FORM 2

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PROVISIONAL SPECIFICATION

(See Section 10 and rule 13)

1. TITLE OF THE INVENTION: A COMPOSITION FOR REMOVAL OF AIRBORNE MICROORGANISMS AND A METHOD FOR PREPARATION THEREOF

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3. PREAMBLE OF THE DESCRIPTION: The following Provisional specification particularly describes the invention and the manner in which it is performed.

FIELD OF INVENTION

The present invention relates to herbal compositions, and more particularly to herbal compositions useful for removing airborne microorganisms hence preventing the occurrence or outbreak of airborne diseases.

BACKGROUND OF INVENTION

Human airborne diseases can spread when an infected person coughs, sneezes, or talks, spreading nasal and throat secretions into the air. Influenza, whooping cough, Diphtheria, Pneumonia, Tuberculosis, Meningitis are some of commonly occurring human air borne diseases.

In the present day, airborne diseases are known to travel vast distances in favourable environmental conditions. Human are exposed to air borne diseases even at the comfort of their homes and when travelling – especially when using mass transport or public transport or when in crowded spaces on a daily basis. The latter offer a favourable environment for airborne diseases to maintain their capacity for harming humans for longer, thereby facilitating the geographical spread of diseases. Once these diseases spread through the air, they are hard to control.

There are several ways to reduce aerial microbes in the air such as various chemical sprays and room fresheners available but they have adverse effect on health to the

extent of proving carcinogenic. Other known in the art solutions include air purifiers, however they are often prohibitively expensive.

Accordingly, it has been a challenge to prevent or control the spread of airborne diseases, creating a need to provide a solution that could effectively address the problems discussed in the preceding paragraphs.

BRIEF DESCRIPTION OF THE DRAWINGS

It will be convenient to further describe the present invention with respect to the accompanying drawings that illustrate possible experimental results of the invention in accordance with the preferred embodiment(s). However, the particularity of the accompanying drawings is not to be understood as superseding the generality of the preceding description of the invention.

FIG. 1: Plotted graph shows the results indicating antimicrobial activity in accordance with an embodiment of the present invention;

FIG. 2 to FIG. 5: Plotted graphs shows the results indicating antifungal activity in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Reference will now be made in detail to the preferred embodiments of the present invention, examples of experimental results (if applicable) are illustrated in the accompanying drawings. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those or ordinary skill in the art that the invention may be practiced without these specific details. In other instances, well known methods, procedures and/or components have not been described in detail so as not to obscure the invention.

In a first aspect, the present invention provides a herbal composition comprising extracts of specific ingredients, in liquid form, and prepared such that the liquid can be sprayed towards the airborne microorganism area. The herbal composition in accordance with a preferred embodiment of the present innovation is non-alcoholic, non-inflammable, non- sedating and non-freezing in nature. The process of preparation of this composition does not employ pharmaceutically unacceptable solvent and comprises double distillation method, which will be described herein.

In the preferred embodiment, the herbal composition comprises a mixture of herbs that includes Azadiracta indica, Curcuma longa, Embelia ribes, Commiphora wightii, Ocimum tenuiflorum, Origanum majorana ,Vitex negundo, Cinnamomum

zeylanicum , Syzygium aromaticum. In another preferred embodiment, the herbal composition further comprises volatile substances, such as but not limiting to: Mentha piperata, Bhimseni camphor, Trachyspermum ammi and Eucalyptus. Water is used as solvent, in which the herbs are added at a predetermined ratio with water. In one embodiment, the herbs are added at a ratio of 1:10 with water.

Each herb or collectively, exhibits health promoting, treatment and bioactive properties, such as, but not limiting to antibacterial, antifungal, antiviral, antimalarial; antinematode, antipyretic, insecticidal, ant spermatogenic, antitumor, anti-yeast; anti-flammatory; antispasmodic, antioxidant, and can be used as stimulants.

Each herb having the collaboratively forms the present invention, will be described herewith, in accordance to the presently preferred embodiments of the present invention.

Azadiracta indica(Neem): The Azadiracta indica Belonging to the family Meliaceae, Order Rutales, is known for its various pharmacological activities such as Abortifacient, antibacterial, antifungal, antiviral, antimalarial, antinematode, antipyretic, insecticidal, ant spermatogenic, antitumor, ant yeast. One of the synonym of Neem is ‘Krimighna’, representing the insecticidal property of neem. Also there are lot of references are found in the classical Ayurvedic text .

Curcuma Longa (Termeric): A wide range of biological activities e.g. anticancer, antimicrobial, antiinflammatory and free radical scavenging activity of the plant suggests a logical basis for its traditional use in foodstuff. Various phytothreapeutic uses of Curcuma longa have been reviewed. While turmeric is a flavoursome spice that is nutritious to consume, it has also traditionally been used in Ayurvedic and Chinese medicine to treat inflammatory conditions, skin diseases, wounds, digestive ailments, and liver conditions.

Ocimum tenuiflorum (Tulsi): Tulsi is an aromatic shrub in the basil family Lamiaceae (tribe ocimeae) that is thought to have originated in north central India and now grows native throughout the eastern world tropics. It is revered as an "elixir of life" and recommended as a treatment for a range of conditions including anxiety, cough, asthma, diarrhea, fever, dysentery, arthritis, eye diseases, otalgia, indigestion, hiccups, vomiting, gastric, cardiac and genitourinary disorders, back pain, skin diseases, ringworm, insect, snake and scorpion bites and malaria.

Origanum majorana is an aromatic herb in the mint family which originated in Egypt and Arabia. It is also widely referred to as Oregano. In its varied forms of: marjoram essential oil, fresh or dried marjoram leaves, or marjoram powder (ground up marjoram), it has many uses. Whether used as an essential oil, powder, fresh leaves, or dried leaves, marjoram has many uses with numerous health benefits.

Commiphora wightii or known as Guggul the flowering mukul tree (Commiphora mukul). It is a small, thorny tree that is most commonly found in India, in the arid climates of states such as Rajasthan and Gujarat. Guggul also refers to the resin formed from the sap of the guggul tree, which has been used in Ayurvedic medicine for over two thousand years. Guggul is known by the Sanskrit name "Guggulu," which means, "protects from disease".

Lavang or clove is called *Syzygium aromaticum* is a spice that is mainly used for flavouring different varieties of foods. It is one of the most distinctive spices that can not only be used for seasoning but also in the form of a very powerful and effective health supplement. Clove oil has biological activities, such as antibacterial, antifungal, insecticidal and antioxidant properties, and is used traditionally as a savoring agent and antimicrobial material in food . In addition, clove oil is used as an antiseptic in oral infections Syzygium aromaticum has great many applications and uses. In the modern times, Clove is used in the form of a useful healing compound that has the capability of offering great relief from a number of medical problems. The dietary herbal use of this spice can help in relieving a number of ailments both external and internal.

Embelia ribe is used in Ayurveda especially for treating intestinal worms. It is the main herb of Ayurveda that effectively treats intestinal parasites (tapeworm, ring worm). The dried mature fruits or seeds are used for this purpose. These seeds look similar to white pepper seeds. They have brownish-black color and measure about 2-

4 mm in diameter. Their surface is warty with a beak like projection at apex. The outer covering or pericarp is brittle and encloses a single seed covered with thin membrane. It has significant antibacterial activity against most varieties of microorganisms.

Vitex. Negundo: Vitex negundo is a large aromatic shrub with quadrangular, used in medicine as anti-inflammatory, expectorant, tranquilizer, antispasmodic, anti convalesant, rejuvenative, anti-arthritic, anthelminthic, anti-fungal and antipyretic. The antibacterial activity of the leaves of Vitex negundo was tested against three types of bacteria Viz., Staphylococcus aureus, Escherichia coli and Klebsiella Pneumoniae.

Cinnamomum called true cinnamon tree or Ceylon cinnamon tree, is a small evergreen tree belonging to the family Lauraceae, native to Sri Lanka. Cinnamon is considered a remedy for respiratory, digestive and gynaecological ailments. In-vitro and in-vivo studies from different parts of the world have demonstrated numerous beneficial medicinal effects of Cinnamomum zeylanicum (CZ). cinnamon extracts can be used as food antioxidant together with the improvement of food palatability cinnamon is sometimes taken by mouth for stomach upset, diarrhea, and gas. It is also used for diabetes, stimulating appetite, treating infections, and reducing body weight in patients who are overweight or obese. It has potential antibacterial activity against 10 medically important bacterial strains.

Mentha piperita: The peppermint leaves have a characteristic, sweetish, strong odor and an aromatic, warm, pungent taste, with a cooling aftertaste. The essential oils of M. piperita cultivated plants are characterized by the preponderance of menthone, isomenthone, and the different isomers of menthol. Mentha piperita L. (peppermint) is a medicinally important plant that belongs to the family Labiate (Kirethekar and Basu, 1985). Peppermint is a nonnative herbaceous plant, it is a perennial, which can reach 100 cm in height (40 inches) has four-sided stem. Peppermint is also found to have antiviral and fungicidal activity (Chaumont and Senet, 1978). Menthol is virucidal against influenza, herpes and other viruses. Aqueous extracts of peppermint leaves were antiviral against influenza A. Both aqueous as well as organic solvent leaf extracts possess strong antibacterial properties against various pathogens viz., Bacillus substillus, Pseudomonas aureus, Pseudomonas aerogenosa, Serratia marcesens and Streptococcus aureus.

Bhimseni camphora: Among the varieties of camphor, the "Bhimseni Kapoor" has its own importance, it has been used in ayurvedic medicine and puja since ancient time. It is also called as Malay camphor, Sumatran camphor, Borneo camphor or Barus camphor and is heavier by nature that sinks in water easily than Chinese camphor. It is naturally formed in the stems of Dryobalanops plant, it has about seven subfamily species, it is found in cluster form in the tropical forests of Sumatra, Peninsular, Borneo and Malaysia West Malesia.

Trachyspermum ammi belonging to family Apiaceae is a highly valued medicinally important seed spice. The roots are diuretic in nature and the seeds possess excellent aphrodisiac properties. The seeds contain 2– 4.4% brown colored oil known as ajwain oil. The main component of this oil is thymol, which is used in the treatment of gastro-intestinal ailments, lack of appetite and bronchial problems. The fruit possesses stimulant, antispasmodic and carminative properties and is used traditionally as an important remedial agent for flatulence, atonic dyspepsia, diarrhea, abdominal tumors, abdominal pains, piles, and bronchial problems, lack of appetite, galactogogue, asthma and amenorrhoea. Medicinally, it has been proven to possess various pharmacological activities like antifungal, antioxidant, antimicrobial, antinociceptive, cytotoxic, hypolipidemic, antihypertensive, antispasmodic, bronchodilating actions, antilithiasis, diuretic, abortifacient, antitussive, nematicidal, anthelmintic and antifilarial.

Eucalyptus is used to reduce symptoms of coughs, colds, and congestion. It also features in creams and ointments aimed at relieving muscle and joint pain. The oil that comes from the eucalyptus tree is used as an antiseptic, a perfume, as an ingredient in cosmetics, as a flavoring, in dental preparations, and in industrial solvents.

In another aspect, the present invention provides a method of preparing a composition for removing airborne microorganisms within an area, the method comprising the following steps:

1. Reducing the herbs into powder form

2. The requisite quantities of the specified cleaned graded dry powdered herbal ingredients except volatile substances are mixed with distilled water in 1:10 proportion

3. Subjecting the mixture of herbal ingredients to a double distillation process, to obtain a mixture of liquids;

4. Heating the mixture of liquids to separate the liquids hence forcing components into gas phase; wherein gas is then condensed back into liquid form and collected.

5. Condensing the gas to obtain liquid and said liquid is collected.

6. Repeating all steps to the collected liquid to improve its purity.

7. Storing the collected liquid/extract for 2 hours and filtered using fine filtration unit.

8. Adding volatiles substances - Mentha piperata, Bhimseni camphor, Trachyspermum ammi and Eucalyptus to the collected liquid/extracts.

EXPERIMENTAL RESULTS

The following provides experimental results in relation to the preparation of the materials and methods accordance with an embodiment of the present invention. It should be noted that the experimental results should not be construed as limitations to the scope of protection.

The composition disclosed herein was prepared and provided in liquid spray form.

The antimicrobial activity was carried out by spraying it in a 300 sq area room and checked by settle plate technique. FIG 1 shows the reduction in microbial count. Maximum results are obtained after 30 mins. The antifungal activity study was then carried out by kirby bauer method and found that majority of these herbs showing both activities. FIG. 2 to FIG.5 indicate the results. As shown in FIG.2, the graph shows antibacterial activity of each components against E.coli. nilgiri oil and ovaful shows maximum activity against E.coli. As shown in FIG.3, the graph indicates activity against Staph aureus. Guggule has Maximum antimicrobial activity. As shown in FIG.4, the graph shows antifungal activity of components against fungus Candida albicans. Nilgiri and ovaful shows maximum and Vidang, tulsi, marava, Nirgudi shows least activity. As shown in FIG.5, graph indicates antifungal activity of all components. Nilgiri and ovaful shows maximum activity. Marava, Nirgudi shows least activity and rest of the components shows average activity against Aspergillus niger.

From the foregoing, it would be appreciated that the present invention provides a system for providing immediate updates on health public status and thus providing rapid early alert on infectious diseases outbreaks within the country. The present invention may be modified in light of the above teachings. It is therefore understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

ABSTRACT

A COMPOSITION FOR REMOVAL OF AIRBORNE MICROORGANISMS AND A METHOD FOR PREPARATION THEREOF

Disclosed is a herbal composition comprise extracts of specific ingredients, in liquid form, and prepared such that the liquid can be sprayed towards the airborne microorganism area. The herbal composition in accordance with a preferred embodiment of the present innovation is non-alcoholic, non-inflammable, non-sedating and non-freezing in nature. The process of preparation of this composition does not employ pharmaceutically unacceptable solvent and comprises double distillation method.

REFERENCE FIG. 1