



INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation

Journal Home Page: www.pharmascope.org/ijrps

Drugs For Ayurvedic Hand Sanitizer And Nasal Spray And Its Method Of Preparation

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Article History:

Received on: 09 May 2020

Revised on: 01 Jun 2020

Accepted on: 10 Jun 2020

Keywords:

Ayurveda hand sanitizer, Covid-19, disinfectant, antimicrobial, anti-allergic herbs

ABSTRACT

Infection causing microbes spread through the air, water, contaminated food, cloth, equipment or from infected person to healthy one. The evidence collected on spreading mode of COVID-19 is mostly through skin contact and respiratory droplets. However, just in contact with the microbe is not enough to cause the disease. Reaching the germ to the internal body is the critical step involved in the manifestation of illness. Contact transmission for the sign of disease in an individual can occur from skin to the inner body especially when the infected part (mostly hands) reaches the mucous membrane of open cavities such as mouth, nose, eyes or open wound. Therefore the use of good quality sanitizers to prevent infections such as COVID-19 is one of the critical measures. Ayurveda is a rich source of vast information on therapeutic potentials of numerous herbs. Many simple to complex formulations can be prepared by using the therapeutic attributes of these herbs. Therefore in the present work, an attempt has been made to initiate the manufacturing of Ayurveda hand sanitizers based on various Ayurvedic medicated drugs mentioned in Samhitas, as developing countries such as India are facing a shortage of hand sanitizers which is a must prevent the spread of COVID-19. The shortage has resulted in an internal price hike, and thus there is a need for a homemade affordable way of sanitizing hands. Therefore by using a combination of antimicrobial, disinfectant, anti-allergic, skin disease curing herbs along can be recommended for the preparation of Ayurveda hand sensitizers. By using similar herbs, nasal spray and aerosols for cleaning and increasing the strength of the respiratory tract can also be prepared.

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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL1.2718>

Production and Hosted by

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INTRODUCTION

Ancient seers of Indian civilization have developed a unique health science based on rules of nature and by using natural resources. Ayurveda has given prime importance to the prevention of diseases and second priority for curing the disease. This concept is entirely acceptable in pandemic situations such as COVID-19. Achieving a long healthy life is not a task of one or few days; it is a process of following specific measures throughout the lifetime. Therefore Ayurveda principles mostly focus on describing such measures. However, there are other mea-

asures narrated to be developed in specific situations to avoid the risk of illness. In other words, an herbal heritage of Ayurveda offers both immediate applicable as well as long term utilizable measures to assure standard physiological mechanisms to maintain health.

As mentioned earlier, the preventive and curative aspects of Ayurveda therapeutics are the two vital principles. The therapeutic principle is narrated under the heading Chikitsa, which treatment protocols. The preventive policies are described under the heading 'Swastha Vritta' which means all regimens required to maintain the health of a healthy individual and it includes regular daily regimens such as cleaning of the body, diet and Yoga exercises; and seasonal regiments (Sharma, 2001).

In a pandemic situation such as COVID-19, cleaning of the body is the utmost priority in preventing the reach of the microbe in the body. The guideline provided by the World Health Organization also highlights the significance of cleaning, which Ayurveda has narrated thousands of years before. Given the current situation, emphasis on the cleaning of external open cavities of the body such as ear, nose and open wounds is mandatory along with whole-body cleaning especially regular cleaning of hands is must for disinfection.

Proper hygiene, particular hygiene of hand can be considered as one most important, most straightforward as well as a highly affordable measure for preventing the spread of resistant microbes associated infections, especially nosocomial infections (Ravi et al., 2005). Therefore every person engaged inpatient care should be careful and well aware of correct hand hygiene on time to time (Black et al., 1981). Contaminated hands can also infect food and drink, which if consumed by a healthy person, then he/she will be affected by various systemic diseases (Acheson and Fiore, 2004). Therefore hand hygiene is a must for personal as well as to restrict community spread of infection.

The concept of hand disinfection by using antiseptic agent probably emerged in the early 19th century (Boyes, 2002). Before the discovery of modern medicine, plants were the primary remedy for treating various diseases. With the advent of different antibiotics, microbes also gradually develop resistance to these substances. These bring researchers to interest in the plants having antimicrobial properties (Dimic et al., 2012). Readily made sanitizers are feasible for use as they can be carried easily and does not have any serious adverse reaction on the skin.

In this study, we used Nimba (*Azadirachta indica*),

Tulsi (*Ocimum sanctum*). Jambira nimbu (*Citrus limon*) due to their benefits and other drugs mention in Samhitas which are -Haridra, daruharidra, mahanimb, vidang, Karanja, nirgundi, shirisha, Guduchi, Triphala, aaraghwadh, bilva, kapithha, jatamamsi, arka, nirmali, sariva, lavanga, ghruta kumari, audumbar saal having krumighna, vishaghna, kushthaghna, kandughna properties.

All parts of *Azadirachta indica* possesses therapeutic potentials and useful in treating skin diseases, scalp diseases, hair loss, impaired liver function; and also act as a blood purifier, anti-inflammatory, anti-diabetic, antiviral, anti-carcinogenic, immunomodulatory property etc (Hammer et al., 1999).

Ocimum sanctum (family Lamiaceae) an aromatic plant of the Indian subcontinent, and used in Ayurvedic system as an antipyretic, antibacterial, antihelminthic and fungicidal. Different parts of the plant to be useful in many diseases. Citrus lemon (family Rutaceae) is also a useful medicinal plant cultivated mostly for its alkaloids and have antibacterial potential in its parts viz, leaves, stem, root and flower. Significant bactericidal action of this plant has been reported along with anti-fungal anti-diabetic, anticancer and antiviral activities (Akrayi, 2014). Therefore Kwatha (medicated decoction) of these medicinal herbs can be formulated into an antiseptic liquid which further can be used as a readymade hand sanitizer. Likewise, Nasal spray can also be prepared by using these drugs, which are effectively useful in respiratory tract diseases.

Aims And Objective

To review the method of preparation of Ayurvedic hand sanitizer and nasal spray from the available literature in Ayurveda.

MATERIALS AND METHODS

The raw material for principle kwath: Raw drugs mention in (Table 1), process and use for the preparation of principle Kwath is mentioned by following specified standard guidelines which were used as a base in preparing Ayurvedic sanitizer.

Method of Preparation

Kwatha

Coarse powder (sieve No. 10) of all raw drugs is to be prepared and soaked in 16 times of water for overnight. Next day it should be subjected to heat with continuous stirring till the quantity reduces to 1/4th of the initial volume. The liquid then filtered through four folded clean cotton cloth, and the filtrate is collected as medicated kwatha. A preservative such as sodium benzoate needs to be added in

Table 1: Composition of Principle Kwatha.

S.No.	Ayurveda Drugs	Botanical Name	Part Used	Proportions
1.	Nimba	Azadirachta Indica	Leaves	2 Parts
2.	Mahanimba	Alianthus Excelsa	Bark	2 Parts
3.	Haridra	Curcuma Longa	Rhizome	1 Part
4.	Daruharidra	Berberis Aristata	Bark	1Part
5.	Tulsi	Ocimum Sanctum	Leaves	2 Parts
6.	Vidanga	Embelia Ribes	Fruits	1 Part
7.	Nirgundi	Vitex Negundo	Leaves	1 Part
8.	Amalaki	Embelica Officinalis	Fruits	1 Part
9.	Bibhitaki	Terminalia Bellerica	Fruits	1 Part
10.	Haritaki	Terminalia Chebula	Fruits	1 Part
11.	Karanja	Pongamia Pinnata	Leaves & Bark	1 Part
12.	Shirisha	Albizia Lebbeck	Leaves & Bark	1 Part
13.	Guduchi	Tinosporia Cordifolia	Stem	1 Part
14.	Aaraghwad	Cassia Fistula	Fruit Rind & Leaves	1 Part
15.	Bilva	Aegle Marmelos	Leaves & Fruits	1 Part
16.	Kapittha	Feronia Limonia	Fruits	1 Part
17.	Jambira Nimbu	Citrus Medica	Fruits & Leaves	1 Part
18.	Jatamansi	Nordostachys Jatamansi	Rhizome	1 Part
19.	Arka	Calotropis Procera	Leaves	1 Part
20.	Sariva	Hemidesmus Indius	Root	1 Part
21.	Lavang	Syzygium Aromaticum	Flower Bud	1 Part
22.	Nirmali	Strychnos Potatorum	Seeds	1 Part
23.	Ghrut	Aloe Chinensis	Leaves	1 Part
24.	Udumbar	Ficus Glomerata	Bark	1Part
25.	Water	-	-	16 Parts
		Reduction up to 1/4th		4 Parts

Table 2: Formulation and composition of Phanta.

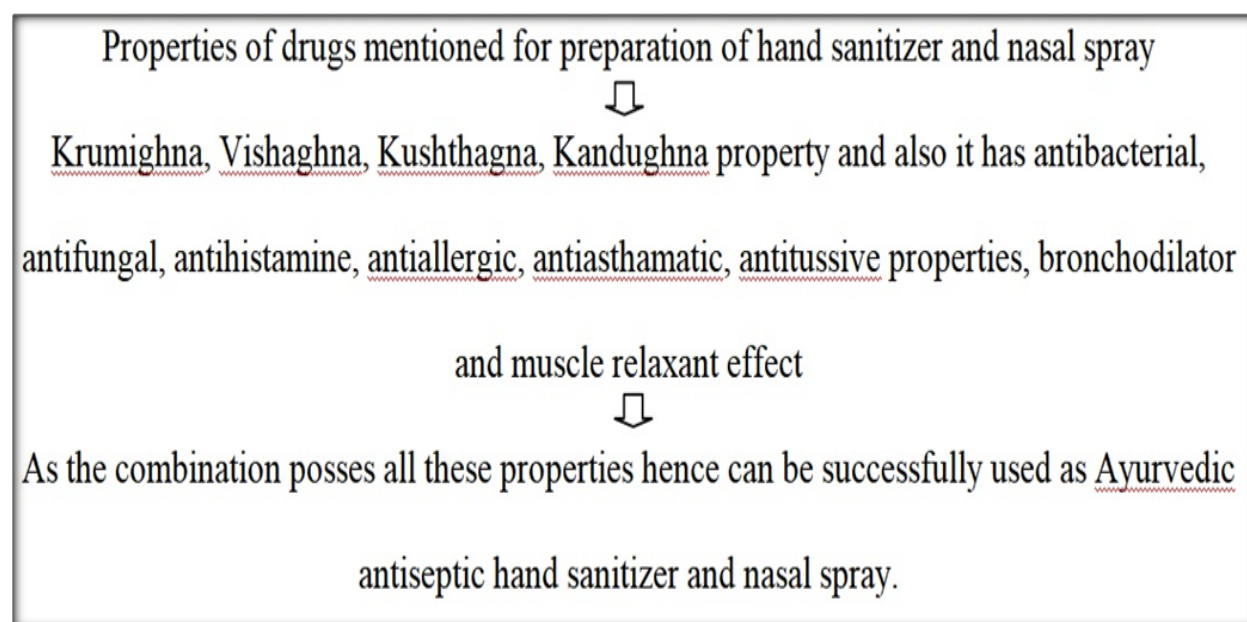
S. No.	Drugs	Botanical Name	Part Used	Proportion
1.	Chandana	Santalum Album	Heart Wood	1 Part
2.	Ushira	Vetiveria Zizanioides	Root	1 Part
3.	Nilotpala	Nymphaea Alba	Whole Plant	1 Part
4.	Sukshma Ela	Elettaria Cardamomum	Fruits	1 Part
5.	Water	-	-	8 Parts
6.	Gomutra Arka	-	-	2 Parts

Table 3: Composition of Prakshepa dravya.

S. No.	Drugs	Scientific Name	Proportion
1.	Bhimseni Karpura	Cinnamomum Camphora	10gm
2.	Fitkari (potash alum)	Aluminium Pottasium Sulphate	20gm

Table 4: Formulation and composition of Ayurvedic multipurpose nasal spray.

S. No.	Drugs	Botanical Name	Part Used	Proportion
1.	Kantakari	Solanum Xanthocarpum	Whole Plant	1 Part
2.	Brihati	Solanum Indicum	Root, Fruit	1 Part
3.	Pushkarmula	Inula Racemosa	Root	1 Part
4.	Shati	Hedychium	Rhizome	1 Part
5.	Haritaki	Terminalia Chebula	Fruit	1 Part
6.	Pippali	Piper Longum	Fruit	1 Part
7.	Tulsi	Ocimum Sanctum	Leaves, Seeds	Root, 1 Part
8.	Amalaki	Emblica Officinalis	Fruit	1 Part
9.	Hingu	Ferula Narthex	Resin	1 Part
10.	Sukshma Ela	Elettaria Cardamomum	Seed	1 Part
11.	Water	-	-	2 Part
12.	Distilled Water	-	-	Equal quantity to that of arka obtained.

**Figure 1: Rational for Ayurveda sanitizer and Nasal spray**

appropriate quantity to increase the shelf life of the decoction.

Phanta (cold infusion) Preparation

In the principle kwath, phanta which is prepared from drugs mention in Dahprashaman Gana (a group of drugs used as skin cooling and smoothening) given in Charak Samhita was added to give this solution a soothing and cooling effect.

Method

Course powder need to be prepared of drug listed in Table 2, in quantity 1 part each and then it is to be mixed in 8 part hot boiling water. Same is retained as such for till cooling the water followed by filtration. Gomutra ark (distilled cow urine) is to be added to increase the antimicrobial quality of this sanitizer.

Antimicrobial property of cow urine

Cow urine is a multimineral organic liquid with volatile and non-volatile constitutes which possesses several medicinal properties such as antimicrobial activity (Jarald *et al.*, 2008). The germicidal and antimicrobial potential of cow urine is attributed due to compounds such as creatinine, urea, aurum hydroxide, phenols, carbolic acid, calcium, and manganese (Upadhyay *et al.*, 2010).

The last step for creating the sanitizer is to mix kwath and the phanta and addition of fine powder of camphor and potash alum (Table 3) followed by slow continuous stirring to obtain a uniform product. This prepared product should be stored in airtight containers. Fine powder of camphor and potash alum is used considering their antibacterial, anti-fungal, antimutagenic, antitussive and insecticidal properties (Juteau *et al.*, 2002).

Ayurvedic Multipurpose Nasal spray.

As various microorganisms spread through nasal route also, it becomes essential to keep the nasal cavity clean and free from these microorganisms. Moreover, recent pandemic disease Covid-19 possesses symptoms like difficulty in breathing, sneezing, nasal congestion, runny nose, sore throat etc (Organization, 2020). So to combat this attempt has been made to present a herbal combination to prepare Ayurvedic Nasal Spray using Drugs mentioned by Charaka Samhita. (Table 4)

Method of preparation

The details of the method of preparation of Arka Kalpana (distillate product) is taken from Ravana's Arka Prakasha. For preparing Arka (distillate), a dry drug listed in Table 4 are to be coarsely powdered, and twice the quantity of water is to be added to it. It is then kept in the moonlight for 24 hours. Later transfer it to the distillation apparatus to extract

Arka. The obtained Arka is to be added with an equal quantity of distilled water, and the final product is to be packed in an airtight container as Ayurvedic nasal spray.

The action of the above drugs

Kantakari

It has anti-asthmatic property (Bector and Puri, 1971), mast cell stabilization activity (Parmar *et al.*, 2010), antiallergy Activity (Singh and Singh, 2010).

Pushkarmula

This drug is specially indicated for hiccup, dysphonia, cough and pain in the chest. Pushkarmula also has Antihistamine, Anti eosinophilic, Adaptogenic, mast cell stabilizing activity (Choudhary, 2012) and Anti-allergic effect (Srivastava *et al.*, 1999).

Shati

It has Anti asthmatic activity and also use in Pulmonary Eosinophilia (Sravani and Paarakh, 2011).

Haritaki

It has antitussiv activity (ul Haq *et al.*, 2013).

Pippali

It has Anti-asthmatic activity (Nilani *et al.*, 2010).

Tulsi

It has Anti asthmatic activity (Singh and Agrawal, 1991).

Amalaki

It has Antibacterial property (Saini *et al.*, 2008), Antitussive activity (Nosál'ová *et al.*, 2003).

Hingu

It has Muscle relaxant activity (Gholamnejad *et al.*, 2012).

Sukshma Ela

It has Bronchodilator effect (Gilani *et al.*, 2011).

Observation

The ingredients utilized to make nasal spray and hand sanitizer have properties which are helpful in the prevention of infectious diseases. Both Ayurveda and modern features are presented in Figure 1. Classical text of Ayurveda contains a large number of herbs indicated in contagious conditions. However, the combination chosen in present work is based on ease in availability, less cost and abundance of the drug for large scale manufacturing.

Discussion

As there is a massive scarcity of hand sanitizers in the market, this product is going to fulfil some requirement of people. The present review is an

attempt to present an idea for a formulation which can use as antiseptic hand sanitizer and nasal spray. All the ingredients are based on utility mentioned in Ayurvedic classical texts. Various studies and researches had already done on drugs used in both products. Antimicrobial property of medicines used in Ayurvedic hand sanitizer had already proven in multiple research articles. The composition of hand sanitizer has been attributed with properties like free radical scavenging, anthelmintic, antimicrobial, anti-inflammatory and analgesic etc.

As per the present scenario when our country is suffering from this Covid-19 virus which directly affects the respiratory system, so the nasal spray which is made from the drugs that act on pravahasrotas have bronchodilator effect, anti-asthmatic, anti-histamine, anti-allergic property, muscle relaxant property, Antibacterial property, Antitussive activity and also used in Pulmonary Eosinophilia. So this study is a small attempt which should be going to use in improving the present condition of the country.

CONCLUSIONS

The framework presented for the preparation of hand sanitizer and nasal spray in this work is conceptually based, and further modifications in the method and accessing the utility of the final product is expected through in-depth research work. Based on the antitussive, antibacterial, anthelmintic, anti-fungal activities as well as skin smoothening, bronchodilator activities of the ingredients, it can be claimed that the presented combination may prove beneficial in supplying the current need of hand sanitizer along with Ayurveda nasal spray for lung care.

Acknowledgement

Authors is thankful for the support and encouragement for this study by Datta Meghe University of Medical Sciences (Deemed to be University).

Funding Support

Nil.

Conflict of Interest

Nil.

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