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## AYURVEDIC MEDICATED SMOKING: PHARMACEUTICAL TECHNOLOGY AND APPLICATION

Soumya Kanti Biswas<sup>1,\*</sup>, Piyali Sanyal Pathak <sup>2</sup>

<sup>1</sup> B. Pharm (Ayurveda), M. Pharm (Ayurveda) Scholar, Bengal Institute of Pharmaceutical Sciences, Kalyani, Nadia, India

<sup>2</sup>Assistant Professor, Bengal Institute of Pharmaceutical Sciences, Kalyani, Nadia, India \* Corresponding author, E-mail: biswaskantisoumya@gmail.com

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#### **Abstract**

Smoking is injurious for health but it is specifically mentioned for tobacco. Herbal smoking is a therapeutic practice of Ayurveda used since a long time, particularly in the field of Panchakarma (a special variety of bio-purification). Medicated smoking with herbal and herbo-mineral ingredients are formulated in different classical texts of Ayurveda for the management of diseases of Kapha, predominant in respiratory diseases. An attempt was taken to standardize and evaluate an Ayurvedic herbal formulation as smoking agent for the purpose of treatment of diseases of upper and lower respiratory system including head region. The formulation consists of Commiphera wightii, Piper longum, Saussurea lappa, Terminalia belerica, Randia dumentorum, Glycyrrhiza glabra, Vitiveria zizanioides, Phyllanthus emblica, Terminalia chebula and Withania somnifera.

Keyword: Smoking, Dhumpāna, Āyurveda, Pharmaceutical Technology, Therapeutic Application

### **Corresponding author:**

### Soumva Kanti Biswas,

B. Pharm (Ayurveda), M. Pharm (Ayurveda) Scholar, Bengal Institute of Pharmaceutical Sciences, Kalyani, Nadia, India



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### **INTRODUCTION:**

Smoking is a primitive practice of human being. Traditional source of initiation of smoking is unknown but it was practiced worldwide in different countries for achieving a state of euphoria. Many natural products were used as smoking agents in different parts of the world but tobacco is widely accepted for the purpose. Tobacco was first discovered by an American scientist Columbus in 1492. He found out of that the Red Indian, the native tribal were inhaling smoke of plant, later known as tobacco. Indeed, it was his crew who spread the use of tobacco and the art of smoking throughout the world <sup>1</sup>. However, long before the discovery of uses tobacco by Columbus, herbal smoke in the name of Dhoomapana, was used for the benefit of mankind in Ayurveda. It was used to remove excess secretion from the respiratory tract. It was found to be effective in the mitigation of so many clinical conditions. Needless to say, tobacco was never used in Ayurveda, not ever engineered with a specific smoking pipe to control the temperature of smoking.

Ayurvedic herbal smoking is one among the very effective Ayurvedic practices. It helps to balance *Vata* and *Kapha Dosha*. It is used both for preventive as well as therapeutic purposes. The person who wishes to take care of his health, should inhale herbal smoke regularly to treat or prevent the onset of diseases of the parts above the shoulders, arising from – increases of *Kapha* and *Vata*.

There are three types of herbal smoking. These three types are explained based on the strength of the herbal ingredients. The type of smoking as described in Ayurveda for regular practice is called as '*Prayogika*'. Herbal smoking is explained in Ayurveda as '*Dhoomapana*'. It is prepared using herbal smoking blends such as cinnamon, ginger, etc. The Ayurvedic smoking is very safe and different from the nicotine / tobacco smoking.<sup>2</sup>

### Ayurvedic perspective of smoking

In Ayurvedic aspects, purpose of smoking or *Dhoomapana* is described as follows -

जत्रुं उर्ध कफ वातथ्य विकाराणाम जन्मने ।। उच्छेदाय च जातानाम पिवेत धुमं।। सदाआत्मबान।।

- अ. ह. सु. २१/१

It indicates that smoking is indicated in diseases of parts above shoulder region caused by vitiated Kapha and Vata. Fragrant healing herbs are combined as per ancient texts to prepare herbal cigarettes which have immense life enhancing properties unlike the modern concept of smoking. It also helps to cure lethargy,

congestion, poor concentration, weak digestion and many other ailments. *Dhoomapana Vidhi*, therefore, completely differs with common practice of smoking on the basis of its application for therapeutic purpose.<sup>2</sup>

### Classification of smoking in Ayurveda

Dhoomapana or smoking according to Ayurvedic aspects are classified into three categories on the basis of the potency of the drugs used in three varieties of dhuma as follows -

- i) Snigdha Dhuma Lubricating, also known as Mridu (Soft) / Prayogika— useful in Vata imbalance.
- ii) Madhya Dhuma Medium useful in Vata and Kapha imbalance. It is also known as Shamana Dhuma.
- iii) *Teekshna Dhuma* Strong, useful in Kapha imbalance, otherwise known as Virechana dhuma (Purgative).<sup>3</sup>

### Suitable time for smoking in Ayurveda (*Dhumapanakala*)

- I] Mridu dhuma: Mild, lubricating smoke should be inhaled after following eight activities
- a) Kshut at the end of sneezing,
- b) Jrumbhita yawing,
- c) Vit to promote urge of defecation,
- d) Mutra to promote urge of urination
- e) Striseva copulation,
- f) shastrakarma surgical operation,
- g) Hasya bouts of laughing,
- h) Dantakashta use of tooth brush.
- i) Madhyama Dhuma: Medium strength smoke should be inhaled-
- a) After at the end of the night.
- b) After end of the meals and
- After end of Nasya therapy.
- II] Teekshna Dhuma or Virechana Dhuma: Purgative, strong smoke should be inhaled during following states
- a) Nidra at the end of sleep,
- b) Nasya at the end of Nasya treatment
- c) Anjana After applying collyrium
- d) Snana After bath and
- e) Chardi After vomiting. <sup>3</sup>

### Ayurvedic technology for preparation of smoking instrument or *Dhumayantra*

The smoking apparatus should be prepared with the material like gold, silver, iron etc as of enema nozzle. The characteristic feature of Dhumyantra is as follows -

- i) it should have three chambers
- ii) it should be straight

- iii) it should permit the entry of the thumb and a Kolasthi- seed of jujube fruit
- iv) through orifices at this root and tip respectively.

The length of the three types Dhumanetra/Tube/Pipe should be-

- a) 32 Fingers (width of one knuckle) for Mrudu (soft, Sneha) Dhuma,
  - b) 36 Fingers for medium Dhuma and
- c) 24 Fingers for strong Virechana Dhuma. In modern era, instrument used for the purpose of Ayurvedic smoking has been modified (fig 1).<sup>4</sup>

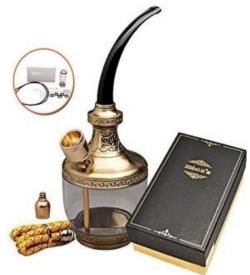


Fig. 1: Modified Dhumayantra *Dhumapanavidhi*: Mode of inhalation in Ayurveda

The patient should sit straight, attentive, with his mouth open and inhale the smoke through each nostril alternatively. While inhaling from one nostril, he should close the other. Inhalation should be done thrice – inhaling the smoke and letting it out together form one bout; three such bouts should be done each time. Smoke should be inhaled through the nose first if the imbalanced Deshas are localized in the nose and head. If Dosha from nose and head are not coming out, but are adhering, inhalation should be done first through the mouth to make them move; and later through the nose. When the Doshas are localized in the throat - inhalation should be done in reverse order- first by the nose and later by the mouth. The smoke inhaled (either from mouth or from nose) should be let out only through the mouth; if let out through the nose, it produces loss of vision. Smoking should be done thrice, with three times inhaling and three exhaling alternately.

i) Snigdha- Lubricating, mild kind of smoke should be taken for only set of three inhalation and exhalations, during day time.

- ii) Madhya- Medium kind of smoke should be taken for two sets of 3 inhales and exhales, during day time.
- iii) Shodhana/Tikshna- Purgative, strong kind of smoke should be taken for 3 to 4 sets of 3 inhales and exhales, during day time. <sup>4</sup>

### $\begin{array}{ll} \textbf{Herbal smoing blends}: \textbf{\textit{Dhuma dravyani}} & \textbf{in} \\ \textbf{Ayurveda} & \end{array}$

- For Mridu (mild potency)- Mild kind of i) smoke, useful drugs are- Aguru (Aquilaria agallocha), Guggulu (Commiphera wightii), Musta (Cyperus rotundus), Sthauneya (getela), Shaileya, Nalada, Usheera (Vettiferia ziznoides), Valaka (Pvonia odorata), Varanga (Cinnamomum cassia), Kounti (Camunium exoticum), Madhuka (Glycyrrhiza glabra), Bilvamajja (marrow of Aegles marmelos), Elavaluka (Elattoria cardamomum), Shrivestaka (Pinus roxburghii), Sarjarasa (Vateria indica), Dhyamaka (Cymbopogon martinii), Madana (Randia dumetorum), Plava, Shallaki (Boswella serrata), Kumkuma (Crocus sativus), Masha (Toramnus labialis), Yava (Hordeum vulgare), Kunduruka (Coccinia grandis), Tila (Sessamum indicum), oil obtained from fruits and pith of trees, fat, Marrow, muscle- fat and ghee.
- ii) For Shamana (pacification) - Madyama, medium kind of smoke useful drugs are- Shallaki (Boswella serrata), Laksha (Laccifera lacca), Prithvika (Chota elach), Kamala (Nelumbo nucifera), Utpala (Nymphea stellata), Barks of Nyagrodha (Ficus benghalesnsis), Udumbara (Ficus racemnosa), Asvattha (Fcus religiosa), Plaksa (Ficus lacor) and Lodhra (Symplocos racemosa); Sita (Cynodon dactylon), Yasthimadhu (Glycyrrhiza glabra) (licorice), Suvarnatwak (Cassia fistula); Padmaka (Prunus cerasoides), Raktayastika/ Mnjistha (Rubia cordifolia), Kustha (Sausarra lappa), Tagara (Valeriana wallichii) and other scents – perfumeries.
- iii) For Teekshna (sharp intensity) Strong, Purgative kind of smoke useful drugs are- Jyotismati (Celistrus paniculatus), Nisha (Curcuma longa), Dashamula (composition of ten ingredients), Ela (Cidamomum cardamomum), Laksa (Laccifera lacca), Shweta (sweta hallucinata), Triphala (Composition of Phyllanthus emblica, Terminelia chebula, Terminelia belerica), Substances which have strong smell and drugs of Murdha Virechana Gana.

Besides, there are some flammable and combustible materials in the smoking ingredients which are used to support the burning process. These might need to mix flammable and combustible materials with the medical herbs, or sprinkle the herbs over the burning charcoal. Charcoal, animal fats, ghee and plant oils can be used as flammable and combustible materials.

Chemical fuels are strictly restricted for the purpose of preparation of smoking. <sup>5</sup>

### Method of Ayurvedic medicated herbal smoking and modern aspects

Ayurvedic aspect. According to Ayurvedic aspects following are the methods for implementation of smoking -

Method 1: Use a smoke pot made from metals like gold, silver, iron, or use a earthen pot. A burning charcoal is placed inside the pot. Put herbs over it and the cover of pot having a hole at its center. A tube is connected to the hole, through which the smoke is inhaled.

Method 2: Sit close to a sensor or incense burner, burn herbs in the vessel, and inhale the smoke through nostrils.

Method 3: Make a smoke wick: Use a reed, twelve inches in length, soaked in water for 24 hours. Then wrap it in 3-5 layers of cloth, which is smeared with thin paste of herbs. Let be dried in shade, remove the reed, smear with fat material (oil or ghee). Insert it into the smoking tube, light with fire and inhales the smoke.

Method 4: Use a piece of cloth, put the herbal medicine on it, let it rolled very tightly and tied at the end to hold the herbs. Make it look like a cigar. Lit and hold it close to the nose, inhale the smoke in nostrils.

Method 5: Use a piece of paper wrap leaves or powder of the herbs, making it into a cigarette-like stick. Light it and smoke it like smoking a cigarette. Method 6: Use a tobacco pipe, put the herb leaves in the chamber of the pipe, light it and smoke it, just like smoking tobacco with the pipe. <sup>6</sup>

# Dhumavarti - preparation of medicated herbal smoke in Ayurveda with special reference to Kasaghna Dhuma (Anti-tussive smoke for cough)

A reed (tall, grass like plant), twelve Anguli (fingers) in length, soaked in water for a day and night, should be wrapped in five layers-one over the other with a ribbon of cloth; it is smeared with thin paste of drugs,

its thickness being that of the middle portion of the thumb. It should be dried in shade, removed of its reed, smeared with any suitable fat material (oil / ghee).

A tube either 10 or 8 Anguli in length should be fixed to a hole made in a capsule of earthen saucers and the person suffering from cough made to inhale smoke – through the tube. In this connection it is to be noted that a burning coal / charcoal is placed inside an earthen pot. Powder of herbs is sprinkled over it and covered with another vessel, having a hole at its center. A tube is connected to the hole, through which the smoke is inhaled.<sup>7</sup>

### Therapeutic uses of *Dhumapana*

According to Ayurveda, therapeutically Dhumapana is beneficial for the ailments- like cough, dyspnoea, rhinitis, disorders of voice, bad smell – of the nose and mouth, pallor of the face, disorders of hairs, discharges, itching, pain and in activities - diminution or loss of function of the ears, mouth and eyes, stupor and hiccup do not affect the person who inhales smoke- habitually.<sup>8</sup>

# Complication of improper application of *Dhumapana* and their treatments according to Ayurveda

Dhumapana, if applied untimely or overdone, smoking may cause such troubles as deafness, blindness, dumbness, bleeding from different parts of the body and giddiness. If such troubles (due to untimely and over smoking) arise, intake of ghee, administration of nasal drops, collyrium and demulescent drinks are prescribed. These should be prepared with unctuous drugs in the event of vitiation of 'Vayu' associated with 'Pitta' with cooling drugs in the case of Raktapitta, and with arid drugs in the event of vitiation of Kapha and Pitta.<sup>9</sup>

Common formulation for Ayurvedic medicated herbal smoking. There are eighteen Ayurvedic medicinal plants described for preparation as ingredients of medicated smoking as Guggulu, Madana, Madhuka, Yava, Saileya, ushira, Kustha, Lodhra, Tagara, Udumbara, Kamala, Plaksha, Yasthimadhu, Brihati, Gambhari, Amklaki, Haritaki and Bhibitaki. However, out of these 18 ingredients, 8 (eight) ingredients were used for present purpose owing to their specific properties mentioned in Ayurveda (table 1).

Table 1. Ayurvedic medicinal plants described in classical texts as medicated smoking agents

Common Name	Botanical Name	Family	Synonyms	Constituents	Properties and Action according to Ayurveda	Therapeutic Use
Guggulu	Commiphora wightii (Arn.)	Burseraceae	Sans Kausika, Beng Guggula, Eng. –Gum guggul	Essential oil, gum, resin, steroids	Rasa- katu, Guna- laghu, Virya- usna, Vipaka- katu, Karma -Valya	Kustha, Promeha, Amavata, Medaroga,
Madana	Randia dumetorum (Lam.)	Rubiaceae	Sans : Madani. Beng : Mainaphal Eng : Emetic nut.	Essential oil, saponin, tannin and resin	Rasa : Madhura, Guna : Laghu, Virya : Usna, Vipaka : Katu, Karma : Vamana,	Gulma, Kustha, Slesmajvara, Pratisyaya
Ushira	Vetiveria zizanioides (Linn.)	Poaceae	Sans : Virana, Beng :Venarramula, Eng : Cuscus	Essential oil.	Rasa : Madhura,. Guna : Laghu, Virya : Sita. Vipaka : Madhura. Karma : Pacana	Jvara, Trsna Vrana.
Kustha	Saussurea lappa (C.B. Clarke)	Compositae	Sans : Amaya, Beng: Kudo.	Essential oil, alkaloid	Rasa: Katu, Guna: Laghu , Virya: Usna.,Vipaka: Katu. Karma: Kaphavatajit	Svasa, Kasa, Kustha.
Yasthimadhu	Glycyrrhiza glabra (Linn.)	Leguminosae	Sans & Beng. Yastimadhu, Eng : Liquorice	Glycyrrhizin, asparagine	Rasa: Madhura. Guna: Guru, Virya: Sita. Vipaka: Madhura. Karma: Balya	Kasa, Ksaya, Vrana.
Amklaki	Phyllanthus emblica (Linn.)	Euphorbiaceae	Sans-AmalakaBeng -Amla, Eng: Emblic Myrobalan	Ascorbic acid	Rasa : Madhura, Guna : Laghu, Virya : Sita. Vipaka : Madhura.Karma.Caksusya,	Raktapitta Premeha, Daha.
Haritaki	Terminalia chebula (Retz.)	Combretaceae	Sans : Abhaya, Beng: Haritaki. Eng :Myrobalan	Tannins	Rasa: Madhura, Guna: Laghu, Virya: Usna. Vipaka : Madhura. Karma.Caksusya	Sotha, Arsa, Aruci, Hrdroga,
Bhibitaki	Terntinalia belerica (Roxb.)	Combretaceae	Sans: Vibhita,Beng- Bayada, Eng Beleric Myrobalan.	Gallic acid, tannic acid	Rasa: Kasaya. Guna: Laghu, Virya: Usna. Vipaka : Madhura. Karma: Caksusya	Chardi, Kasa, Krmiroga

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In addition to above mentioned eight medicinal plant, two more medicinal plants were also added for practical therapeutic point of view to potentiate the smoking agent in relation to eradication of specific diseases. These are Pippali (*Piper longum*) and Aswagandha (*Withania somnifera*). Pippali has specific potentiality in improving lung function due its active principle Piperene. Aswagandha, owing to presence of active principle Withanoloid, provides body strength and improves body immunity. The rationality for adding these two plants are due to its specific properties mentioned in Ayurveda (table 2). <sup>10</sup>

Table 2. Pharmaco-botanical description of Aswagandha and Pippali

Common Name	Botanical Name	Family	Synonyms	Constituents	Properties and Action	Therapeutic Use		
Name	Name				Action	USE		
Aswagandha	Withania	Solanaceae	Sans:	Withanic acid	Rasa.: Tikta, Guna:	Dosagni		
	somnifera		Vajigandha		Laghu, Virya : Usna,			
	(Linn)				Vipaka : Madhura,			
					Karma: Rasayana			
Pippali	Piper	Piper Piperaceae Sans & Alkaloids,		Alkaloids,	Rasa:	Gulma,		
	longum		Beng:	Essential Oils.	Katu,Guna:Laghu,	Kriroga,		
	(Linn)		Pipul, Eng		Virya: Usna, Vipaka:	Udararoga		
			Piper.		katu, Karma: Depana			

### Preparation of herbal smoking agents

An attempt was taken to prepare a herbal smoking agent in the laboratory of the Bengal Institute of Pharmaceutical Sciences, Kalyani, Nadia with ten Ayurvedic plants as described in table 1 and 2. The medicinal plants were procured from local market and were identified by Prof. Dr. Shyamalendu Mukhppadhyay, Head, Department of Dravyaguna Vigyan, J. B. Roy State Ayurvedic Medical College and Hospital, Kolkata. The voucher specimens of the plants (fig 2 a, b, c, d, e, f, g, h, i and j) were preserved at the laboratory of the Dravyaguna Vijnana of Bengal Institute of Pharmaceutical Sciences, Kalyani, Nadia with code nos. as shown in table 3. 12

Table 3. Code numbers of herbal smoking ingredients

Sl	Ingredient	Code No.	Sl	Ingredient	Code No.
1	Guggulu	BIPS/B. Pharm (Ay)/18/01	6	Yasthimadhu	BIPS/B. Pharm (Ay)/18/06
2	Pippali	BIPS/B. Pharm (Ay)/18/02	7	Ushir	BIPS/B. Pharm (Ay)/18/07
3	Kustham	BIPS/B. Pharm (Ay)/18/03	8	Amlaki	BIPS/B. Pharm (Ay)/18/08
4	Bivitaki	BIPS/B. Pharm (Ay)/18/04	9	Haritaki	BIPS/B. Pharm (Ay)/18/09
5	Madanphal	BIPS/B. Pharm (Ay)/18/05	10	Aswagandha	BIPS/B. Pharm (Ay)/18/10

The ingredients for herbal smoking were taken in the measurements as mentioned in table 4. The measurement was calculated according to the classical description of Ayurvedic texts. <sup>14</sup>

Table 4. Measurement of ingredients used as medicated smoking agent

	Tuble is incustrations of highesterns used up incurrence smoking ugent							
Sl	Ingredient	Weight (g)	Sl	Ingredient	Weight (g)			
	b	<i>8</i> (9)		0	8 (8)			
1	Guggulu	10.00	6	Yasthimadhu	05.00			
2	Pippali	05.00	7	Ushir	00.85			
3	Kustham	05.00	8	Amlaki	05.00			
4	Bivitaki	06.00	9	Haritaki	07.00			
5	Madanphal	05.00	10	Aswagandha	10.00			



The ingredients were washed well with distilled water for consecutive two times to remove all dustparticles, shed dried and sterilized in autoclave instrument. All the ingredients were then powdered finely in a grinder (fig 3 a, b, c,& d) and sieved through mesh size 25 to obtain very fine powder.



Fig 3a. Raw ingredients for herbal smoking agent



Fig 3c. Crude powder ingredients of smoking

One packet, containing standard cigarette, available in market were purchased and the inner contents were completely emptied carefully to use the shell and the filter present in it. Test compound of powdered ten herbal ingredients were poured within it with a fine laboratory spatula and were tightly packed with the blunt end of the spatula. The shapes of the cigarette were kept same as to the market available cigarette maintaining utmost precision. The tip of the cigarette opposite to the filter end were ignite and allowed to smoke by healthy volunteer, devoid of any serious diseases including lung diseases. The cigarette neither caused any hazard to the subject during smoking nor resulted any addicting benefit. The smoke did not smell similar with tobacco and did not cause hazardous atmosphere in the surrounding environment. 11

### **DISCUSSION AND CONCLUSION:**

Ayurvedic dhumapana is generally known as herbal smoking. It's prepared by various types of herbal drugs using herbal smoking blend such as ginger, cinnamon etc. Ayurvedic dhumapana are of three types i.e., Snigdha dhuma, Madhya dhuma and Tikshna dhuma according to the potency of the ingredients. These variations depend upon its therapeutic application in consideration to disease specificity. Dhumapana or smoking, has been practiced for over 2,000 years. The inhalation of medicinal smoke – inhaling of medicinal herbal smoke is employed as a remedy for many different



Fig 3b. Blending of smoking ingredients



Fig 3d. Finished cigarette containing herbal smoking ingredients

ailments. This therapy is very helpful with removing mucus in the body, and treat the ailments such as wet cough, bronchitis and asthma caused by mucus. The human sinus is a marvelous sound box of nature that is responsible for maintaining air conduction, known in the name of sinus. The sinus is lined by a thin layer of mucus cells which always secrets some lubricants with the help of some chemical mediators like histamine, leucotreine, etc. In disease condition like rhinitis (Pratisyaya), coryza (Pinasa), common cold (Kasa), etc. the mucous layer become inflamed and causes irritation. The disease condition can be detected by skiagraphy of PNS. <sup>13</sup>

The medicated dhumapana reduces irritation and inflammation due to presence of different medicinal plants. Guggulu contains guggulosterol I-IV, all of which are reported for anti-inflammatory effect that may mitigate the inflammation of sinus. The aqueous extract of the fruit of Piper longum is reported to inhibit bronchospasm, and hence beneficial for bronchial asthma. Aswagandha is a potent immunestimulant and thereby prevents further infection and inflammatory changes. Madan phala, according to Ayurveda is a vamaka dravya (emetic substances) and it is beneficial for elimination of Kapha dosa, which is normally prevalent in diseases of Pranavaha Srota or respiratory system. Trifala (composition of Haritaki, Amlaki and Bivitaka) plays a central role in mitigation of vitiated Tridosa. Glycyrrhiza glabra contains most important chemical constituent

glycyrrhizine which have potent anti-microbial effect. Ushir is one of the important ingredients of an Ayurvedic formulation 'Trinapanchamul' and it possess the property of diuretics. The diuretic effect of Ushir may be beneficial for removing accumulation of fluid in the respiratory system. Dhumapana is also recommended to be performed for promoting general health or preventing diseases. The Kustham (Sauserra lappa) is one of the important plants used in Ayurveda for various purpose and according to Chakradutta it is one of the important plant recommended for Kaphaja Jwara (influenza). Influenza is a disease of respiratory system and therefore Kustham as an ingredient of medicated herbal smoking may act to prevent viral infection also. 15 In current study, an attempt was taken for preparation of such cigarette which can be used for therapeutic purpose but its clinical application is still awaiting in specific disease. In this therapy, the person inhales herbal smoke to decrease of Kapha and Vata dosa for treating or preventing the diseases. The Ayuvedic smoking is very safe and different from the nicotine / tobacco smoking. 16

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