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.

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-
In this study, we used Nimba (Azadirachta indica), skin. does not have any serious adverse reaction on the properties (interest in the plants having antimicrobial potential 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 do 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, aaragwadh, 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, immune-modulatory 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 mentioned 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      | 1 Part      |
| 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.    | Bibhitaiki     | Terminalia Bellerica| Fruits    | 1 Part      |
| 10.   | Haritaki       | Terminalia Chebula  | Fruits    | 1 Part      |
| 11.   | Karanja        | Pongamia Pinnata    | Leaves & Bark | 1 Part |
| 12.   | Shirisha       | Albizia Lebeck      | Leaves & Bark | 1 Part |
| 13.   | Guduchi        | Tinospora Cordifolia| Stem      | 1 Part      |
| 14.   | Aaraghwad      | Cassia Fistula      | Fruit Rind & Leaves | 1 Part |
| 15.   | Bilva          | Aegle Marmelos      | Leaves & Fruits | 1 Part |
| 16.   | Kapitthha      | 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         | Syzgium Aromaticum  | Flower Bud | 1 Part |
| 22.   | Nirmali        | Strychnos Potatorum | Seeds     | 1 Part      |
| 23.   | Ghrut          | Aloe Chinensis      | Leaves    | 1 Part      |
| 24.   | Udumbar        | Ficus Glomerata     | Bark      | 1 Part      |
| 25.   | Water          | -                    | 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 Cam- phora | 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 Racos- mosa | 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 Sanc- tum  | 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. |

Properties of drugs mentioned for preparation of hand sanitizer and nasal spray

Krumighna, Vishaghna, Kushthagna, Kandughna property and also it has antibacterial, antifungal, antihistamine, anti- allergic, antiasthamatic, antitussive properties, bronchodilator and muscle relaxant effect

As the combination posses all these properties hence can be successfully used as Ayurvedic antiseptic hand sanitizer and nasal spray.

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 (Jerald 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 (Nosálová 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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