

## DHOOPAN CHIKITSA IN JANOPADODHWANSA VIKARA W.S.R TO EPIDEMIOLOGY -AN AYURVEDIC PERSPECTIVE

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### ABSTRACT

Dhoopan Chikitsa, one of the vital treatments told by Ayurveda is mentioned in the different textbooks of Ayurveda. We all are aware that, Ayurveda has attached great importance to preventive medicine and has described several methods for disinfection. Today we are living in a world where we are constantly facing new diseases and surrounded by various types of pathogenic microorganisms in our daily lives, which make us their prey as soon as they get a chance. Some of these microorganisms are the ones that give rise to terrible types of infectious diseases, which have the potential to influence a large section of the population. The Epidemic is the occurrence of more cases of a disease than would be expected in a community or region during a time of period, a severe outbreak of a disease such as SARS. Epidemiological diseases have been described in Ayurveda regarding Janpadodhwansa. Vayu (Air), Desha (Land), Kala (Season), and Jala (Water) are the four factors that are contaminated during the epidemic, according to Ayurveda. Dhupana (fumigation) is the act by which considerable success can be achieved in the field of disinfecting contaminated air and surface. Therefore, because of the present circumstances, this article is a genuine attempt to shed light and show the importance of Dhupana Karma (fumigation) for the process of disinfection.

**KEYWORDS:** Ayurveda, Epidemic, Janpadodhwansa, Dhupana Karma.

### INTRODUCTION

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites, or fungi; the diseases can be spread, directly or indirectly, from one person to another. Zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans. Nearly 50,000 men, women, and children are dying every day from infectious diseases the World Health Organization says in the World Health Report 1996.<sup>[1]</sup> At least 30 new diseases have emerged in the last 20 years and now together threaten the health of hundreds of millions of people. For many of these diseases, there is no treatment, cure, or vaccine.<sup>[1]</sup> Morbidity because of infectious diseases is very common despite the progress accomplished in recent decades. Every year, the influenza virus circulates widely, infecting from 10% to 40% of the world's population. Based on CDC estimates, there were 59 million infected during the 2009/2010 H1N1 pandemic.<sup>[2]</sup> 173,005,553 confirmed cases, 3,727,605 confirmed deaths, and 216 countries or territories

affected because of Novel Corona virus disease (COVID-19) pandemic as of 04 June 2021 according to WHO.<sup>[3]</sup> Meanwhile, antibiotics and other life-saving drugs used against many diseases are rapidly losing their effectiveness as bacteria and other microbes develop resistance to them. For example, doctors worldwide are losing some of the most useful and affordable antibiotics against the two principal bacteria which cause pneumonia, the major cause of death in children.

Prevention is always better than cure and the process of disinfection or sterilization is used as a preventive aspect against all the pathogenic microorganisms. The term Krimi is used for all microorganisms in a general perspective and the infectious diseases are known as *Aupsargika Rogas* under Ayurveda. An epidemic is the rapid spread of disease to many people in a population within a short period, whose detailed description is found in Ayurveda as Janpadodhwansakar Rogas.<sup>[4]</sup> Air and land are also among the four factors (Air, Water, Land, and Season) that get contaminated during

Janpadodhwansa, which play a major role in the expansion of an infection. Dhupana remedies (fumigation) are being used as Homa, Havana, Yagya, etc. since the Vedic period to protect against pathogenic microorganisms. The importance of Dhupana karma in Ayurvedic Samhitas is described in various conditions, such as sterilization of operation theatres, labour theatres and also in wound management. Dhupana Karma having the literal meaning of fumigation is one of those natural and traditional methods which can be useful in controlling infections. It is the use of medicated fumes. In this race of urbanization and modernity, society has become far from nature and sanitation and closer to microorganisms, giving rise to various diseases. Many substances are used daily to protect against microorganisms, because of their prolonged use, which is harmful to health. In such a situation, we should look for substances originating from nature that are helpful against microorganisms but not harmful to health. So in this way, we aim to show the importance of Dhupana karma (fumigation) against pathogenic microorganisms by reviewing various resources.

**Concept of Krimi (Pathogenic microorganisms)<sup>[15]</sup>**

As in contemporary science, there is a separate branch of Helminthology and Microbiology but in Ayurveda, the word Krimi is used for all worms and microbes either it is visible or invisible.<sup>[15]</sup> The word Krimi is derived from Dhatu 'Kujna-himsayam' (Sidhantakaumudi), which means to kill or to yield harmful effects. A range of diseases produced by Krimi is mentioned in Ayurvedic classics such as Kustha (Group of skin disease, Leprosy), Yakshma (Tuberculosis), Atisara (diarrhea), Pandu (Anaemia), ShiroRoga (Brain related problems like meningitis, neurocysticercosis) HridayaRoga (Heart diseases).

**The concept of treatment for contagious diseases**

➤ **Rakshavidhana Karma (Sterilization)**

Ayurveda is a very practical and ancient science. Ayurveda explains multiple sterilization measures like water purification, Homa & Yagna (one type of natural fuming procedure by using aromatic and herbal plants), and the second is Shalya (Surgery). Acharya Sushruta was the one who developed the surgery most in his Sushruta Samhita he has described several Rakshavidhana procedures for disinfection of surgical instruments and wounds which can be co-related with.

➤ **Sterilization<sup>[16]</sup>**

Modern science also followed this belief and discovered many disinfecting substances and procedures. Sterilization refers to any process that removes, kills, or deactivates all forms of life (referring to microorganisms such as fungi, bacteria, viruses, spores) and other biological agents as prions present in a specific surface, object, or fluid.

➤ **Dhupana Karma (Fumigation)**

There are millions of micro-organisms around us, in the air, in clothes, etc. The dead cells fallen from the surface of the body carry thousands of such organisms and to our surprise, it contributes almost 37% of our household dust. All these microorganisms are going to give rise to many types of diseases as soon as they get a favorable environment, which can be in the normal to severe category. Dhupana is a method by which drugs of herbal, herbs-mineral, or animal origin are used for fumigation to protect against deadly microorganisms.<sup>[18]</sup> There are many combinations and different types of Dhupa (Fuming agents) for different microorganisms and purposes which have been stated by different Acharyas of Ayurvedic Science.

**Origin of Dhoopan<sup>[7]</sup>**

*Agni-Devata* (fire god) is considered the primary source or deity of *Dhoopa*, and the betterment of entire mankind is the main purpose of its materialization.<sup>[6]</sup> Acharya Kashyapa narrates a story in this context, that when demons started harassing young children on earth, all the seers who used to remain engaged in Japa (unremitting prayers), Homa (offering various herbs and food substances to fire God as per Vedic tradition) and Tapa (austerity) approached to Agni Devata asked for help. *Agni Devata* amiably presented various Dhoopa and asked the seers to utilize them. He further assured them that by doing so, not only demons but also ghosts or devils could not harm them.<sup>[7]</sup>

Dhoopan Chikitsa (fumigation treatment) utilizes only natural ingredient so that it is safe for the human being and environment. In medicinal fumigation or Dhoopan chikitsa, a mixture of medicinal substances which are burnt in a specific way to make a smoke called Dhoopa. There are three types of Dhoopas explained in Kashyap Samhita viz. Dhoopa, Anudhoopa, Prtidhoopa To reduce the vitiation of air or airborne diseases, a respiratory infection can from the atmosphere, Dhoopan chikitsa should be spread through different sizes of droplets: if the mentioned in Ayurvedic text by Acharyas.

**Classification of Dhoopan Karma<sup>[20]</sup>**

Sr no.	Classification of Fumigating Materials	
1	Base on Indication	1. Preventive
		2. Curative
		3. Other
2	Based on Karma (Mode of Action)	1. Dhupa
		2. Prtidhupa

		3. Anudhupa
3	Based on Mode of Use	1. External 2. Internal
4	Based on Origin of Dhoopan Dravya	1. Sthavar 2. Jangam 3. Khanija

### Drugs Used For Dhoopana Karma<sup>[7-14]</sup>

Plants belonging to *kushthahara*, *krimighna*, *kandughna*, and *vranaharagana* have mostly been used for their antimicrobial properties. Minerals having sulphur compounds haritala and manashila have been used.

Animal products like hairs, nails, horns etc. have been used where keratin is a structural component which contains sulphur. The sulphur present in these substances might play a key role in the disinfection. The use of excreta of different animals may have been used as the smell of it may drive away major vectors of disease like mosquitoes, worms, maggots and other insects. Dry animal excreta have also been used as a source fuel. Animal excreta mainly contains combustible gases. Likewise, most of dravyas have substances like ghee, *sarjarasa* to help in combustion.

- Guggul has been mentioned in 15<sup>th</sup> chapter
- Ghee in 41 formulations
- Sarjarasa in 13 formulations
- Excreta in 20 formulations

#### ➤ *Nimba* (*azadirachta indica*)

Its active constituents possess insecticidal and insect repellent activity, like 22, 23-dihydronimocinol extracted from leaves, and azadirachtin extracted from seeds. *A. indica* fumes against streptococcus pyogenes after 10 minutes exposure showed 100% inhibition and 50% inhibition after 5 minutes exposure, it also showed inhibition of *s.aureus*, *s. epidermis*, and *p. aeruginosa* under same setting. *Azadirachta indica* is effective against head lice in topical use.<sup>[9]</sup> Fumigation of volatile oils of *azadirachta indica* have potent insect repellent property. An olfactometer study carried out with the volatile oils of leaf of *a. indica* have shown 73% repellent activity at a dose of 80mg.<sup>[10]</sup>

#### ➤ *Guggul* (*commiphora wightii*)

Extracts of guggul were evaluated for their potential antibacterial activity against both gram positive and gram negative bacterial species of clinical significance. Ethanol extract was found to have comparatively higher activity than other organic and aqueous extracts of guggul. Gram positive bacteria showed competent but variable susceptibilities to all the tested extracts. Some of the extracts exhibited significant inhibitions of bacteria even at low concentrations.<sup>[11]</sup>

#### ➤ *Sarshap* (*Brassica Campestris*)

Brassica species contain contrasting of glucosinolates which have biocidal activity on different pathogens including bacteria and fungi. Fumigation with brassica species is effective against nematodes.<sup>[12]</sup>

#### ➤ *Nirgundi* (*Vitex Nigundo*)

Petroleum ether (60-80c) extracts of the leaves of vitex nigundo were evaluated for larvicidal activity against larval stages of culex tritaeniorhynchus in the laboratory. Larvae of *C. tritaeniorhynchus* were found more susceptible. It provided protection from mosquitoes bites, which varied between 98.8% and 100%. In the field trial, it was found that the leaf extracts of *v nigundo* offered protection from the three major important vector mosquitoes such as anopheles, culex, and aedes species. The larvicidal efficacy is comparable to fenthion, a commercial available organophosphorus larvicide.<sup>[13]</sup>

#### ➤ *Tulsi* (*ocimum sanctum*)

Extracted essential oils such as methyl chavicol, eugenol, linalool, camphor and methyl cinnamate and some biologically active constituents that are insecticidal, nematocidal and fungi static. Extract obtained by oil extraction also showed good antibacterial activity. This can be mainly due to the presence of eugenol, a phenolic compound, which has been reported to have antimicrobial properties on multidrug resistant shigella strains. The essential oil has larvicidal activity against houseflies and mosquitoes. essential oil and its component like linalool having antifungal activity specifically against candida.<sup>[14]</sup>

#### ➤ *Agaru* (*Aquilaria agallocha Roxb.*)

it has antimicrobial and analgesic effects. Dhupana (fumigation) of Aguru is helping in healing wound as well as it suppresses the sensation of pain.

#### ➤ *Vacha* (*Acorus calamus Linn.*)

Alpha and beta asarones are primarily responsible for antibacterial action; however, beta asarone has been shown to have higher antimicrobial activity than alpha asarone. Antibacterial activity was discovered in the leaf and rhizome parts of *Acorus calamus*. *Salmonella typhi*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Staphylococcus aureus* were all found to be susceptible to the methanolic extract of *Acorus calamus*.

### DISCUSSION<sup>[24,25,26]</sup>

At the speed at which we are moving towards modernization and urbanization, at the same pace, we are surrounded by pollution, diseases, and pathogenic microorganisms. Most of the materials & chemicals currently used for disinfection originate from artificial sources and their excessive use is harmful to nature and all creatures. To replace these artificial measures and harmful substances, we must adopt processes and sources that are environmentally friendly. Various natural remedies for disinfection have been described in

various texts of Ayurveda, which is one of the oldest medical systems in the world. After evaluating the referenced subjects about Dhupana process, their usefulness becomes self-evident, but a detailed action plan and scientific approach are needed to use them in daily life and to establish them as primary disinfection measures. Dhupana, which is one of these natural remedies, harmonizes with the currently used fumigation process. In this process, medicated fumes using necessary plants are used. Dhupana Karma is an important modality & primitive method of sterilization. Several research articles demonstrate it has the property of antimicrobial activity.<sup>[24,25]</sup> Besides, the use of Dhupana to treat poisoning has been described in many contexts such as Chaturvishanti Upkrama (24 treatment methods to treat poisoning)<sup>[26]</sup> Today there are many natural substances used in our daily life that can be used in the process of Dhupana, but ignorance is bound to make use of artificial materials in terms of accessibility otherwise.

## CONCLUSION

The antimicrobial activity of Dhupana is confirmed based on the topics related to the Dhupana process mentioned in Ayurvedic classics and various research articles. It is completely a natural process and much less harmful to the environment than artificial measures. In this epidemic era where our immunity is getting affected day by day, we need to introduce natural, accessible, cost-effective, and most important environment-friendly measures. Therefore, this article shows the importance of the natural Dhupana process and to promote their use so that we can play our role in creating pollution and a toxic-free environment.

This paper was aimed at reviewing the antibacterial and anti-infective activity of various Ayurveda drugs mentioned in Kashyapa Samhita for dhupana and their role as a main line fumigation therapy for preventive and curative aspects among children. The review reveals that the plants nimba, guggul, sarshap, nirgundi and tulsi possess potent antibacterial activity and therefore can be successfully used in fumigation therapy both as mainline treatment and for prophylaxis with minimal adverse effects. With the help of this paper the drugs which are quoted will prove to be beneficial for the researcher planning clinical trial with them and they can be used in neonatal wards and operation theatre as an effective, safe alternative to present day disinfectants used in fumigations.

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