



Short Communication

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Aparajita dhoopa fumigant: vis-a-vis a community disinfectant

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ABSTRACT

Disinfectants are used for controlling the spread of microbiological infections. A classical fumigant known as Aparajita dhoopa has immense potential to act as community disinfectant. This short communication addresses the possible role of Aparajita dhoopa in the management of spreading of infection.

Keywords: Microbiological infections, Community disinfectant, Aparajita dhoopa.

INTRODUCTION

There is a change in perspective in our appreciation about the need for cleanliness and disinfection in public spaces. Disinfectants are used for controlling the spread of microbiological infection by spraying and fumigating streets, marketplaces, hospitals, transport medium, etc to control the spread of harmful pathogens. Several chemical disinfectant categories are as following:

- a. Alcohol: ethyl alcohol, Isopropyl alcohol
- b. Oxidizing agents: Hydrogen peroxide and peroxy-acetic acid are peroxide based disinfectants.
- c. Bleaching agents: sodium hypochlorite solution.
- d. Phenol-based-disinfectants: These chemicals are usually based on substitution phenols and bisphenols
- e. Quaternary ammonium compounds: Quaternary ammonium compounds (QACs) are considered effective disinfectants.
- f. Formaldehyde and glutaraldehyde: These compounds are being considered as advanced disinfectants for medical and surgical equipment

Though all the chemical-based disinfectants are completely safe for public use worldwide if used in recommended concentration, but huge surge of use of these disinfectants or prolonged use may cause occupational health hazards and may cause minor/major side effects (Table 1).

Hence steps should be taken to also consider plant based antimicrobial agents in a country like India which has a vast treasure of medicinal plants. In traditional Indian systems of medicine, Ayurveda there are several references of such unique formulation which has enough potential to act as a disinfectant.

Ayurveda is the 5000 years old 'Jivan Darshan' (Philosophy of life) and also the science of life. In its philosophical aspect it has given more emphasis on prevention of diseases along with its cure, which deals not only with diseases but also helps us how to maintain a healthy and long life. Ayurvedic dosage forms are vivid and contain various forms, which are known as *Kalpanas*. 'Kalpana' means the process through which a substance is changed to medicine form by using some raw materials according to the physician's advice². One such kalpana is 'Dhoopana kalpana'

Dhoopan means fumigation. The decontamination of environment is an essential consideration for the control of pathogens. Ayurveda recommends fumigation as a method of sterilization with economic, readily available, safe and eco-friendly substances which promotes physical, mental, spiritual health and also sanitize environment. It is a procedure for various human diseases that occurs due to microbial infections, vector-borne, airborne viruses and psychological disorders³. Ayurveda has mentioned the

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concept Epidemic as 'Janapadbhidwamsa', where there is extensive destruction to the environment and lives.

Acharyas like Charak, Sushruta, Vagbhat, Sharangdhar has suggested Dhoopkalpa on *Kasa, Shwas, Unmad, Arsha, Vrana* stc

Achararya Sushruta in his *Sushruta Samhita*, had advised to do *Dhoopan* with '*Rakshoghna (antimicrobial) Dravyas*'. He has stated many combination & different types of *Dhoopa* for different types of organisms.

Whether one believe it or not, but all our ancient literature proves on more or less extend that, though the terminology was different i.e., *Bhutavidya* means microbiology. Our *Acharyas* had very detailed knowledge about human anatomy, principles of remaining healthy & medicinal cure. In *Ashtanga hridaya* there is description of *Dhoopana* in *Jwar* management and purify the air. Also there is advice of *Dhoopana* to the *Sutikagriha* with the help of *Dravyas* mentioned in *Vrana Chikitsa*.

Acarya Kashyapa has given separate *Dhoomakalpaadhyaya* for *Dhoopana*, aim of this *Adhyaya* is to keep *Sutika* (post partum lady) and new born healthy. He has described different *Dhoopas* and also advised in *Garbhaavastha*, *Dhoopana* of bed, clothe, chair and whole *Sutikagriha*. He also opined that the physician should always possess fumigating material with him at the time of the visit to the patient.

In Sharangdhar Samhita also, fumigation is indicated in ulcer and respiratory ailments in a separate chapter named *Dhumrapanvidhi*.

Thus Ayurveda gives great emphasis that *Dhoopana* is helpful in disinfecting environment and sterilization (Table 2).

Aparajita Dhoopa

Aparajitha Dhooma choorna is mentioned in several Ayurvedic texts^{4, 12} for the management of *Jwara Chikitsa* in the form of fumigation. The fumigation prevents the spread of infectious diseases and also purifies the air from pathogens. Study had revealed⁵ Aparajita dhoopa churna as a whole has potent antimicrobial activity. Further individual plants as mentioned in the formulation also have antimicrobial activities (Table 3)⁶⁻¹¹.

Drug regulatory affairs related to production of Aparajita dhoopa

For Ayurvedic manufacturers who had the endorsement of *Churna* and had minimum area of 200 sq. ft as per schedule T (part II, A) of D&C Act, 1940 and rules there under, may manufacture Aparajita Dhoopa after availing proper license. Grinder, disintegrator, pulverizer, powder mixer, sieves of designated sizes and shifters are needed for commercial manufacture of the said Dhoopa. Shelf-life (expiry) of Aparajita dhoopa will be of two years from the date of manufacture as per Rule 161 (b) of D&C Rule 1945. For ease of application a binder may be added to the Aparajita Dhoopa churna to give it the shape of a tablet. Such type of tablet had great demands commercially especially in the gulf countries and East Asian countries in the name of '*Bakhoor*'.

Table 1: Role of disinfectants in human health

Disinfectant Agents	Effects on human health when used beyond recommended concentration/prolonged exposure ¹
Ethanol/Isopropanol	Skin allergies, Respiratory irritation, eye irritation
Hydrogen peroxide	Gastrointestinal problems, Skin and mucous membrane irritation
Formaldehyde	Breathing difficulties, Skin: irritation, itching and dermatitis Renal problems
Iodophors	Irritation, itching
Glutaraldehyde	Eye, Skin & mucous membrane irritation

Table 2: Several Dhoopana dravya as mentioned in Ayurveda

Name	Samhita	Ingredients	Action
<i>Manashiladi Dhoom</i>	Charak samhita	<i>Palash, Ajmoda, Shunthi, Vanshlochana, ghee, manashila</i>	antibacterial
--	Susruta samhita Kalpa sthan	<i>Laksha, Haridra, Ativisa, Abhaya, Musta, Harenuka, Ela, Tagara, Kustha & Priyangu</i>	Air purifier
--	Susruta samhita uttar sthan	<i>Vacha, Kustha, Guggulu, Neem & honey, etc</i>	Jwar management
<i>Aparajita Dhoopa</i>	Astanga Hridaya, Chikitsa sthan	<i>Purva, Dhyama, Vaca, Sarja, Nimba, Arka, Agar, Daru</i>	Jwar management
<i>Karpasthyadi Dhoopana</i>	Astanga Hridaya, Uttar sthan	<i>Karpasasthi, Mayur, Patra, Brihati, Nirmalya, Madan, Twaka, , etc</i>	Antimicrobial
<i>Aparajita Dhoopa</i>	Bhaisajya Ratnavali	<i>Vach, Gandhatrina Agar, Neem leaves, Akanda leaves, Devdar, Guggul, Rala</i>	Jwar management
<i>Astanga Dhoopa</i>	Bhaisajya Ratnavali	<i>Guggul, Neem, Vach, Kuth, Haritaki, Yav, Sarsapa</i>	Jwar management
<i>Maheswar dhoop</i>	Bhaisajya Ratnavali	<i>Hingul, Devdar, Neem, Vrihati, Kantikari, etc</i>	Jwar management

Table 3: Ingredients of Aparajita Dhoopa Churna as per Bhaisajya Ratnavali¹²

Sl no	Common name	Botanical Names	Family	Parts used	Quantity
1.	<i>Vach</i>	<i>Acorus calamus</i>	Acoraceae	The rhizome	Equal quantity each
2.	<i>Gandhatrina</i>	<i>Cymbopogon citratus</i>	Poaceae	The whole plant	
3.	<i>Agaru</i>	<i>Aquilaria agallocha</i>	Thymelaeaceae	The wood	
4.	<i>Neem leaves</i>	<i>Azadirachta indica</i>	Meliaceae	The leaves	
5.	<i>Akanda leaves</i>	<i>Calotropis gigantea</i>	Asclepiadaceae	The leaves	
6.	<i>Devdaru</i>	<i>Cedrus deodara</i>	Pinaceae	The wood	
7.	<i>Guggul</i>	<i>Commiphora mukul</i>	Burseraceae	Gum resin	
8.	<i>Rala</i>	<i>Shorea robusta</i>	Dipterocarpaceae	resin	

CONCLUSION

We may consider traditional way of fumigation along with chemical fumigants to control the use of excessive prolong exposure of chemical disinfectant and to minimize occupational health problems. More constructive research is needed for revalidation of the utility of traditional fumigants like Aarajita dhoopa to evaluate its *rakshagna* (antimicrobial) property in controlling community infections.

Conflict of Interest

None declared.

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