



Formulation And Evaluation Of Herbal Syrup

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Abstract: Modern pharmaceuticals, while effective in treating diseases, often come with harmful side effects due to their chemical composition. In response, this research focuses on the formulation of a polyherbal product as a safer and more effective alternative for treating cough. The "polyherbal anti-tussive syrup" developed in this study harnesses the therapeutic properties of naturally occurring medicinal plants such as cinnamon, clove, black pepper, tulsi, honey (as a base), and mint (as a cooling agent expectorant). This unique combination of herbal ingredients has shown promising results in effectively treating cough symptoms. By leveraging the healing properties of these natural ingredients, the polyherbal syrup offers a safer and gentler approach to managing cough, without the adverse effects commonly associated with synthetic drugs. This research contributes to the growing body of evidence supporting the use of herbal remedies as viable options for healthcare.

Index Terms - Anti tussive , medicinal plant , polyherbal formulation , cough syrup

I. INTRODUCTION

Herbal syrups:

Herbal syrup is a concentrated decoction combined with honey, sugar, or alcohol. It serves as a vehicle for herbal remedies, aiding in administration, especially for those who struggle with swallowing solid medication forms. There are two main types: flavored and medicated syrups. Flavored syrups lack medication but contain flavoring agents, often used to mask the taste of medicines in medicated syrups. Syrups are favored for cough medication due to their ease of ingestion and rapid absorption.

Polyherbal Anti-Tussive Syrup:

This research focuses on formulating and evaluating a polyherbal anti-tussive syrup, comprising natural ingredients like clove, cinnamon, black pepper, tulsi, peppermint (menthol), and honey as a base. These ingredients, listed in Table 1 along with their biological names and families, are non-toxic, harmless, and free from side effects. Compared to over-the-counter drugs, this polyherbal syrup offers superior effectiveness and safety.

Table 1: Names of Drugs (Biological Names & Families)

Herb	Biological Name	Family
Clove	Eugenia aromatica	Myrtaceae
Cinnamon	Cinnamomum cassia	Lauraceae
Black pepper	Piper nigrum	Piperaceae
Tulsi	Ocimum sanctum	Lamiaceae
Peppermint	Mentha piperita	Labiatae
Honey	Apis dorsata	Apidaeae

This polyherbal formulation offers a natural and effective solution for cough treatment, devoid of any harmful side effects.

II. MATERIAL AND METHOD

1. Pudina (Peppermint)

- **Biological Source:** Dried leaves from *Mentha spicata* Linn.
- **Family:** Labiatae.
- **Chemical constituents:** Mainly menthol (40.7%) and menthone (23.4%), with other components like menthyl acetate and limonene.
- **Uses:** Carminative, digestive, spasmolytic; used in herbal syrup preparation.

2. Tulsi (Sacred Basil)

- **Biological Source:** *Ocimum sanctum*.
- **Family:** Labiatae.
- **Chemical constituents:** Eugenol, carvacrol, caryophylline.
- **Uses:** Antibacterial, insecticidal, stimulant, diaphoretic, immunomodulator.

3. Cinnamon

- **Biological Source:** *Cinnamomum cassia*.
- **Family:** Lauraceae.
- **Chemical constituents:** Mucilage, coumarin, cinnamic aldehyde.
- **Uses:** Carminative, stimulant, flavoring agent, spices.

4. Honey

- **Biological Source:** Secretion stored by bees like *Apis dorsata*.
- **Family:** Apidae.
- **Chemical constituents:** Gallic acid, syringic acid, ellagic acid, etc.
- **Uses:** Laxative, bactericidal, sedative; used as flavoring and sweetening agent.

5. Ginger

- **Biological Source:** Dried rhizomes of *Zingiber officinale*.
- **Family:** Zingiberaceae.
- **Chemical constituents:** Gingerols (major polyphenols), phenolic and terpene compounds.
- **Uses:** Carminative, expectorant, anti-inflammatory.

6. Clove

- **Biological Source:** *Eugenia caryophyllus*.
- **Family:** Myrtaceae.
- **Chemical constituents:** Eugenol, easter eugenin.
- **Uses:** Dental analgesic, carminative, flavoring agent, antiseptic.

7. Black Pepper

- **Biological Source:** Dried fruits of *Piper nigrum*.
- **Family:** Piperaceae.
- **Chemical constituents:** Piperine, starch, piperidine, etc.
- **Uses:** Aromatic, stomachic, carminative; stimulates taste buds and gastric juice.

Preparation formula:

Sr. No.	Ingredients	Batch A	Batch B	Batch C	Batch D	Batch E	Batch F
1	Cinnamon extract	5 ml	2.5 ml	1 ml	3 ml	2 ml	4 ml
2	Black pepper extract	2.5 ml	1.25 ml	0.5 ml	1.5 ml	1 ml	2 ml
3	Ginger extract	5 ml	2.5 ml	1 ml	3 ml	2 ml	4 ml
4	Tulsi extract	5 ml	2.5 ml	1 ml	3 ml	2 ml	4 ml
5	Pudina extract	2.5 ml	1.25 ml	0.5 ml	1.5 ml	1 ml	2 ml
6	Clove extract	2.5 ml	1.25 ml	0.5 ml	1.5 ml	1 ml	2 ml
7	Honey	20 ml	10 ml	5 ml	15 ml	10 ml	20 ml

Methodologies:**1. Selection & Collection of Herbal Ingredients:**

- Choose bioactive plants known for wound healing based on traditional knowledge and literature.
- Wash cloves, cinnamon, black pepper, tulsi, pudina, and ginger with distilled water.
- Prepare ingredients: dry and crush clove, cinnamon, black pepper; grind tulsi and pudina leaves; crush ginger; collect fresh honey.

2. Grinding All Dried Herbal Ingredients:

- Grind tulsi and pudina leaves into fine powder.
- Crush and grind ginger into a fine powder.
- Powder cloves, cinnamon, and black pepper.

3. Extraction from Herbal Ingredients:

- Extract all dried ingredients in distilled water.
- Filter using muslin cloth to remove impurities.

4. Method of Preparation:

- Utilize the extracts obtained from the herbal ingredients in the specified quantities for each batch (A-F).
- Combine the extracts with honey according to the formulation table.
- Mix thoroughly to ensure homogeneity.

This method ensures the proper extraction and combination of herbal ingredients, resulting in the formulation of the polyherbal syrup.

III. RESULT & DISCUSSION:**Evaluation of Herbal Syrup:****1. Physical Evaluation:**

- Color: The herbal syrup exhibited a yellowish-brown color.
- Odor: It emitted an aromatic fragrance.

2. Determination of pH:

- The pH of the syrup was measured using a standard digital pH meter at room temperature. The pH was found to be 6.34.

3. Viscosity:

- Viscosity was measured using a Brookfield viscometer at 50 rpm. The viscosity of the syrup was found to be 239.9 cp.

4. Specific Gravity:

- The specific gravity of the herbal syrup was determined using a specific gravity bottle and found to be 1.09.

Evaluation parameters:

Sr. No.	Evaluation Parameter	Observation
1	Color	Yellowish brown
2	Odor	Aromatic
3	pH	6.34
4	Viscosity	239.9 cp
5	Density	1.09

IV. DISCUSSION:

The physical evaluation confirms that the herbal syrup exhibits the expected color and aroma. The pH of 6.34 indicates a slightly acidic nature, which is typical for many herbal preparations. The viscosity of 239.9 cp suggests a moderate thickness, contributing to the syrup's ease of administration. Additionally, the specific gravity of 1.09 signifies the density of the syrup compared to water. Overall, these results indicate that the herbal syrup meets the required quality parameters for use as a natural remedy for cough relief.

V. CONCLUSION:

The present study demonstrates the efficacy of herbal remedies in treating cough, offering a natural and safe alternative to modern medications. The formulation and evaluation of a polyherbal anti-tussive syrup containing medicinal plants such as cinnamon, clove, black pepper, tulsi, ginger, honey, and pudina have been successfully conducted.

This research affirms that the polyherbal syrup effectively alleviates cough symptoms and reduces severity. Each ingredient contributes to the syrup's broad-spectrum activity, including anti-tussive, expectorant, and bronchodilator properties, supported by scientific evidence.

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