



SCIENTIFIC RELEVANCE OF DHOOPAN KARMA (FUMIGATION)

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ABSTRACT *Ayurveda* is a holistic science that deals with preventive and promotive aspect of health. *Acharyas* said *Agantuja roga* is caused by *bhootas* (microorganisms), and this *bhootas* resides in everywhere like hospitals, labor room, neonatal wards etc and responsible for many diseases. So they mentioned *Dhoopan* (fumigation) for this purpose. As we know *ayurveda* focus both on preventive and promotive aspect, so they also mentioned *Dhoopan* in our *dincharya* (daily routine) and also as a treatment in many disease like ENT disorders, wound healing, vaginal disorders etc. *Dhoopan* is a process in which herbal fumes inhaled through the nose and exhaled through the mouth or we can say treatment using herbal fumes using in total. It includes ease of drug administration, higher bioavailability and high potential to penetrate the blood brain barrier. In COVID 19 pandemic it also showed many beneficial effects on corona virus. So the main focus of this study is to explore the importance of *Dhoopan* in present scenario as a preventive and promotive aspect both.

KEYWORDS : *Dhoopan, Ayurveda, Fumigation, Microorganism*

INTRODUCTION—

Ayurveda is a holistic science that deals with preventive and promotive aspect of health. In *ayurveda Acharya Charaka* has mentioned three rogas in *Tristraishaniya adhyaya-11* as *Nija, Agantuja* and *Manas*¹. The diseases that are caused by *bhootas*, touch of poisonous air and fire are called as *Agantuja Rogas*. As per *Acharyas* *bhootas* are the invisible infective organism that causes various diseases. Modern science also advocate the same thing, they termed them as microorganism. We are surrounded by billions of microorganism. Most of them are not harmful, or some are opportunistic which may attack in hosts and children. These microorganisms also resides in operation theatre settings, in labor room or on the instruments, that are used in vaginal delivery and LSCS, also in neonatal wards or in *Sutikagaar*, if proper preventive measures like fumigation should not be done in this areas, it results many diseases in child or host.

In 2018 neonatal death rate was 18 per 1000 live births globally, accounting for 2.5 million neonatal deaths. This represents approximately 7000 neonatal deaths every day². Among fewer than five mortalities, more than two-fifth of deaths occur during the neonatal period and one third of these neonatal deaths are due to infection³. So for this purpose proper *Raksha Karma* means *Dhoopan Karma* or sterilization is necessary, so that infection may not occur in mother and child. *Dhoop* is mentioned by every *Acharyas* in their respective text. They described *Dhoop* in *dincharya* (daily routine) as for the purpose of preventive aspect and also in the treatment of various diseases. But only *Acharya Kashyapa* has mentioned *Dhoop* very broadly for treating many disorders in child. He mentioned 40 *Dhoop* in a separate chapter *Dhoop Kalpa* in *Kalpa Sthana*⁴. *Dhoopana karma works like a disinfectant that* (medicated smoke) develops an aseptic atmosphere and kills microbes and prevents infection. *Dhoopan dravyas* have the properties like antioxidant and antimicrobial with ecofriendly potential so *Dhoopan karma* is beneficial in the diseases that are spread by air. So it was a boon during pandemic situation like corona as an adjuvant.

MATERIAL AND METHODS-

For the present study the primary source of data is the classical text books of *ayurveda*, various peer reviewed journals, previous studies conducted on similar subject at different universities and other research centers. Information available on internet is also incorporated in the study.

AIM AND OBJECTIVES-

- To explore mode of action of *Dhoopan Karma* in present scenario.
- To explore the importance of *Dhoopan* in various infectious diseases of child.
- To explore preventive and promotive aspect of *Dhoopan*.

***Dhoopan Karma* (Fumigation) in ayurvedic texts -**

As per *Ayurvedic* science *Acharyas* have divided the treatment in to

three part as topical (*bahi-parimarjana*) and systemic (*anta-parimarjan*) or by surgical intervention (*shastra pranidhan*). In *antah-parimarjan aushadh* should eliminate vitiated *doshas* that originated from the internal organ. *Bahi-parimarjan aushadh* should eliminate the *doshas* after locating in the skin as for example- *Dhoopan, massage, swedan* (fomentation), *pradeha, parishek* (pouring of lukewarm *kwath*), *madan* (rubbing) etc. In *shastra pranidhan* many procedure should be perform like incision, excision, stitching, scrubbing etc. with the help of *kshar, agni, leech* etc. In *ayurveda Dhoopan* can be included in *Bahiparimaran Chikitsa*.

Types of *Dhoopan*- *Dhoopan* may be *sthanik* or generalized.

***Sthanik Dhoopan*-** The process in which fumigation is done on a affected part of the body. **eg.-**

Acharyas said In *yonirogas dhoopan* should be done in vaginal area and in wound healing *dhoopan* should be done on wound area.

Dhoopan is also mentioned in *Jwar, Arsh, Kusth*, Psychic ailments like *Unmada* and *Apasmara, Visha Vikara* etc⁵.

Generalized *Dhoopan*-

***Hawan*-** Generalized *Dhoopan* like *Hawan* that sterilized our environment.

Homa, Havana and *Yagya Vidhi* that is mentioned in our ancient text is given below-

***Kumaragaar* (neonatal ward) or *Sutikagaar Dhoopan* (Pediatrics Wards)-**

Acharya Charaka mentioned *Kumaragaar* in *Shareer Sthana* Chapter 8⁶ and *Acharya Vagbhata* described *Kumaragaar* in *uttara tantra*, chapter 1⁷. *Kumaragaar* is a place where mother and child lives together. *Kumaragaar* should be free from *bhootas* (microorganisms) darkness, insects like mosquitoes, rat, fly etc, and he also said *raksha karma* (disinfection), *bali* (donation), *mangal, hawan* should be performed before placing child in the *Kumaragaar*. *Acharya Vagbhata* said there should be proper ventilation and sun light in the *Kumaragaar*. He also said baby's bed, chair, bedding, bed sheet should be clean, soft and dirty clothes should be washed properly, dry in sunlight and after that *dhoopan* should be performed on those clothes.

Acharya Charaka mentioned *Dhoopan* in *Shareer Sthana*. He said Babies Clothes, bedding, bedsheets, quilt etc. should be fumigated by *Jau* (*Hordeum vulgare*), *Sarson* (*Brassica campestris*), *Teesi* (*Linum usitatissimum*), *Heeng* (*Ferula asafetida*), *Gugglu* (*Commiphora mukul*), *Vacha* (*Acorus calamus*), *Chorpuphi* (*Angelica glauca*), *Brahmi* (*Bacopa monnieri*), *Golomi* (*White Doob*), *Jatamansi* (*Nordostachys Jatamansi*), *Palankasha* (*Tribulus terrestris*), *Ashoka*, (*Sarca ashoka*),

Kutaki (*Picrorhiza kuurrooa*), Snake Skin etc. So our Acharyas already have mentioned disinfectant to disinfect the organism.⁸

Acharya also said if *Tandul Bali Hawan* should be performed from birth up to 10 day of birth before naming ceremony. If placenta retained during delivery then vagina should be fumigated with *Bhojpatra*, *Kacha*, and skin of snake. Acharya *Sushruta* said child should be fumigated with *Rakshoghana dhoop*⁹.

Vranitagaar Dhoopan (Postoperative wards)¹⁰-

Acharya *Sushruta* said *vranitagaar* is a place where injured person should be placed. This place should be free from insects, fly and mosquitoes and fumigated with *Sarson* (*Brassica campestris*), leaves of *neem* (*Azadirachta indica*), *ghrita* and salt twice in a day for 10 days continuously.

Origin of Dhoop or Dhoopan¹¹-

About the origin of *Dhoop* Acharya *Kashyapa* mentioned a story, he said that in ancient time when sons of saints got harassed by Demons then saints gathered in front of Lord *Agni* and begun to prey him. After pleasing from them Lord said that *Dhoop* that are dedicated by me used them and you get rid from demons. *Dhatri* (wet nurse) and her baby should use these *Dhoop* in relieving from many diseases. *Dhoop* may be *jangam* or *sthawar* origin. After *Dhoopan Karma mantras* should be chant.

Table-1 Audhbhid Dravyas

Audhbhid Dravya	Dhoop	Scientific Relevance
<i>Kustha</i> (<i>Saussurea lappa</i>)	<i>Karna, Brahma, Dashanga</i>	Antimicrobial ¹⁴
<i>Shatpushpa</i> (<i>Foeniculum vulgare</i>)	<i>Shaishuk</i>	Prevent growth of <i>Staphylococcus aureus</i> , <i>Kliebsiella pneumonia</i> ¹⁵
<i>Vacha</i> (<i>Acorus calamus</i>)	<i>Kumar, Dashanga, Nandak, Karna, Mahodya, Pratidhoop, Gana dhoop</i>	Antimicrobial ²⁶
<i>Sarson</i> (<i>Brassica campestris</i>)	<i>Kumar, Rakshoghna, Uttam, Karna, Moha, Dashanga, Ghee, Brahma, ana, Mahodaya, Pratidhoop, Graha Nashan Dhoop 4</i>	Antimicrobial ¹⁷
<i>Heeng</i> (<i>Ferula asafetida</i>)	<i>First, Kumar, Fourth, Rakshoghna</i>	Antimicrobial ¹⁷
<i>Shallaki</i> (<i>Boswellia serrata</i>)	<i>Swastik Dhoop</i>	Antimicrobial ¹⁶
<i>Neem</i> (<i>Azadirachta indica</i>)	<i>Arishta,Prati,Apsmarnashan,Sarvarogghan</i>	Insecticide ^{17,19,20,23}
<i>Tulsi</i> (<i>Ocimum sanctum</i>)	<i>Kumar, Varun, Sarva Roga har,</i>	Antimicrobial ¹⁷
<i>Vidanga</i> (<i>Embelia ribes</i>)	<i>Kumar</i>	Antimicrobial ²⁷
<i>Tagar</i> (<i>Valeriana wallichii</i>)	<i>Kumar, Dashanga, Shaishuk</i>	Antimicrobial ¹⁹
<i>Tejpatra</i> (<i>Cinnamomum tamala</i>)	<i>Kumar</i>	Antimicrobial ¹⁹
<i>Gugglu</i> (<i>Commiphora mukul</i>)	<i>Maheshwar, Dashanga, Moha, Grahaghan Dhoopn 2, Graha dhoop</i>	Antimicrobial ^{16,18,20}
<i>Raal</i> (<i>Shorea robusta</i>)	<i>Kumar</i>	Antimicrobial ²⁷
<i>Bilwa</i> (<i>Aegle marmelos</i>)	<i>Kumar, maheshwar, dashanga, ghee</i>	Antimicrobial ¹⁹
<i>Devdaru</i> (<i>Cedrus deodara</i>)	<i>Mheshwar, Varun, Swastika, Graha Nashan Dhoop 2</i>	Antimicrobial ¹⁹
<i>Jau</i> (<i>Hordeum vulgare</i>)	<i>Maheshwar</i>	Antimicrobial ¹⁹
<i>Daruharidra</i> (<i>Berberis aristata</i>)	<i>Kumar, Pratidhoop</i>	Antimicrobial ²⁵
<i>Karpur</i> (<i>Cinnamomum camphora</i>)	<i>Uttam</i>	Antimicrobial ^{16,18}
<i>Saral</i> (<i>Pinus roxburghii</i>)	<i>Maheshwar, Varun</i>	Antimicrobial ²⁵
<i>Jatamansi</i> (<i>Nordostachysjatamansi</i>)	<i>Shaishuk</i>	Antimicrobial ^{18,19}
<i>Chandan</i> (<i>Santalum album</i>)	<i>Varun</i>	Antimicrobial ^{19,20}
<i>Pippali</i> (<i>Piper longum</i>)	<i>Karna</i>	Antimicrobial ²⁷
<i>Rice</i>	<i>Rakshoghna, Brhma, Apsmar Nashan Gana,</i>	Antimicrobial ¹⁹
<i>Ela, Musta</i> (<i>Cyprus rotundus</i>)	<i>Shaushuk</i>	Antimicrobial ^{19,20}
<i>Shirish Pushpa</i> (<i>Albizia lebeck</i>)	<i>Swastik</i>	Antimicrobial ²⁷
<i>Kener</i> (<i>Nerium indicum</i>)	<i>Sarvaroghar</i>	Antimicrobial ²⁷
<i>Jati</i> (<i>Jasminum officinale</i>)	<i>Gana, Swastik</i>	Antimicrobial ²⁷
<i>Haridra</i> (<i>Curcuma longa</i>)	<i>Kumar, Sukhprada</i>	Antimicrobial ²⁴
<i>Krishna Augru</i> (<i>Aquilaria agallocha</i>)	<i>Grahaghan dhoop⁴</i>	Antimicrobial ¹⁹

Table-2 Jangam Dravyas²²

Dravya	Dhoop
Cow Ghee ^{15,16,17,18}	<i>All dhoop</i>
Cow Dung ^{15,16,17,18}	
Hair of Goat	<i>Dashanga</i>
Horn of Sheep	<i>Second Dhoop</i>
Hoof of Horse, Elephant	<i>Second Dhoop</i>
Hair of Monkey	<i>Second, Karna, Mahodaya</i>
Skin of Snake	<i>Rakshoghna</i>
Hair of Cow	<i>Agneya, Sarvarogghan</i>
Hair of Horse, Donkey, Camel	<i>Kalyanak</i>

Procedure-

In *Kashyapa Samhita* Acharya *Kashyapa* explains that after fasting and bathing *Vaidhya* should collect *Dhoop* substances from the *agneya* (south-east) or *Uttar* (north) direction, on *Pushya* constellation. After that four girls crushed all *Dhoop* substances in new utensil and stored these *Dhoop* at safe place and used as per requirement.¹²

Mode of action-

Ayurvedic fumigation is an example of drugs delivery through the inhalation route having several advantages.

It includes ease of drug administration, higher bioavailability and high potential to penetrate the blood brain barrier.¹³

Types of Dhoop and their scientific relevance-

Acharya *Kashyapa* had mentioned *dhoop* in his text book *Kahyapa Samhita* in chapter *Dhoop Kalpa*. Acharya had mentioned that most of the diseases of child are caused by *bhootas* (microorganisms) as child has *avar satva* or low immunity.

So in present scenario it is the need to explore the *dhoop* so that child remains healthy Acharya *Kashyapa* had mentioned 40 *dhoop* that are given below.

Horn of Goat	<i>Uttam</i>
Hair of Donkey	<i>Uttam</i>
Skin, hair, feces of Beer	<i>Nandak</i>
Feces of Bird	<i>Nandak</i>
Skin of Monkey	<i>Karna</i>
Dog Urine	<i>Grahaghan</i>
Hair of Peacock	<i>Grahaghan</i>
Tusk of Elephant	<i>Punaya</i>
Hair of Sheep	<i>Punaya</i>
Horn of Cow	<i>Punaya</i>

Laksha	Kumar, Varun, Chaturangik, Pratidhoop, Apsmarnashan dhoop,
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Scientific relevance-

A study proves that cow ghee increases oxygen level in air.²⁸ *Jangam dravyas* (animal product) like²⁹ hair, nails, horns, hoofs etc. contain keratin as structural component which after fumigation provide sulphur that is used as a disinfectant. Excreta like tool and urine of different animal used because its smell keep away many vector born diseases like malaria, worms infestations and many other insects. Dry animal excreta have also been used as a source of fuel which helps in combustion of fumigated materials. *Laksha* is work as a binding agent and help in combustion and act as antimicrobial in action

Table-3 Prthiv Dravyas³⁰

Dravya	Dhoop
Hartal	Shaishuk
Manahshila	Shaishuk

Hartal (*Arsenic tri sulphide*), Manashila (*Arsenic di sulphide*) minerals having sulphur element.

DISCUSSION-

Dhoopan dravyas generally consist of drugs that show a synergetic effect and help in propagating the activity of the main antimicrobial drugs. In *Dhoopan Karma Dhoopan dravyas* have predominantly *Agni* and *vayu mahabhuta*. These *mahabhootas* help in rapid spreadability and quicker combustion in *Dhoopan Karma*. In nature these drugs are *laghu, sheeta, ruksha* and *vishada*.³¹ Most of the *dravyas* are volatile in nature. Their volatility becomes advantage in lowering microbial contamination. Researchers have shown that volatile oils, which often contain the principle aromatic and flavoring components of herbs and spices, if added to food stuffs, would cause no loss of organoleptic properties, would retard microbial contamination and therefore reduce the onset of spoilage. Furthermore, evidence suggests that these oils possess strong antioxidant activity.³²

It dilates blood vessels and help in oxidation of blood. It leads to adequate tissue perfusion and oxygenation. Thus, reduces inflammation, itching and eliminates infection.³³

In *Yagya* Formaldehyde is produced which work both as a antiseptic and germicide. Compounds as element (b-element), irioresinolbeta-dimethyl ether, 2,4-bis (tert-butyl)-phenol identified in *agnihotra* smoke are reported with anti-oxidant, anti-inflammatory effects and positive outcomes in various infections, cancers, etc.³⁴

In a study a herbal *dhoop stick* evaluated for antimicrobial effects against sterilizing agents as ultraviolet (UV) light, formalin, potassium permanganate revealed greater antimicrobial activity on bacteria as well as fungus.³⁵

A study showed that fumes of garlic peel are effective against MRSA bacteria which is responsible for nosocomial infections.³⁶

CONCLUSION-

This paper is aimed at reviewing the antibacterial and ant infective activity of *dhoopan* drugs and their role as a main line fumigation therapy for preventive and curative aspects among the children. This paper is foot step in the efforts to establish probable mode of action of *dhoopan* to improve the health of children from various diseases and preventing the need for medical intervention, by studying pharmacological properties of various *Ayurveda* drugs which are mentioned for *Dhoopan Karma*.

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