* has used the fumes have to travel a distance (*Duradavinirgata*), it has to pass through the chambers (*Parva Chachinna Nasi Tanu Krita*) which reduces the intensity of fumes and thus the organs are protected (*Naindriya Badhate*).

DHUMNETRA ACCORDING TO TYPE OF DHUM BY ACHARYA SUSHRUTA-

Type of <i>Dhum</i>	Size of the anterior orifice (<i>agrapraman</i>)	Route of <i>Dhumpana</i>	<i>Samyak yoga Lakshana</i>
<i>Prayogik</i>	<i>Kolasthi</i>	Nose	<i>Doshadarshanat</i>
<i>Snaihika</i>	<i>Kolasthi</i>	Nose_+ Mouth	Till lacrimation
<i>Vairechanika</i>	<i>Kalaychidra</i>	Nose	3-4 times
<i>Kasgana</i>	<i>Kolasthi</i>	Mouth	<i>Grasantre</i>
<i>Vamaniya</i>	<i>Kolasthi</i>	Mouth	<i>Tiltandulyavagu pitten</i>
<i>Vrandhupan</i>	<i>Kulathchidra</i>	<i>Vran</i>	<i>Vednaupsaman, Vranvesdhye, Sravsaman</i>

PRAMANA OF DHUM NETRA ACCORDING TO DIFFERENT ACHARYA'S-

Type of Dhum	Charak	Sushruta	Astang Sangrha	Sharangdhar
Prayogik	36 Angul (one angul~1.95 cm or 0.76 inch)	48 Angul	40Angul	40 Angul
Snaihika	32 Angul	32 Angul	32 Angul	32Angul
Vairechanika	24 Angul	24 Angul	24Angul	24Angul
Kasghana		16 Angul	8/10Angul	16Angul
Vamaniya		16 Angul	10Angul	10Angul
Varndhupana		8 Angul	8Angul	10Angul

ALTERNATIVE DHUM INSTRUMENT FOR INTAKE OF DHUMNASYA-

(Ah. Su. 21/22)

According to Acharya Vagbhata an alternative method of *Dhum Nasya* can be used to prepare *Sharavasamputa* (two clay pots fixed with each other containing burning *Varti*) with a *Nadi* (pipe) of eight or ten *Angul* (~6-7.5 inches). Through this pipe, fumes are inhaled.

AGE OF DHUMNASYA ADMINISTRATION-

(Sh. Ut. 9/9) (Ba. Pa. Pu. Ka. 9)

Dhum should be administered in individuals above 12 years of age to below 80 years.

DHUMNASYA KALA- (Ca. Su. 5/33-35)

Acharya Charaka described eight *kala* for *Prayogika Dhum* in which there is deranged *vata* and *kapha* like, after- *Snana* (bathing), *bhuktawa* (meal), *samullekha* (vomiting), *kshuthawa* (sneezing), *danta-nighrishya* (toothbrushing), *nasya, anjana* (collyrium), *nidrante* (waking from sleep)

ADVANTAGES OF DHUM-

Administration of *Dhum* provides *balama bhavati chaadhikama shiro, ruha, kapala, indriya and swara* (strength to organs of head, hairs, scalp, sense organs and voice) and prevents disorders of *Vata* and *Kapha* derangement.

INDICATION OF DHUM- (Ch.Su. 5/46)

In disease of *Shiro, Ghrana, Akshi*.

CONTRAINDICATION OF DHUM- (Su. Ch. 40/11)

According to Acharya Sushruta who are suffering from *bhaya* (fearful), *Panduroga* (Anaemia), *Chardi* (vomiting), *Udara roga, Udavarta, Bala* (children), *Vridha* (aged), and in *Alpa Kapaha* conditions are contraindicated for *Dhumnasya*.

ADMINISTRATION OF DHUM- (Ch. Su. 5/47-49)

According to Acharya Charaka individuals should sit in *Rijuuanga Chakshu* and *Cheta* (straight posture, eyes and concentrated mind). Three courses of puff are inhaled from each nostril in disorders of the nose and with the mouth in the disorder of the throat. Precaution must be taken while exhaling the fumes it must be exhaled from the mouth to prevent harm to the ocular path. Acharya Shushutra directed which inhaled route of medicated fumes should be chosen for different types of *Dhumnasya* like *Prayogik* and *Vairachanika Dhum* is administered from nostril, *Snaihika* is administered from the nasal and oral cavity, *Vamaniya* and *Kasghana Dhum* is administered from the oral cavity. Acharya Sharagdhar added external use of *dhum* in the wound to ease the process of rapid healing and creates a disinfected environment for it. (Sh. Ut. 9/11-14)

SYMPTOMS OF PROPER ADMINISTRATION OF DHUM-

There is cleanliness in the chest, throat, oral and nasal cavity, lightness in the body and *Dosha* are removed. There is thinning of *Kapha*. (Ch. Su. 5/ 52-53)

DISCUSSION-11,12,13,14

The study reflects that all the classical texts and commentaries reflect a similar approach in the application of *Dhumnasya*. The description of instruments, types, doses, time slots, and herbs is more or less similar with additional information provided in the relevant part of it by each author.

MEDICATED SMOKE-

The smoke produced by fumigating ingredients at high temperatures is considered to be a simple way of administering a drug that can exhibit rapid pharmacological activity when inhaled. The medicated herbs,

guggulu, *ghrita* etc used in the preparation of various types of *dhum varti* are vaporised in fumigation and enter the body through the nasal route by inhalation from where they reach the brain followed by lungs and exerts their curative aspect in their respective target's organs. Chemically, smoke is a gaseous product of incomplete combustion of organic substances and is chiefly made up of suspended particles of unburnt carbon, which settle as soot (The Encyclopedia Americana, 1963). Thus, with the major components in smoke being carbon, there is a high probability that this carbon is present in nano form and also that this carbon nanomaterial may be functionalized with the active components contained in these medicinal smokes and thus play a role in the medicinal property exhibited by the medicinal smoke.

The procedure of *Ayurvedic Dhumnasya* shows a predominance of fire and air elements combined, both of them having subtle, microscopic and all-pervading quality-which refers to the Ayurvedic term '*Sookhma*'. This quality in the context of *Dhumnasya* helps in rapid delivery and spread of medicines everywhere into all the recess and corners of the head and neck region, which includes numerous channels; it opens and enters the smallest channels, with *Ushna* and *Tikshna Guna* liquefies and eliminates the *Dosha* from their nearer routes. The gases are absorbed in blood by pressure difference and greater surface area in the lung.

MEDICATED SMOKE AND ITS PREVENTIVE ACTION

In the preventive mode, *Vrandhupan* type of *Dhumnasya* given by *Acharaya sharangdhar* in which herbs possess antimicrobial, antifungal and antibacterial properties are used can be considered as an effective way to nullify the spread of airborne infection by showing their inhibitory nature on microbial growth on wound place.

In traditional healing, the burning of selected indigenous medicinal plants and the inhalation of the liberated smoke are widely accepted and a practised route of administration. These results suggest that the combustion process produces an 'extract' with superior antimicrobial activity and provides *in vitro* evidence for

inhalation of medicinal smoke as an efficient mode of administration in traditional healing.

Diseases that are caused by pathogens comes under airborne diseases which travels over a particular time and distance in the form of small particles. They may be viruses, bacteria or fungi. It may spread through breathing, talking, sneezing, coughing, etc which generate droplets in the air *Dhumnasya* is an example of drug delivery where medicated substances like herbal drugs, mineral and plant origin having properties of anti-inflammatory, antipyretics, antiseptic used and burnt in a specific manner to make a *Dhum* which inhaled through the nasal route (*Nasya*), most of these *dravyas* are Agni and Vayu Pradhan i.e. Volatile which helps to avoid settling down of pathogens in the respiratory tract. Hence due to its advantages like easy administration, potential to penetrate the blood-brain barrier, higher bioavailability its effect is more compared to other forms of *Nasya*

NOSE AND ITS ROLE IN ABSORPTION OF DRUG VIA DHUMNASYA-^{15,16}

Nasa is said to be the main doorway to *Shiras*. *Nasya Aushadhi* reaches the brain via the nasal route and acts on higher centres of the brain controlling different neurological, endocrinal and circulatory functions and thus showing local as well as systemic effects.

The nasal route is divided into 3 functional zones: 1. Vestibular region 2. Respiratory region 3. Olfactory region. The vestibular region is found at the opening of the nasal passage which is responsible for filtering the air coming into the nasal cavity. It is having the least important among the three regions with regards to drug absorption. Respiratory Region is mainly responsible for systemic drug absorption because it has the highest degree of vascularity. Olfactory Region plays a very important role in the transportation of drugs to the brain and CSF. The surface area of the olfactory region is about 10 cm².

The nasal cavity is covered by a thin mucosa which is well vascular. Therefore, a drug molecule can be transferred quickly across the single epithelial cell layer directly to the systemic blood circulation without first-pass hepatic and intestinal metabolism. The effect is often reached within 5 minutes for smaller drug

molecules. Inhalation delivers very small amounts of the medicine directly into the airway. The dose in this form is reduced to about 1/50th the dose delivered by tablet or injection.

The site of drug action i.e. *Dravya* and *Guna Prabhava* are the most complex problems in the pharmacodynamics of Ayurvedic drugs but a hypothesis can be made. The nose is the sheet of *Prithvi Mahabhuta* which work as a smell perception organ (*Prithvi Grhanesy, Vishes Guna Gandha*)

Herbal drugs use in *Dhumnasya* are *Katu (Pungent), Tikta (Bitter) Rasaj, Ushna Virya, Laghu-Tikshna-Ruksha Guna, Katu-madhur Vipaka Kapha-Vata Shamaka* and contain volatile oils. Most used drugs in *Dhumnasya* e.g. like *Haridra, Guggulu, Goghrit, Devdaru, Agru, Errand* etc. are having anti-inflammatory, anti-allergic, analgesic, bronchodilator and anti-oxidant activity *Katu rasa* is *Vakramsodhyati* (cleaning of the mouth), *Agnideepyati* (increasing the intensity of biological fire), *Ghranamaasravyati* (enhances secretion from the nose), *Safutikarotiindriyani* (enhances the capacities of sense organs), *Kriminihinasti* (antimicrobial), *Mansamvilyati* (help in the dissolution of excess growth), *Sonitsanghat bhinti* (disintegrates the collection of clots in the blood), *Marganvivrinoti* (opens body channels), *Slesmansamyati* (restore the excess Kapha dosha in the body) whereas *Tikta* rasa is *Vishghan* (antitoxic effect), *Krimighan* (kills worms or parasites in the body), *Lekan- Kled-meda-vasa-majja-lashika-puya-swed-mutrapurish-pittasleshma-upshoshnam* (can scrap the excess tissues). *Langhan* (gives lightness to the body), *Soshan* (drying up) and *Sodhan* (purification) are the karmas of *Laghu, Ruksha and Tikshna gunas*. From these descriptions, we can say that drugs used in *Dhumnasya* are absorbed by the epithelial layer due to *Laghu guna*. *Ushna Virya* increases the basal metabolic rate, oxygen consumption and accelerates the breakdown of fat at the mitochondrial level. According to Ayurveda, *Ushna Virya* helps in pacifying *Kapha* and *Vata*.

CONCLUSION

Hence, the advantages of smoke-based remedies as *Dhum nasya* mentioned in classics increases the

bioavailability of medicines in a gaseous form which can be suggested as an effective form of drug delivery that is therapeutically efficient in curative aspects like *Kasaghana dhum* in *Kaphaja Kasa* and *Kshataja Kasa* when associated with *Pratishyaya* and *Shirashool*. *Snaihika dum* in *Vataroga*, *Vatika Shirashhoola*, *Dantaharsha*, *Vataja Kasa*, *Vaiswarya* (hoarseness of voice). *Vrandhupan* medicated fumigation to clean the wound and reduce pus formation. When looking forward to the preventive aspect of *Dhum*. *Vamaniya Virechaniya* and *Prayogik Dhum* are mentioned which helps to maintain the main goals of Ayurveda i.e. to preserve the health of a person by eliminating impurities, increase resistance to disease and increase harmony in life.

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