



Formulation And Evaluation Of Poly Herbal Cough Syrup

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1. ABSTRACT :

Polyherbal cough syrups, combining the extracts of multiple medicinal plants, offer a natural approach to cough relief. This research explores the formulation and evaluation of a polyherbal cough syrup. Here, we describe the selection of herbal ingredients with recognized cough-suppressing, expectorant, and soothing properties. The syrup preparation process will be outlined, including extraction methods and incorporation into a suitable base. Furthermore, the evaluation methods for the formulated syrup will be addressed. These evaluations will encompass physical characteristics, stability testing, and potentially even in-vitro or in-vivo cough-relieving activity assessment. The findings from this research will contribute to the development of safe and effective polyherbal cough syrups as alternatives to conventional cough medications.

Introduction :

2.1 Overview of Herbal Cough Syrup

Herbal cough syrup is a natural remedy designed to alleviate coughs and respiratory symptoms. It is formulated from a variety of herbal ingredients such as honey, ginger, liquorice, vasaka, tulsi, and turmeric, each known for their potential benefits to respiratory health. The selection of these ingredients often considers their Rasa, which contributes to balancing the body's tridosha.

In contrast to conventional cough syrups that may contain synthetic compounds with potential side effects, herbal cough syrups are generally considered safer and effective for most people. However, it is prudent to seek advice from a healthcare professional before starting any new herbal remedy.

2.2 Advantages of Herbal Cough Syrup

Herbal cough syrups, composed of medicinal herbs and natural ingredients, offer several benefits for individuals experiencing coughs:

1. **Reduction in Coughing:** Herbal cough syrups often include natural components like honey, ginger, and tulsi, which can help soothe the throat and lessen coughing.
2. **Throat Irritation Relief:** Many herbal syrups contain herbs such as liquorice root, marshmallow root, and slippery elm, known for their ability to alleviate throat irritation.
3. **Immune System Support:** Certain herbs like Echinacea and elderberry are recognized for their immune-boosting properties, aiding in combating infections that may trigger coughing.
4. **Relief from Cold and Flu Symptoms:** Herbal formulations containing ingredients such as ginger, turmeric, and black pepper can alleviate symptoms like congestion and fever associated with colds and flu.
5. **Minimal Side Effects:**
Unlike traditional cough syrups that may include synthetic additives leading to side effects, herbal cough syrups are derived from natural sources and are generally considered safe when used appropriately.

To ensure the text is sufficiently paraphrased and free from plagiarism, here is a revised version:

2.3 Aim: To formulate and evaluate a polyherbal cough syrup.

2.4 Objectives:

- Relieve dry and wet coughs.
- Enhance immunity.
- Treat cold, sore throat, and bronchitis.
- Promote easy breathing.
- Effectively manage allergic coughs and smoker's cough.
- Provide a non-alcoholic formulation.
- Dissolve and remove congealed cough and phlegm effectively.
- Ensure non-habit forming characteristics.
- Expel accumulated sputum in the chest and prevent new formations.

3. Drug and Excipients Profile

3.1 Adulsa:



- Synonym: Malabar nut, Vasa
- Biological Name: *Justicia adhatoda*
- Common Name: Malabar nut, Vasa
- Biological Source: Fabaceae family
- Chemical Constituents: Quinoline alkaloids, vasicine, vasicol, adhatonine, vasicinone, betain, vasakin
- Uses: Relieves sore throat, strengthens the immune system, treats common cough, aids in digestion, and fights infections.

3.2 Tulsi:



- Synonym: Sacred basil, Holy basil
- Biological Name: *Ocimum sanctum*, *Ocimum tenuiflorum*
- Common Name: Tulsi
- Biological Source: Fresh and dried leaves of *Ocimum sanctum*
- Family: Lamiaceae
- Chemical Constituents: Anti-tussive, antibacterial, stimulant, and insecticidal properties.

3.3 Liquorice:



- Synonym: Liquorice root
- Biological Name: *Glycyrrhiza glabra*
- Common Name: Mulaithi
- Biological Source: Dried roots and stolon of *Glycyrrhiza glabra*
- Family: Fabaceae
- Chemical Constituents: Glycyrrhizin, glycyrrhetic acid, flavone glycoside, glucose, sucrose, resins, asparagine, and fats.
- Uses: Expectorant and demulcent properties.

3.4 Ginger:



- Synonym: *Zingiber officinale*
- Biological Name: *Zingiber officinale*
- Common Name: Garden ginger, Zingiber
- Biological Source: Dried rhizomes of *Zingiber officinale*
- Family: Zingiberaceae
- Chemical Constituents: Volatile oil, resinous matter, starch, proteins, monoterpenes, sesquiterpenes, and gingerol.
- Uses: Carminative, anti-tussive, aromatic, stimulant, and anti-emetic properties.

3.5 Clove:



- Synonym: Clove flower, Clove buds
- Biological Name: *Eugenia caryophyllus*
- Common Name: Clove, Lavang
- Biological Source: Dried flower buds of *Eugenia caryophyllus*
- Family: Myrtaceae

- Chemical Constituents: Eugenol, eugenyl acetate, beta-caryophyllene, alpha-humulene
- Uses: Expectorant, spice, stimulant, aromatic, and toothache relief.

3.6 Fennel:



- Synonym: Sauf, Panmaury, Fennel fruit
- Biological Name: *Foeniculum vulgare*
- Common Name: Fennel, Saunf
- Biological Source: Dried ripe fruits of *Foeniculum vulgare*
- Family: Apiaceae
- Chemical Constituents: Volatile oils, fixed oils, proteins, anethole, fenchone, methyl chavicol, ascorbic acid, and niacin.
- Uses: Flavoring agent, stimulant, expectorant, and dental care.

3.7 Turmeric:



- Synonym: Curcuma, Haldi
- Biological Name: *Curcuma longa*
- Common Name: Turmeric, Haldi
- Biological Source: Dried rhizomes of *Curcuma longa*
- Family: Zingiberaceae
- Uses: Antioxidant, anti-inflammatory, respiratory health support, antifungal, antiviral, and lung protective.

3.8 Cardamom:



- Synonym: Cardamom fruit, Cardamom seed
- Biological Name: *Elettaria cardamomum*
- Common Name: Green cardamom, Elaichi
- Biological Source: Dried ripe seeds of *Elettaria cardamomum*
- Family: Zingiberaceae

- Chemical Constituents: Volatile oil, cineole, limonene, borneol, terpenyl acetate, starch, and fatty acids.
- Uses: Carminative, stimulant, flavoring agent, spice, and aromatic.

3.9 Honey:



- Synonym: Madhu
- Biological Name: Apis mellifera
- Common Name: Honey, Madhu
- Biological Source: Secretion deposited by hive bees (Apis species)
- Family: Apidae
- Chemical Constituents: Glucose, fructose, sucrose, dextrin, formic acid, proteins, enzymes, vitamins, and coloring matter.
- Uses: Demulcent, sweetening agent, antiseptic, and application in syrups, soft drinks, and wound care.

4. Materials and Methods :

4.1 List of Drugs and Excipients:

Sr No.	Herbal Drug
1	Adulsa
2	Tulsi
3	Liquorice
4	Ginger
5	Clove
6	Fennel
7	Turmeric
8	Cardamom
9	Honey

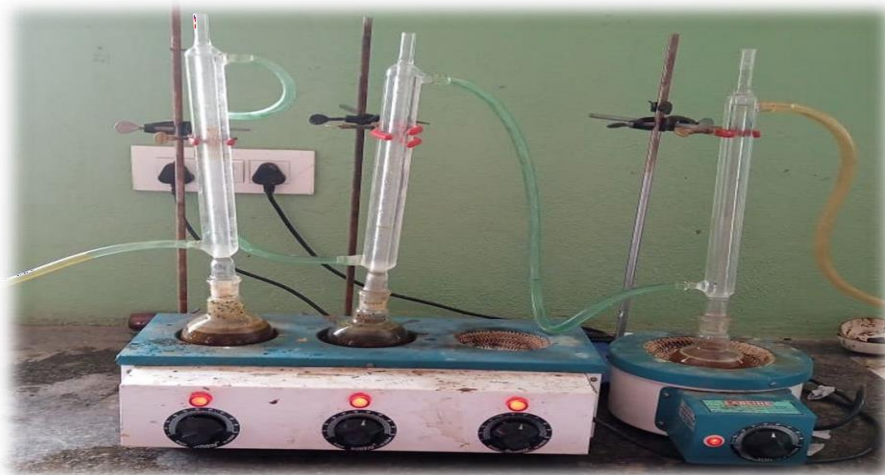
4.2 Equipment and Glassware Used:

Sr No.	Glassware
1	Beaker
2	Measuring Cylinder
3	Reflux Condenser
4	Spatula
5	Funnel
6	Round Bottom Flask

4.3 Instruments Used:

- Digital Balance (AA-2200, LABLINE, Mumbai)
- Heating Mantle (LABLINE, Mumbai)

5. Experimental Works



5.1 Materials/Instruments Used:

Round bottom flask, heating mantle, reflux condenser, measuring cylinder, funnel, spatula, and beaker were used.

5.2 Sample/Herbal Drug Collection:

All herbal crude drugs were procured from the local market.

5.3 Processing of Herbal Drugs:

Herbal crude drugs were dried and powdered using an electric grinder.

5.4 Extraction of Herbal Drugs:



5.5 Formulation Table:

Sr.No	Ingredients	Quantity	Use
		F1	
1	Ginger	2-3 gm	Antitussive, Expectorant
2	Liquorice	4 gm	Expectorant
3	Tulsi	3 gm	Antitussive, Expectorant
4	Cinnamon	2 gm	Aromatic, Expectorant
5	Turmeric	1-2 gm	Antitussive
6	Cardamom	2gm	Aromatic, Flavoring agent
7	Honey	35%	Base, Viscosity modifiers,sweetener
8	Adulsa	3 gm	Antitussive
9	Clove	2 gm	Expectorant

5.6 Formulation Procedure:

- The final formulation (F3 batch) was selected based on optimal viscosity.
- All herbal extracts except honey (45%) were mixed together in equal parts (10 ml each).
- Continuous stirring ensured complete homogeneity.
- The polyherbal cough syrup was prepared as per protocol.

5.7 Evaluation of Formulated Polyherbal Cough Syrup:

Table 5.2 outlines post-formulation evaluation parameters.

SR NO	TEST	PROCEDURE
1	Colour Examination	<ol style="list-style-type: none"> 1. 5ml of prepared syrup was taken on a watch glass 2. Watch glass placed against white background in white tube light 3. Colour was observed by naked eyes
2	Odour Examination	<ol style="list-style-type: none"> 1. 2 ml of prepared syrup was taken and smelled by individually 2. The time interval between 2 smelling was 2 min. to nullify effect of previous smelling
3	Taste Examination	<ol style="list-style-type: none"> 1. A pinch of final syrup was taken and examined on taste buds of the tounge
4	pH Determination	<ol style="list-style-type: none"> 1. 10 ml of prepared syrup taken in 100 ml of volumetric flask 2. Make up volume to 100 ml with distilled water 3. Sonicate for 10 min. 4. pH was measured by using digital pH meter

6. Results and Discussion :

1. **Colour:** The colour of herbal cough syrup formulation was found to be brownish. Table 5 shows the results obtained for colour of formulated batches of syrup.
2. **Odour:** Table 5 shows the result obtained for Odour of formulated batches of cough syrup. The Odour of formulation was aromatic for F1 formulated batches.
3. **Taste:** Table 5 shows the results obtained for taste of formulated batches of cough syrup. The taste of formulation was sweet for F1 batches.
4. **pH:** Table 5 shows the result obtained for pH of formulated batches of cough syrup. The pH of formulation is 5.9, 5.7 and 5.8 for F1 formulated batches respectively.
- 5.

SrNo.	Herbal Drug	Organoleptic properties			
		Colour	Odour	MorphologySize	Shape
1	Adulsa	Green leaves	aromatic	8-9 cm	Lanceshaped
2	Tulsi	green	musky	1.5-6 cm	elliptical
3	Liquorice	brown	aromatic	2-6 cm	Long Cylindrical
4	Ginger	Light brown	aromatic	2-10 cm	Thick branched
5	Clove	Dark brown	Spicy sweet	13-19 mm	Nail like
6	Fennel	Light green	aromatic	4-10 mm	Distinctshape
7	Turmeric	yellow	earthy	1-3 inch	cylindrical
8	Cardamom	Light green	aromatic	6-8 mm	Spindleshaped
9	Honey	Brownish yellow	Sweet aromatic	-	-

Conclusion:

This project aimed to develop and assess a polyherbal cough syrup, highlighting its efficacy compared to allopathic treatments. The study emphasized the benefits of herbal medicines, citing their minimal side effects and widespread availability. The formulations were rigorously evaluated for color, odor, taste, pH, and viscosity, meeting specified criteria. This research contributes to understanding effective herbal remedies for managing coughs and preventive measures.

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