

Conceptualization of Ancient Siddha Disinfectant Techniques to Combat COVID-19

Elakkiyaa. V*¹, Aishwarya. A¹, Meenakumari. R²

¹Dept of Gunapadam, National Institute of Siddha, Chennai-47.

²National Institute of Siddha, Tambaram Sanatorium, Chennai-47

Abstract

Cleaning and disinfection of one's own self and an environmental surface is important in combating corona virus disease 2019. COVID-19 is a respiratory illness caused by SARS-CoV-2 and it is transmitted through close physical contact and respiratory droplets and also through indirect contact with the droplets of an infected person, including surface contamination. While recent study suggests that there is growing evidence to consider the airborne transmission of the virus that may linger in the air in the form of smaller droplets smaller than 5 microns. There is evidence to prove that even smaller particles can infect people when inhaled, especially in a closed environment with poor ventilation. A good ventilation system is needed in residences, working places and hospitals to minimize recirculation of air in addition to personal hygiene. Ultraviolet light may be needed to kill viral particles floating as tiny droplets in the indoors. Henceforth, the individuals and environment must be properly cleaned and disinfected to prevent further transmission. In Siddha literatures, many disinfectant methods have been mentioned which is already used by our ancestors to prevent and control many airborne diseases like chickenpox and influenza viruses. This review article suggests the importance of implementing the Siddha traditional disinfectant procedures for controlling the pandemic.

Keywords : *Siddha medicine, COVID-19, Disinfectant, Fumigation*

Introduction

COVID-19 is now a pandemic affecting many countries globally which is caused by the most recently discovered coronavirus. The symptoms include fever, dry cough, tiredness, headache, sore throat, diarrhoea, and loss of taste or smell, discoloration of fingers or toes. According to

*Corresponding author:

Elakkiyaa.V, PG Scholars, Dept of Gunapadam, National Institute of Siddha, Chennai-47.

E-mail: elakiya92@gmail.com

WHO, 80% of the affected population recover from the disease without medical intervention. Around 1 out of every 5 people becomes seriously ill and develops difficulty in breathing. The virus spreads primarily from person to person through small droplets from infected person while coughs, sneezes or speaks. The droplets are relatively heavy that quickly sink to the ground or land on surfaces around. So it is important for the public to safeguard themselves by proper personal hygiene and also to disinfect the environmental surfaces.

The World Health Organization (WHO) welcomes innovations around the world including repurposing drugs, traditional medicine and new therapies in the search for potential treatment for COVID-19. On the other hand, it is important to disinfect the environmental surfaces. The hospital environments are controlled by plenum ventilation system, laminar airflow system with HEPA filters and positive air pressure. The cost of these ventilation systems is high and thus cannot be implemented in schools, residences and working places. So conventional disinfectant techniques can be used in such places.^[1]

Frequent use of alcohol based sanitizers or soaps can cause irritant or allergic contact dermatitis in some individuals. Those who are allergic can make use of disinfectant techniques mentioned in Siddha literature.^[2]

Concept of contagious disease in Siddha system

In Siddha, Communicable disease is classified into *ottunoigal*-contagious disease (where the spread is usually by direct contact) and *thotrunoigal* -infectious diseases (one which is liable to be transmitted to people, organisms, etc. through the environment). According to Guru naadi

“*Kirumiyalvanthathodamperugavundu*” explains the spread and aetiology of microbial organisms. The symptoms of SARS CoV-2 resemble IyyaIrumal (Kapha disease) which is explained under classification of *Irumal Noi* by Siddhar *Yugi*.^[3] *Kabam* is the principle stabilizing energy and governs growth in the body and mind and is concerned with structure, stability, lubrication and fluid balance. In COVID-19 there is a derangement of *Avalambagam* (Serum) which lies in the lungs and helps in respiration and it is vital among all the types of *Kabam*.

Measures to prevent contagious disease as per Siddha literature

Siddha has recommended various rules and guidelines to be followed for healthy living which includes observation of certain regimen as mentioned in “*Pinianugaavidhi*” - rules that help prevent diseases. The concept which is mentioned above is related to *thinai / nilam, naal ozhukkam, kaala*

ozhukkam, unavu (one's habitat, seasons and diet)^[4]

Daily regimen (*Naal ozhukkam*)

It is the systemic order of everyday activities that a person needs to follow in order to avoid diseases^[5].

Herbal Bath (*Panchakarpam*)^[4]

A bath before sunrise is considered good for health. Oil bath is recommended once in 4 days. Siddha literature suggests taking bath using *panchakarpam*. It is a paste made of five drugs namely nelliparuppu (dried fruit of *Embica officinalis*), venmilagu (*Piper nigrum*), kadukkaithol (*Terminalia chebula*), kasturimanjal (*Curcuma aromatica*), veppamvithu (seed of *Azadirachta indica*). It symbolises the five elements namely prithvi, appu, theyu, vaayu

and aagayam (earth, water, fire, air, space) taken in the ratio of 1 ½, 1 ¼, 1, ¾, ½ parts. These drugs have to be grinded with cow's milk and boiled. The ingredients mentioned above have anti-viral, anti-bacterial, and anti-fungal properties which can be used regularly as a personal hygiene. It can be an additional step to prevent exposing family members or others to COVID-19 by taking a bath using this mixture as soon as get into home from outside.

Hand wash using *Neer* (Medicated Solution)^[6,7]

Neer is defined as the method of soaking raw drugs or purified *padanamin* water with different dilution methods. This medicated solution is commonly used to wash wounds due to its antiseptic properties.

Table 1. List of Medicated solution with scientific evidences

Name of the Preparation	Scientific Evidences
<i>Padigaraneer</i> (potassium alum)	Alum has potential anti-microbial activity ^[8]
<i>Venkaraneer</i> (Borax)	The lack of proliferation and survival of microorganisms in a borate-buffered vehicle provides an increased level of safety ^[9]
Common salt in water	Salt enhanced the defense against viral infections in cell culture and in mice ^[10]
Neem leaves (<i>Azadirachta indica</i>) and turmeric (<i>Curcuma longa</i>) mixture in water	Different parts of the <i>Azadirachta indica</i> (Neem) have shown antimicrobial, anti-inflammatory, analgesic, and antipyretic activity ^[11] Antimicrobial activities are proved for curcumin and rhizome extract of <i>C. longa</i> against different bacteria, viruses, fungi, and parasites ^[12]

Pugai (Medicated Fumigation) ^[13]

Since ancient period, sterilization of house and environment is done by following *pugai* procedure. Fumigation is an artificial impregnation of the atmosphere, with the fumes or the smoke of raw drugs or aromatic substances. It is also used as inhalation therapy. The most commonly used drugs are neem bark and leaves (*Azadirachta indica*), *notchi* leaves (*Vitex negundo*), pepper (*Piper nigrum*), cumin (*Cuminum cyminum*), turmeric (*Curcuma longa*), sandalwood (*Santalum album*), or aromatic substances like *sambirani* (*Boswellia serata*), *Kungilyam* (*Shorea robusta*) or animal slough, horns, nails, few prepared medicines like *Vida kuzhambu*, *Agathiyar kuzhambu*,

Kowsigar kuzhambu.

Medicated fumigation is used for disinfection of rooms and environment and also helps in control of pests, rodents and insects and thus prevent outbreak of epidemics. In ancient times, it is used to sterilise therapeutic, puerperal and neonatal rooms. Clothes and other household items can be kept disinfected by fumigation methods. It is an effective inhalation therapy for several respiratory conditions such as sinusitis, bronchitis, allergies, ear diseases and asthma. The main purpose of fumigation is infection control. It is the only method by which medicines can be taken to the deeper organs by the process of respiration which is important in the management of COVID-19.

Table 2. Method of Preparation of Medicated Fumigation and Indication

Method of Preparation	Indications
<i>Thaalagam</i> (Yellow orpiment) is grinded with the bark and leaf juice of <i>Sarakondrai</i> (<i>Cassia fistula</i>) and made into a fine paste and applied on a cloth and dried. The cloth is rolled like a cigar and lit. ^[14]	Relieves uncontrolled cough
The powder of 100 parts of dried <i>chukku</i> (<i>Zingiber officinale</i>) and 1 part of camphor (<i>Cinnamomum camphora</i>) is placed in the cloth and made to roll into a cigar and lit. ^[15]	Relieves headache
Equal amount of purified <i>lingam</i> (Cinnabar) and <i>Thaalagam</i> (Yellow orpiment) are grinded with leaves juice of <i>oomathai</i> (<i>Datura metal</i>) and <i>kuppaimeni</i> (<i>Acalypha indica</i>) and made into paste. The paste is then applied in a cloth and dried. ^[15]	Relieves headache, common cold and sinusitis
<i>Sambiranipugai</i> ^[15]	Relieves headache
<i>Oomathai poo pugai</i> (<i>Datura metal</i>) ^[7]	Indicated for respiratory diseases
<i>Agasthiyarkulambupugai</i> ^[15]	Relieves nasal congestion
<i>Chukkuthiripugai</i> ^[15]	Relieves sinusitis like condition

Table 3. Various Medicinal plants and parts used for fumigation

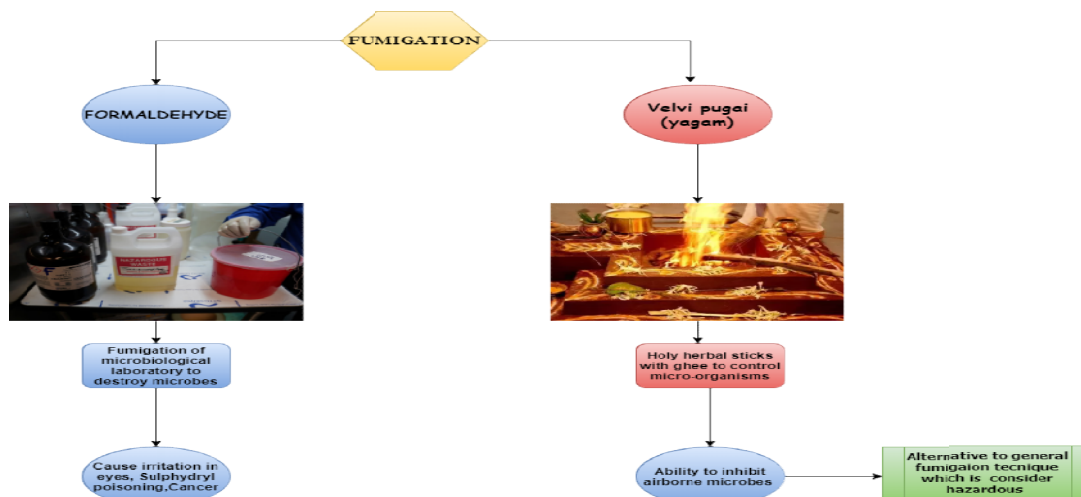
Herbs	Part used
Agil (<i>Aquilaria agallocha</i>)	Wood
Azhavanam (<i>Lawsonia inermis</i>)	Seed
Aruvatha (<i>Ruta chalepensis</i>)	Leaves
Adathodai (<i>Justicia adhatoda</i>)	Leaves
Iluppai (<i>Madhucalongifolia</i>)	Oil-cake
Karumbu (<i>Saccharum officinarum</i>)	Cane sugar
Sadhakuppai (<i>Anethum graveolens</i>)	Leaves
Perungayam (<i>Ferula asafetida</i>)	Gum
Vidamoongil (<i>Crinum asiaticum</i>)	Leaves

Velvipugai (yagna) ^[5,16]

In the Siddha literature “*Patharthaguna chinthamani*” the following lines are quoted “*velvi pugaiynathu theerkayusu kodukkum*” which means the offerings in the presence of sacred fire bring longevity. *Velvi* is done to purify air and atmosphere. The commonly used fumigating substances during *velvi* are Seenthil (*Tinospora cordifolia*), *Brahmi* (*Bacopa Monnieri*),

Shankhpushpi (*Convolvulus Pluricaulis*), *Sirunagappu* (*Mesua nagassarium*), *Athimathuram* (*Glycyrrhiza Glabra*), *Chensanthanam* (*Pterocarpus santalinus*), *Thandrikkai* (*Terminalia Belerica*), *kadukkai* (*Terminalia chebula*) which get diffused in the air and protects the environment against harmful organisms. Pictorial representation of difference between fumigation done by using formaldehyde and *velvipugai* by a study conducted earlier shown in figure 1. ^[17]

Figure1. Advantage of fumigation by velvipugai



Environmental hygiene: Proper Ventilation^[5]

According to ancient culture mentioned in the text “*Noiillaneri*”*muttram* (courtyard) in houses is must for natural ventilation. It serves as lungs in the body that brings natural ventilation. It acts as a thermostat and provides sunlight exposure, fresh air, improves oxygen supply and dilutes odour. As mentioned in the text, nowadays, the houses without courtyard lack ventilation and sun exposure which in turn leads to all respiratory illness such as *neerkovai*, *kaasam*, *sayam* (sinusitis, asthma, and tuberculosis). The recent study also suggested the same to slow down the spread of COVID-19. The following measures are as follows:

- Sufficient and proper ventilation in public places, workplace environments, schools, and hospitals
- Avoid overcrowding

References

1. Sushma Bagde Bhatwalkar, et al., Validation of environmental disinfection efficiency of traditional Ayurvedic fumigation practices, *Journal of Ayurveda and Integrative Medicine* 10 (2019) 203-206
2. Jane Lee Jia Jing 1, et.al, Hand Sanitizers: A Review on Formulation Aspects, Adverse Effects, and Regulations, *International Journal of Environmental Research and Public Health*, 2020, 17, 3326
3. Aishwarya, et.al, IyyaIrumal (Identical to Sars-CoV-2) ---Its Pathological Aspects and Treatment Guidelines in Siddha, *IOSR Journal of Dental and Medical Sciences*, Volume 19, Issue 6 Ser.6 (June. 2020), 17-30
4. Uthamarayan K S. *Siddha Maruthuvanga Churukkam*, Chennai: Department of Indian medicine and Homeopathy, 3rd edition, 2003.

- Supply high efficiency air filtration and germicidal ultraviolet rays.

Conclusion

Presently there is limited number of drugs, but different treatment methodologies are being tried to manage COVID-19. This present study aims to give knowledge about siddha disinfectant techniques which was used earlier and the specialty of this lies in both prophylactic and therapeutic in nature. However, these techniques require experimental validation in SARS-CoV-2 infection models and COVID-19 patients to prove scientifically. At the same time it is important to imbibe the best of all systems of knowledge to save millions of life.

Conflicts of interest

Author declares that there are no conflicts of interest.

5. Dhurairasan.K, Noiillaneri, Department of Indian medicine and Homoeopathy 2005. Chennai-10, 3rd edition, 1993
6. Thyagarajan R; Gunapadam Thathujeevamvagupu, Indian Medicine and Homeopathy, 9th edition, 2016
7. Murugesu mudhaliyar K.S, Gunapadam mooligaivaguppu, Department of Indian medicine and Homoeopathy, 7thEdn, 2003.
8. Sudha Revathi S. Potency of Kara Soodasathuparpam, A herbo-Smineral Siddha drug in the management Kalladaipu noi(urolithiasis): A drug review - Int J. Res. Ayurveda Pharm 5(3), May-June 2014
9. Houlsby et.al., Antimicrobial activity of borate-buffered solutions, Antimicrobial Agents and Chemotherapy May 1986, 29 (5) 803-806
10. Wu-Chang Zhang et.al., Elevated sodium chloride drives type I interferon signaling in macrophages and increases antiviral resistance, Journal of biological chemistry, December 4, 2017
11. Mistry, Kunjal et al. "The antimicrobial activity of *Azadirachta indica*, *Mimusops elengi*, *Tinospora cardifolia*, *Ocimum sanctum* and 2% chlorhexidine gluconate on common endodontic pathogens: An in vitro study. European journal of dentistry vol. 8,2 (2014): 172-177
12. Soheil et.al., A Review on Antibacterial, Antiviral, and Antifungal Activity of Curcumin, Biologic Activity and Biotechnological Development of Natural Products 2014, Volume 2014
13. Thirunarayanan T, Sudha R. External therapies of Siddha Medicine, Center for Traditional Medicine and Research, 1stEdn, 2010.
14. Ramachandran S P. Agasthiyar Vaidhiya Kaaviyam 1500, Thamarai Noolagam, Chennai, 1stEdn, 2001
15. Uthamarayan KS. Siddhar Aruvai Maruthuvam, Department of Indian medicine and Homoeopathy, 4thEdn, 2005
16. Shilpi Verma,et.al, Yagya Therapy in Vedic and Ayurvedic Literature: A Preliminary exploration, Interdisciplinary Journal of Yagya Research (2018), 1(1), 15-20
17. Prabu et.al., Efficacy of plants-based holy stick fumigation against infectious bacteria, Indian Journal of Traditional Knowledge, Vol.8(2),April 2009,pp:278-280