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Ashtasudaya Churn: To Give Relief from Congestion Due to Airborne Diseases

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Abstract: Everyone in the world adopts natural remedies to cure any kind of disease condition. People have faith in natural remedies. To enhance the trust of people here we came with a herbal Churn which you can take at any time to treat your disease condition. To help and improve your health by boosting your immunity. This Churn contains eight different Ayurvedic Aushadhi which you can take at any time in the day with a specified dose. In the Churn preparation, we used Ginger (*Zingiber officinale*), Lemongrass (*Cymbopogon*), Long pepper (*Piper longum*), Tulsi (*Ocimum tenuiflorum*), Cinnamon (*Cinnamomum*), Clove (*Syzygium aromaticum*), Giloy (*Tinospora cordifolia*), Cardamom (*Elettaria cardamomum*) this eight herbs. This Ayurvedic formulation is evaluated for flow properties, microbial contamination, and different spectroscopic analysis. You can just boil the required amount of Churn in water and have a healthy sip minimum of thrice a day which boosts your immunity and give relief from congestion due to air born diseases.

Keywords: Herbal Churn, Viral diseases, Immunity booster, Powder analysis, etc.

I. INTRODUCTION

Churn is a powder derived from a crude drug. All the ingredients are collected in dried form and their size is reduced. There are many types of Churn in the market. The churn is dried powder and can be stored one year if preserved in airtight containers. In today's world due to many airborne diseases like Influenza, Covid 19, the Common cold, etc., hence we prepared a churn with natural ingredients commonly used by mankind for culinary purposes. This churn is proposed to relieve sore throat, and headache helps to boost immunity and other symptoms of the common cold, and improves digestion-related problems like indigestion, vomiting etc. Thus the present study examined the favourable influence of eight spices formulated into churn said to have different medicinal properties. The common ingredients of this churn were Ginger (*Zingiber officinale*), Lemongrass (*Cymbopogon*), Long pepper (*Piper longum*), Tulsi (*Ocimum tenuiflorum*), Cinnamon (*Cinnamomum*), Clove (*Syzygium aromaticum*), Giloy (*Tinospora cordifolia*), Cardamom (*Elettaria cardamomum*). The churn made from the above components is said to have many biological activity^{[8][7][6]}

A. Ginger

Ginger is one of the spices that is being cultivated in India and other part of Asia. Indian or Chinese ginger is used in the formulation of this churn. Ginger is obtained from *Zingiber officinale*.^[14] Ginger belongs to a tropical family, it is more abundant in Indo malasian region, consisting of more than 1200 plant species in 53 genera. Ginger contains many important chemical components like Zingerberine and Bisabolene. The other ingredient are gingerol and 6-shogaols.^[24] The other known components are nerol, geraniol, d-camphor, Beta-Phellandrene, linalool, alpha-farnesene, Shagoal, and also such as zingerone A&B. It has anticancer properties, analgesic effect, respiratory problems, cardiovascular effect, anti-inflammatory effect and antiplatelet effect, etc.^[11]

B. Lemon Grass

Popularly known as citronella grass is a member of the Poaceae family and belongs to the genus *Cymbopogon*. It is widespread over the semi-temperate and tropical region of Asia, American and African continents. Lemon grass contains citral, borneol, citronellal, neral, geraniol, nerol, citronellol, geranic acid, humulene, alpha guaiene, t-cadinol. It has biological activity like antibacterial, respiratory problems, anti-inflammatory activity, antifungal activity.^{[15][25]}

C. Long Pepper

The other world for long pepper is pippali in Sanskrit. Long pepper (*Piper longum*). It belongs to family Piperaceae, Its fruit if dried and used as spices. Longpepper grows in the evergreen forest of India.

It is cultivated on a large scale in limestone soil in a humid climate with more amount of water. Clove contains a large number of different alkaloids like piperonaline, piperine, piperentine, asarinine, pellitorine, piperundecalidine, longamide, dehydropiperonaline piperidine, etc. it is shown to have many medicinal properties like anti-inflammatory agents, respiratory problems, anticancer agents, antimicrobial agents, etc. [16]

D. Tulsi

Tulsi is an evergreen plant with most of the medicinal properties. It belongs to the family Lamiaceae and is most abundant in Indian subcontinent, it is used in ayurvedic medicines for over 3000 years. Tulsi also known as Holy Basil is carminative, galactagogue and stomachic. It is mostly used to treat the upper respiratory disorders. It helps to reduce the elevated sugar levels and helps to reduce the risk of diabetics. Tulsi helps to control the cholesterol, treat sore throat, it also reduces the blood pressure. Tulsi leaves contain eugenol, ursolic acid, carvacrol, linalool, limatrol, caryophyllene, and carvicol, etc. [17]

E. Cinnamon

The bark of cinnamon trees of various species is one of the most important and popular spices used worldwide not only for cooking and in traditional and modern medicines. Overall, approximately 250 species have been identified among the cinnamon genus, with trees scattered all over the world. The bark contains Cinnamaldehyde and Eugenol. It has anti-inflammatory activities, to treat throat infections, antidiabetic activity, treats cardiovascular diseases anticancer activity, etc. [18][3]

F. Clove

These mainly grow in a rich and fertile soil in a humid climate with ample amount of water in a tropical region. It is mainly found on the hilly terrain of Western Ghats at a higher altitude in most parts of Tamil Nadu and Karnataka. It is the precious spice of the world. Clove is the unopened bud of plants belonging to the family Myrtaceae which is same to that of guavas, these have a strong aroma.

Clove has many medicinal uses like antibacterial properties and is used in various dental preparations like creams, toothpastes, it is anti-inflammatory in nature, maintains oral health. The chemical compositions of clove are carbohydrates, proteins, cellulose, pentosans and, stem volatile oil, fixed oils and some vitamins, etc. [19]

G. Giloy

"Guduchi" in Sanskrit belonging to the family Menispermaceae is a genetically diverse, large, deciduous climbing shrub with greenish-yellow typical flowers, found at higher altitudes. Nowadays, the plant has more importance for research to preparing several dosage forms. Because of its medicinal properties like anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritic, anti-oxidant, anti-allergic, anti-stress, anti-leprotic, anti-malarial, hepatoprotective, immune-modulatory and anti-neoplastic activities. Active compound glycosides of tinocordiside, and a cardioid found stem is proven to treat neurological disorder like Parkinson's. [10][1][22]

H. Cardamom

(*Elettaria cardamomum* Maton) the Queen of Spices is indigenous to the southern stretch of evergreen forests of Western Ghats. The seeds contain 3 to 6% of volatile oil along with fixed oil, a colouring agent, nitrogenous mucilage, an acrid resin, starch, ligneous fibre, and ash. [3][9]

The active constituent of the volatile oil is cineole. Other aromatic compounds present are terpinyl acetate, terpineol, borneol, itronellol, nerol, geraniol, methyl eugenol and trans-nerolidol, terpinene, etc. [23] It is used as carminative, stimulant, expectorant, diaphoretic, digestive, appetizer, and flavouring agent. It is used in the treatment of respiratory disorders like asthma, bronchitis, cough, nausea, vomiting, indigestion, headache, diarrhoea, used in respiratory disorders, and colds, for flatulence, and is also used as a spice in cooking. [21][13]

II. OBJECTIVES

Objectives of the present research are as follows

- 1) A better alternative to the synthetic formulation.
- 2) To avoid irritation of synthetic and chemical substances.

III. MATERIALS AND METHODS

The raw materials used for this formulation were purchased from the Poona Ayurvedic and herbals, in Pune. Green Pharmacy, Pune, and Patanjali Ayurveda, Pune. All evaluation parameter was performed at TMV'S Lokmanya Tilak Institute of Pharmaceutical Sciences, Pune





A. Plant Collection and Identification





The plants and raw materials were collected from the Pune market's different stores and identified at the Department of Botany, SPPU, Pune.

B. Preparation of Churn

Some powders we purchased from the local vendor of Pune City and some dried species we collected along with are cleaned to remove damaged particles. Then leaves, fruit, and bark were crushed into fine powder separately. Per quantity of each ingredient mentioned in the following table which was equivalent to 70g approx was taken and prepared a Churn and calculated value for approx equivalent to 1tsp.

Table No. 1 Drug Profile to Formulate Churn

Sr no.	Common Name	Figure	Equivalent to 70 gm approx.	Equivalent to 1tsp
1	Ginger (Zingiber officinale)		5gm	0.66gm
2	Lemongrass (Cymbopogon)		13.5gm	0.81gm
3	Long pepper (Piper longum)		5gm	0.3gm
4	Tulsi (Ocimum tenuiflorum)		13.5gm	0.81gm

5	Cinnamon (<i>Cinnamomum verum</i>)		8.5gm	0.51gm
6	Clove (<i>Syzygium aromaticum</i>)		5gm	0.3gm
7	Giloy (<i>Tinospora cordifolia</i>)		5gm	0.3gm
8	Cardamom (<i>Elettaria cardamomum</i>)		10gm	0.6gm

C. Pharmaceutical Evaluation of Churn

1) Determination of pH

The pH of formulated Churn was determined by using a digital meter by dissolving 1 gm churn in 100 ml of water.^[8]



Fig. 1. Digital pH meter Measuring the pH of the Powder

2) Flow Properties of Powder

a) **Bulk Density:** The density of a found by jolting volumeter. A know volume of sample is placed in the measuring cylinder and is tapped for few minutes and the tapped volume is measured , it is given by the following formulas;

Bulk volume = mass / untapped volume,

Tapped volume= mass / tapped volume

Hausner's ratio volume = tapped density / pour density

Carr's index= (tapped density – bulk density) x 100 / tapped density



Fig. 2. Bulk Density Apparatus Measuring Bulk Density of Powder

- b) *Angle of Repose:* It is the maximum angle formed between the surface of pile and the horizontal surface of the pile of powder. The angle of repose is a quick, simple method to determine the flow property of a powder. Lower the angle of repose the higher is the flow property and vice versa.
- c) *Measurement of Static Angle of Repose:* The device used to measure the static angle of repose in the current study consisted of a glass conical funnel, with an outlet diameter of 0.9 cm, fixed on a metal stand; the funnel outlet was kept at a height of 3 cm above the base. Then the powder is poured up to the tip of the pile and touches the funnel. Then take the diameter of the pile is measured and substituted in a formula.

$$\theta = \tan^{-1}(h/r)$$

Where, h = height of the pile.

r = radius of the circle

3) Determination of the Moisture Content

5 g of sample were placed after accurately weighing it in an evaporating dish. After placing the above-said amount of the sample in the evaporating dish dry at 105°C and continue the drying and weighing at 10 minutes intervals until the difference between two successive weighings corresponds to not more than 0.25 per cent. Constant weight is reached when two consecutive weighing after drying for 30 minutes and cooling for 30 minutes in a desiccator, shows not more than 0.01g difference. Finally, moisture content was measured directly in percentage.

4) Determination of Antimicrobial Activity by streak plate Method

Antimicrobial activity was carried out by the streak plate method. Where we used *S. Aureus* bacteria and found no bacterial growth.

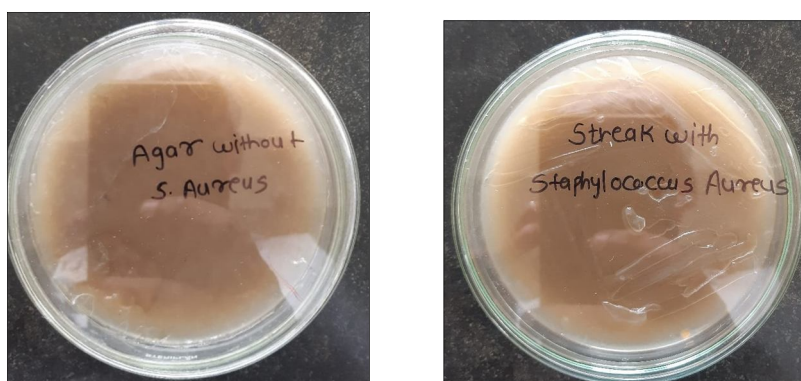


Fig. 3. 4. Determination of antimicrobial activity by streak plate method

5) Determination of the ash value

- a) **Total Ash Values:** Incinerate about 2 to 3 gm accurately weighed of the ground drug in a tared platinum or silica dish at a temperature not exceeding 5000C until free from carbon, cool in a desiccator for 30 min and weigh without delay. If carbon-free ash cannot be obtained in this way, exhaust the charred mass with hot water, collect the residue on an ashless filter paper, incinerate the residue and filter paper and the filtrate, evaporate to dryness and ignite at a temperature not exceeding 6000C. Calculate the percentage of ash concerning the air-dried drug.^[7]

IV. RESULT

Flow properties of churn formulation were observed for following flow properties like bulk density, tap density, cars index, Hausner's ratio, Porosity, and Angle of repose.

Table No. 2. Flow Property Analysis

Sr. no.	Sample	Bulk density	Tap density	Hausner's ratio	Carr's index	Angle of repose	Porosity (%)
1	Churn	0.38	0.52	1.36	26.4	31.79	95.5

A. Organoleptic Evaluation

The following ingredients of Churn, Marketed, and House preparations were evaluated for their Colour, Odour, Taste, and Texture and are shown in Table 3.

Table no. 3 Organoleptic evaluation

Samples	Colour	Odour	Taste	Texture
Zingiber officinale	Light yellow	pungent	Spicy	Smooth
Cymbopogon	greenish brown	lemony flavour	mild citrus with a hint of ginger	Smooth
Piper longum	black	Aromatic	strong pungent	Rough
Ocimumtenuiflorum	Dark green	None	Slightly bitter	Smooth
Cinnamomum verum)	Reddish brown	Strong Aroma	slightly bitte	Smooth
Syzygiumaromaticum)	Dark brown	aromatic	spicy taste.	Smooth
Tinospora cordifolia	Light green	None	Bitter	Smooth
Elettaria cardamomum	Light green	Aromatic	slightly sweet	Smooth

B. Moisture content of the churns shown in Table no, 3

Table no. 3. Moisture content of the churn

Sr no.	Sample	Moisture content in (% w/w)
1	Churn	0.2

C. Detection of Microbes in Churn

Table no. 3 Detection of microbes in churn

Sr no.	Microorganisms	Present / Absent
1	Staphylococcus aureus	Absent

D. pH of the churn

Table no. 4 pH of the churn

Sr no.	Sample	pH
1	Churn	6.51

E. Determination of Ash Values

Table No. 4. Determination of Ash Values

Sr no.	Sample	Total ash value % w/w
1	Churn	9.5

V. DISCUSSION

Flow property analysis was done of the Churn and found that bulk density was 0.38, tap density 0.52, Hausner's ratio 1.36, Carr's index 26.4, angle of repose 31.79, the porosity of the Churn was found to be 95.5%. An organoleptic evaluation of Churn was done and found that the colour was dark brown, the odour characteristic tasted sweet, and the texture smooth. This Churn has minimum moisture content that is less than 0.5% w/w, no microbial growth occurs, pH was found to be 6.51, and total ash value 9.5% w/w.

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A. Conflict of Interest

The authors do not have a conflict of interest.

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