



Review on Herbal Cough Syrup

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ABSTRACT:

Tulsi, also known as Holy Basil, is an aromatic herb native to Southeast Asia and is revered for its medicinal and cultural significance. The scientific name of Tulsi is *Ocimum sanctum* or *Ocimum tenuiflorum*. Widely recognized in traditional medicine systems such as Ayurveda, Tulsi has been used for centuries to treat various ailments. Research continues to explore the potential health benefits of Tulsi, including its role in stress management, cardiovascular health, and as a preventive measure against various diseases. The holistic significance of Tulsi encompasses its therapeutic properties, cultural importance, and its role in promoting overall well-being.

Tulsi (*Ocimum sanctum* L.), holy basil, is indigenous to the Indian mainland and profoundly respected for its restorative uses inside the Ayurvedic and Siddha clinical frameworks. Numerous *in vitro*, creature and human investigations bear witness to Tulsi having different restorative activities including adaptogenic, antimicrobial, calming, cardioprotective, and immunomodulatory impacts, yet to date there are no precise surveys of human research on Tulsi's clinical adequacy and security.

We directed a complete writing audit of human examinations that gave an account of a clinical result after ingestion of Tulsi. An aggregate of 24 examinations were distinguished that announced restorative consequences for metabolic disarranges, cardiovascular malady, resistance, and neurocognition. The explored examinations strengthen customary uses and propose tulsi is a viable treatment for way of life related constant maladies including diabetes, metabolic condition, and mental pressure.

Key words: Antioxidant, Anti-inflammatory, Anti-bacterial, Cough and Cold, Tulsi.

1.INTRODUCTION :

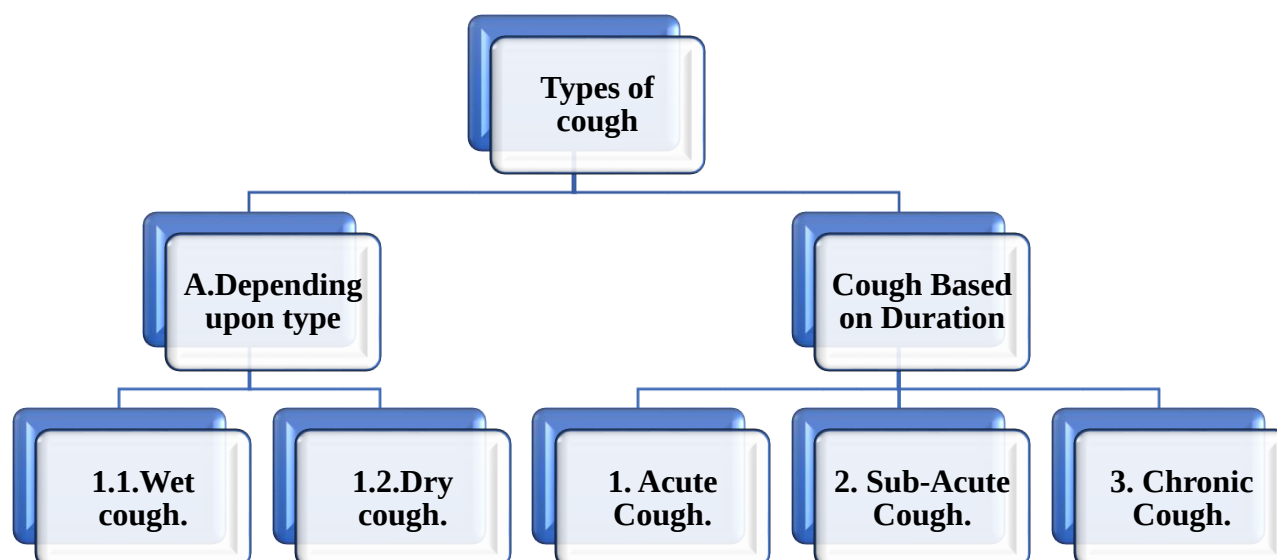
Cough

Cough is a crucial protective reflex of the respiratory system that aids in expelling mucus, foreign particles, and irritants from the airways, ensuring clear breathing and preventing infections. It is triggered by the stimulation of sensory receptors in the throat, trachea, and lungs due to inflammation, infection, or irritation. Cough can arise from various causes, including viral or bacterial infections such as the common cold, flu, bronchitis, or pneumonia. Environmental factors like pollution, dust, smoke, and strong odors can also irritate the airways, leading to persistent coughing. Additionally, underlying medical conditions such as asthma, chronic obstructive pulmonary disease (COPD), tuberculosis, lung fibrosis, and gastroesophageal reflux disease (GERD) are common contributors. Some medications, particularly ACE inhibitors used for hypertension, can induce a persistent dry cough as a side effect.

Depending on its nature, cough can be categorized as dry or productive, with the latter involving mucus secretion. Symptoms accompanying cough may include throat irritation, hoarseness, chest discomfort, shortness of breath, fever, and wheezing. The severity and duration of cough vary, with acute cases lasting less than three weeks and often resolving on their own, while chronic coughs persisting for more than eight weeks may indicate an underlying disease requiring medical intervention.

Management of cough involves both symptomatic relief and addressing its root cause. Home remedies like warm fluids, honey, steam inhalation, and saltwater gargles can provide relief, while medications such as antitussives, expectorants, antihistamines, and bronchodilators may be prescribed based on the cause. Preventive measures like avoiding allergens, quitting smoking, and maintaining good respiratory hygiene help reduce the risk of cough-related complications. Although most coughs are harmless and self-limiting, persistent, severe, or blood-tinged coughs require medical evaluation to rule out serious conditions such as lung infections, tuberculosis, or even malignancies.

2.Type of cough :



Types of the cough

Cough is classified depending upon duration, character and type.

A. Depending upon type

Cough is classified into two types as dry and wet cough which is depend upon type. This are identified using signs and symptoms.

1. Dry cough •

• Productive and effective cough • Signs associated for dry cough

- i. Sensitive throat
- ii. Non mucus expelled
- iii. Short, dry and frequent cough
- iv. Persistent or constant tickle

• Medicine: Cough suppressant and antitussive.

2. Wet cough

• Non effective and infective cough

• Signs associated with wet cough

- i. Coughs up phlegm
- ii. Wheezing
- iii. Chest tightness
- iv. Difficulty in breathing

• Medicine: Expectorant.

B. Classification of Cough Based on Duration

Cough can be classified into three categories based on its duration: acute, sub-acute, and chronic.

1. Acute Cough

- Acute cough lasts for less than 3 weeks.

- It is commonly caused by conditions such as the common cold, upper respiratory tract infections (URTI), chronic obstructive pulmonary disease (COPD), environmental pollution, and infective bronchitis.

2. Sub-Acute Cough

- This type of cough persists for 3 to 8 weeks.
- Respiratory causes include pneumonia and Bordetella pertussis (whooping cough) infection.
- Non-respiratory causes include gastroesophageal reflux disease (GERD) and, in rare cases, Tourette's syndrome.

3. Chronic Cough

- Chronic cough lasts for more than 8 weeks.
- Respiratory causes include COPD, asthma, lung cancer, tuberculosis, and pneumoconiosis.

Proper diagnosis and management of cough based on its duration are crucial for effective treatment and patient care.

3. THE ACTIVE INGREDIENTS IN HERBAL MEDICINAL MEDICINES THAT HAVE AN ANTITUSSIVE AND EXPECTORANT EFFECT ARE LISTED BELOW.

3.1 SAPONINS

Saponins have one of the best-understood modes of action among herbal medications, with the ability to alter cough parameters and phlegm quality. Saponins are heterosides with glycid and non-glycid components. Its pharmacological actions are due to the non-glycid component, known as the aglycone. The saponins irritate the vagal nerves reflexively when therapeutic amounts are given orally. Increased phlegm secretion in the airways arises as a result of this. Furthermore, the respiratory and cough centres are inflamed, leading to increased expectoration. Higher quantities of saponins, on the other hand, can cause emesis, diarrhoea, and bleeding by irritating the mucous membranes of the stomach and intestine.

3.2 FLAVONOIDS

Flavonoids are made up of flavonol glycosides and their aglycones. Flavonoids can reduce the activity of cholinesterase and xanthinoxidase by inhibiting oxidative and reductive reactions. Flavonoids' therapeutic effects are utilised to treat cardiovascular disorders, thromboembolic consequences, and renal ailments combined with antitussive-expectorant activity, are likely to contribute to the positive and beneficial effects.

3.3 ESSENCES

Essences are aromatic terpene-containing molecules. They are volatile chemicals that cause irritation in a variety of tissues throughout the body, including the airway epithelium, by stimulating secreting cells directly. They have antibacterial and antiphlogistic properties while also speeding up the movement of the ciliary epithelium. Fructus anisi, Fructus foeniculi, Fructus melissae, H. seu, and Fructus thymi are used to make the essence medications. Nausea, allergic responses, and renal parenchyma damage are some of the side effects that might occur after using aetheric oils.

3.4 MUCILAGE

The so-called slime medicines are currently very commonly utilised in upper airway inflammations associated with dry irritating cough. Radix, Folium et Flos althaeae, Folium et Flos malvae, and Folium plantaginis are the most well-known. When slime medicines come into touch with the airway mucous membrane, they form a protective layer on the surface that reduces irritation of cough receptors (rapidly adapting cough receptors, RARs) on myelinated vagal nerve fibres as well as irritation of nerve endings of non-myelinated C-fibers. This reduces the irritation caused by inflammatory mediators or foreign materials on the damaged mucous membrane, which causes cough.

3.5 GUMS

Gums are translucent, amorphous natural plant hydrocolloids that are typically formed in higher plants as a protective after-injury substance. The herbal gums exhibit a considerable antitussive action. It was investigated the antitussive properties of peach gum. Cough-suppressing activity is likely to be similar to that of mucilage.

3.6 PECTIN

Pectin is described as a stomach mucous membrane protector. The mechanism of pectins' antitussive action is unknown, but under experimental conditions, pectins isolated from citrus fruits (30.2 percent) had an antitussive effect comparable to that of peripherally acting antitussives such as prenoxdiazine (23.7 percent) and dropropizine (27.4 percent) (dose of 50 mg/kg b.w). Table-1, showed list of herbal plants used to treat cough. Table-2 showed list of herbal marketed formulations used to treat cough.

HERBS: A GENERAL OVERVIEW

1. Introduction

Herbs are plants with medicinal, aromatic, or culinary properties that have been used for centuries in traditional and modern medicine. They play a crucial role in healthcare systems worldwide due to their natural therapeutic properties. Herbs can be used in various forms, including fresh, dried, extracts, or essential oils, for treating ailments, enhancing flavor in food, and improving overall well-being.

2. Definition of Herbs

Herbs are small, seed-bearing plants with soft, non-woody stems that die back after flowering. They can also include parts of shrubs or trees (leaves, flowers, bark, seeds, or roots) that possess medicinal or aromatic properties.

Types of Herbs Based on Use:

- a. Medicinal Herbs:** Used for treating diseases and improving health. (e.g., Tulsi, Aloe Vera)
- b. Culinary Herbs:** Used for flavoring food. (e.g., Basil, Oregano)
- c. Aromatic Herbs:** Used for perfumes, cosmetics, and essential oils. (e.g., Lavender, Rosemary)
- d. Ornamental Herbs:** Grown for decorative purposes. (e.g., Marigold, Thyme)

3. Importance of Herbs

Herbs play a significant role in various aspects of life, including:

Healthcare & Medicine: Used in Ayurveda, Traditional Chinese Medicine (TCM), and modern herbal formulations.

Nutrition & Cooking: Enhance flavors and provide health benefits.

Cosmetics & Skincare: Used in herbal creams, lotions, and beauty products.

Agriculture & Environment: Used as natural pesticides and soil improvers.

4. Uses of Herbs in Medicine : Herbs are used in various traditional and modern medicinal systems, including:

a) Ayurveda

Ancient Indian system of medicine using herbs like Ashwagandha, Brahmi, and Giloy.

b) Traditional Chinese Medicine (TCM)

Herbal formulations like Ginseng, Astragalus, and Licorice for balancing energy (Qi).

c) Homeopathy & Unani Medicine

Uses herbs like Saffron, Black Cumin, and Fennel for holistic healing.

d) Modern Herbal Medicine

Herbal extracts in tablets, syrups, and capsules, e.g., Echinacea for immunity and St. John's Wort for mental health.

4. Conclusion

Herbs have been an integral part of human civilization, offering numerous health, culinary, and industrial benefits. With the rise in herbal medicine and natural remedies, herbs continue to be a sustainable and effective alternative for maintaining health and well-being. Further research and scientific validation are essential to enhance their therapeutic potential in modern medicine.



COUGH SYRUP

Cough syrup is a liquid medication formulated to relieve cough and its associated symptoms. It is broadly classified into **antitussives**, which suppress dry cough (e.g., dextromethorphan), and **expectorants**, which help loosen mucus and clear the airways (e.g., guaifenesin). Some cough syrups also contain antihistamines, bronchodilators, or decongestants to provide additional relief from respiratory symptoms. These syrups are commonly used for cough caused by infections, allergies, or respiratory conditions but should be taken as per medical guidance to avoid side effects such as drowsiness or dependence.

Types of Cough Syrups

1. **Antitussive (Cough Suppressants) Syrups** – Used for dry cough by suppressing the cough reflex.
2. **Expectorant Cough Syrups** – Help loosen and expel mucus in productive cough.
3. **Mucolytic Cough Syrups** – Break down thick mucus for easier clearance.
4. **Antihistamine Cough Syrups** – Used for allergic cough and postnasal drip.
5. **Bronchodilator Cough Syrups** – Relieve cough associated with asthma and bronchospasms.
6. **Combination Cough Syrups** – Contain multiple active ingredients to address different symptoms.
7. **Herbal Cough Syrups** – Made from natural ingredients for soothing and expectorant effects.

Herbal Cough Syrup :

Herbal cough syrup is a natural remedy used to relieve cough and respiratory discomfort. It is formulated using medicinal plant extracts known for their soothing, expectorant, and antimicrobial properties. Common ingredients include Tulsi (Holy Basil), Ginger, Honey, Licorice, Vasaka, Turmeric, and Peppermint, which help reduce throat irritation, loosen mucus, and support respiratory health.

Unlike conventional cough syrups, herbal formulations are preferred for their minimal side effects, natural composition, and holistic benefits. They are suitable for all age groups and are commonly used in traditional medicine systems like Ayurveda and Unani. However, their effectiveness depends on ingredient quality and formulation. Herbal cough syrups provide a safe and natural alternative for managing cough while promoting overall well-being.

Marketed formulations herbal cough syrup :

1.Dabur Honitus Cough Syrup

- **Ingredients:** Honey, Tulsi, Mulethi, Sunthi, Vasaka
- **Description:** Provides relief from cough and throat irritation without causing drowsiness.



2.Zandu Ayurvedic Cough Syrup

- **Ingredients:** Vasaka, Yashtimadhu, Tulsi, Kantakari, Sunthi
- **Description:** Offers relief from dry, wet, and allergic coughs with a non-drowsy formula.



3.Himalaya Kofflet Syrup

- **Ingredients:** Tulsi, Vasaka, Licorice, Ginger, Honey
- **Description:** Soothes respiratory passages and relieves cough.



4. Patanjali Divya Swasari Pravahi

- **Ingredients:** Tulsi, Mulethi, Adusa (Vasaka), Ginger, Bharangi
- **Description:** An Ayurvedic remedy for cough and respiratory discomfort.



5. Baidyanath Kasamrit Herbal Cough Syrup

- **Ingredients:** Tulsi, Vasaka, Mulethi, Kantakari, Bharangi
- **Description:** An Ayurvedic formulation that supports throat and respiratory health.



6. Charak Kofol Syrup

- **Ingredients:** Haridra (Turmeric), Sunthi, Bibhitaki, Vasaka, Yashtimadhu
- **Description:** Provides relief from cough and throat irritation with natural ingredients.



Herbs Used For Herbal Cough Syrup

Sr. No.	Plant Name	Botanical Name	Parts Used	Quantity per 100 ml (mg/ml or ml/100 ml)	Function	Reference
1	Holy Basil (Tulsi)	Ocimum sanctum	Leaves	300 mg	Reduces wheezing, Anti-inflammatory	[1]
2	Kiwi	Actinidia deliciosa	Fruit	250 mg	Rich in Vitamin C, Boosts immunity	[6]
3	Orange	Citrus sinensis	Fruit Peel	300 mg	Antioxidant, Soothes sore throat	[5]
4	Vasaka	Adhatoda vasica	Leaves	500 mg	Expectorant, Bronchodilator	[2]
5	Malabar Nut	Justicia adhatoda	Leaves	300 mg	Mucolytic, Anti-inflammatory	[7],[9]
6	Long Pepper	Piper longum	Fruit	250 mg	Decongestant, Expectorant	[11],[15]
7	Yellow Berried Nightshade	Solanum xanthocarpum	Whole Plant	350 mg	Clears mucus, Anti-inflammatory	[8],[12]
8	Licorice	Glycyrrhiza glabra	Root	500 mg	Soothing agent, Expectorant	[3] [4],[9]
9	Shatavari	Asparagus racemosus	Root	250 mg	Demulcent, Moistens throat	[13]
10	Greater Galangal	Alpinia galanga	Rhizome	200 mg	Anti-tussive, Respiratory stimulant	[14]

11	Pashanbhed	Bergenia ligulata	Root	300 mg	Expectorant, Reduces throat irritation	[17]
12	Asthma Weed	Euphorbia hirta	Whole Plant	400 mg	Bronchodilator, Antiasthmatic	[18]
13	Hibiscus	Hibiscus rosa-sinensis	Flowers	200 mg	Soothing, Helps in dry cough	[65]
14	Sweet Violet	Viola odorata	Flowers & Leaves	300 mg	Mucolytic, Loosens mucus	[19]
15	Ipecac Root	Ipecacuanha	Root	200 mg	Mucolytic	[20]
16	Senega Root	Polygala senega	Root	250 mg	Expectorant, Mucolytic	[21]
17	Ivy Leaf	Hedera helix	Leaves	200 mg	Dissolves mucus, Bronchodilator	[22]
18	Cowslip	Primula veris	Flowers	300 mg	Loosens mucus, Used in cold remedies	[23]
19	Mullein	Verbascum thapsus	Leaves & Flowers	250 mg	Mucolytic, Reduces inflammation	[24]
20	Tylophora	Tylophora indica	Leaves	200 mg	Bronchodilator, Anti-allergic	[25]
21	Baikal Skullcap	Scutellaria baicalensis	Root	200 mg	Anti-inflammatory, Mucolytic	[26]
22	Butterbur	Petasites hybridus	Rhizome	250 mg	Antitussive, Relieves congestion	[28]
23	Soapwort	Saponaria officinalis	Root	300 mg	Loosens mucus, Expectorant	[29]
24	Marshmallow	Althaea officinalis	Root	400 mg	Coats throat, Reduces irritation	[27],[66]
25	Plantain	Plantago major	Leaves	300 mg	Soothes throat, Reduces coughing	[30]
26	Fenugreek	Trigonella foenum-graecum	Seeds	250 mg	Mucilage-rich, Anti-inflammatory	[31]
27	Quince	Cydonia oblonga	Fruit	200 mg	Soothing, Anti-inflammatory	[66]
28	Pipal tree	Ficus Religiosa	leaf	250 mg	Soothes throat, Mild expectorant	[21]
29	Sesame Seeds	Sesamum indicum	Seeds	300 mg	Lubricates throat, Reduces dry cough	[32]
30	Cinnamon	Cinnamomum zeylanicum	Bark	200 mg	Antiseptic, Soothes irritation	[9]
31	Peppermint	Mentha piperita	Leaves	300 mg	Cools throat, Relaxes airways	[9]
32	Fennel	Foeniculum vulgare	Seeds	250 mg	Reduces mucus, Eases breathing	[9]
33	Thyme	Thymus vulgaris	Leaves	250 mg	Bronchodilator, Antimicrobial	[33]
34	Rosemary	Rosmarinus officinalis	Leaves	200 mg	Relieves chest congestion	[34]
35	Sage	Salvia officinalis	Leaves	250 mg	Reduces cough severity, Antimicrobial	[35]
36	Ginger	Zingiber officinale	Rhizome	300 mg	Suppresses cough, Anti-inflammatory	[9]
37	Eucalyptus	Eucalyptus globulus	Leaves	250 mg	Antiseptic, Bronchodilator	[36]
38	Lemon Balm	Melissa officinalis	Leaves	300 mg	Anti-inflammatory	[72]
39	Star Anise	Illicium verum	Fruit	250 mg	Expectorant, Clears nasal congestion	[37]
40	Clove	Syzygium aromaticum	Buds	200 mg	Antiseptic, Analgesic	[9]
41	Black Pepper	Piper nigrum	Fruit	250 mg	Decongestant, Helps with mucus removal	[71]
42	Coriander	Coriandrum sativum	Seeds	200 mg	Anti-inflammatory, Soothes throat	[66]
43	Indian Gooseberry (Amla)	Phyllanthus emblica	Fruit	300 mg	Rich in Vitamin C, Boosts immunity	[15]
44	Moringa	Moringa oleifera	Leaves	300 mg	Anti-inflammatory, Clears congestion	[38]
45	Onion	Allium cepa	Bulb	300 mg	Antioxidant, Expectorant	[39]
46	Garlic	Allium sativum	Bulb	250 mg	Antimicrobial, Helps in respiratory issues	[40]
47	Nutmeg	Myristica fragrans	Seed	200 mg	Anti-inflammatory, Reduces congestion	[41]
48	Mustard Seeds	Brassica juncea	Seeds	200 mg	Loosens mucus, Warming effect	[42]
49	Bay Leaf	Laurus nobilis	Leaves	250 mg	Antimicrobial, Clears congestion	[43]
50	Date Palm	Phoenix dactylifera	Fruit	250 mg	Soothing, Provides navibal energy	[44]
51	Indian Bdellium (Guggul)	Commiphora mukul	Resin	300 mg	Reduces mucus buildup, Anti-inflammatory	[45]
52	Lodhra	Symplocos racemosa	Bark	250 mg	Astringent, Reduces throat irritation	[73]
53	False Black Pepper	Embelia ribes	Fruit	200 mg	Antimicrobial, Helps with congestion	[46]
54	Lime	Citrus aurantiifolia	Fruit	250 mg	Rich in Vitamin C, Boosts immunity	[15]

55	Pomegranate	<i>Punica granatum</i>	Peel	250 mg	Antioxidant, Soothes sore throat	[22]
56	Raspberry	<i>Rubus idaeus</i>	Leaves	250 mg	Astringent, Reduces coughing	[47]
57	Strawberry	<i>Fragaria ananassa</i>	Fruit	200 mg	Antioxidant, Soothes throat	[48]
58	Blueberry	<i>Vaccinium corymbosum</i>	Fruit	200 mg	Anti-inflammatory, Supports lung health	[70]
59	Blackberry	<i>Rubus fruticosus</i>	Leaves	250 mg	Astringent, Clears throat congestion	[49]
60	Juniper Berry	<i>Juniperus communis</i>	Fruit	250 mg	Antimicrobial, Helps with chest congestion	[50]
61	Nut Grass	<i>Cyperus rotundus</i>	Rhizome	200 mg	Expectorant, Reduces phlegm buildup	[15]
62	Indian Aloe	<i>Aloe barbadensis</i>	Gel	250 mg	Soothing, Anti-inflammatory	[53]
63	Indian Costus	<i>Saussurea lappa</i>	Root	300 mg	Bronchodilator, Antiseptic	[54]
64	Mistletoe	<i>Viscum album</i>	Leaves	200 mg	Immunomodulator, Reduces coughing	[69]
65	Chirata	<i>Swertia chirayita</i>	Whole Plant	250 mg	Detoxifier, Reduces throat irritation	[9]
66	Bitter Gourd	<i>Momordica charantia</i>	Fruit	250 mg	Antiviral, Helps clear mucus	[55]
67	Indian Walnut	<i>Aleurites moluccana</i>	Seeds	250 mg	Expectorant, Clears airway congestion	[56]
68	Caper Bush	<i>Capparis spinosa</i>	Fruit	250 mg	Astringent, Relieves throat inflammation	[57]
69	Black Nightshade	<i>Solanum nigrum</i>	Leaves	250 mg	Reduces inflammation, Soothes throat	[58]
70	Horse Gram	<i>Macrotyloma uniflorum</i>	Seeds	200 mg	Detoxifier, Reduces throat congestion	[67]
71	Chamomile	<i>Matricaria chamomilla</i>	Flowers	200 mg	Anti-inflammatory, Soothes throat	[59]
72	Lemongrass	<i>Cymbopogon citratus</i>	Leaves	250 mg	Antibacterial, Reduces throat irritation	[60]
73	Indian Pennywort	<i>Centella asiatica</i>	Leaves	250 mg	Soothes throat, Improves immunity	[61]
74	Basil (Sweet Basil)	<i>Ocimum basilicum</i>	Leaves	300 mg	Anti-inflammatory, Reduces coughing	[1]
75	Winter Cherry (Ashwagandha)	<i>Withania somnifera</i>	Root	300 mg	Adaptogenic, Strengthens respiratory system	[62]
76	Horehound	<i>Marrubium vulgare</i>	Leaves	250 mg	Expectorant, Loosens mucus	[63]
77	Hyssop	<i>Hyssopus officinalis</i>	Leaves	200 mg	Bronchodilator, Reduces inflammation	[64]

CONCLUSION: -

This little plant is unquestionably an excellent wellspring of restorative properties. After top to bottom and thorough research it has been demonstrated and ensured that it is sheltered to devour Tulsi in any structure. All these medicinal properties are all around acknowledged and respected by present day science. Tulsi is the herb that fixes the humankind from all chances normally in the present shallow not very great way of life. It is considered as India's sovereign of herbs. Tulsi leaf when eaten in the first part of the day filters blood. It tends to be utilized by blending in with coconut oil. Tulsi leaves squeeze and ginger juice fixes stomach throb, cramps and furthermore gets alleviation from stomach worms. Tulsi is abundant in antioxidants and exhibits anti-inflammatory, antimicrobial, and immunomodulatory properties. It is commonly employed for treating various ailments, such as respiratory infections, digestive issues, and skin disorders.

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