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Formulation & Development of Zinger Macerated Cough Syrup Using Herbal Drugs

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ABSTRACT

Herbal medicine, an integral part of ancient healthcare systems, harnesses the medicinal potential of plants to prevent and treat various ailments. In this study, a **Zinger Macerated Herbal Cough Syrup** was formulated using a blend of traditional herbs known for their antitussive, expectorant, stimulant, and aromatic properties. The formulation aims to provide an effective, safe, and economical alternative to conventional cough syrups, with minimal side effects. Pre-formulation and post- formulation studies were conducted to evaluate the physical, chemical, and organoleptic properties of the syrup. The final product exhibited satisfactory results and aligns with the objectives of offering a natural remedy for cough management.

INTRODUCTION

Herbal Medicine

Herbal medicine traces its roots to ancient civilizations, where plants served as the primary source of therapeutic agents. Despite advancements in synthetic drugs, the demand for herbal remedies

persists due to their perceived safety, efficacy, and holistic benefits. Some herbs possess potent bioactive compounds, warranting cautious use akin to pharmaceutical medications.

Cough

Coughing (tussis) is a reflexive or voluntary action that expels air forcefully from the lungs to clear the respiratory tract of irritants, microbes, and foreign particles.

Types of Cough

- 1. Dry Cough: Non-productive; no mucus; caused by throat irritation or post-viral infection.
- 2. Wet Cough: Productive; expels mucus; often due to respiratory infections.
- 3. Combination Cough: Alternates between dry and wet phases; linked to respiratory inflammation.

WHO Prevention Guidelines

- Avoid close contact with infected individuals.
- Practice frequent handwashing.
- Do not share personal items.
- Manage underlying conditions (GERD, asthma) proactively.

Treatment Strategy

For non-high-risk individuals, symptomatic treatment is preferred, with advice to rest at home. Chronic coughs necessitate identifying and addressing underlying causes.

HERBAL COUGH SYRUP

The **Zinger Macerated Herbal Cough Syrup** combines multiple herbal extracts to soothe sore throats, relieve cough symptoms, and enhance respiratory health.

Advantages

- Safe and non-toxic
- Cost-effective
- Readily available
- Minimal side effects

Common Side Effects of Conventional Cough Syrups

- Blurred vision
- Drowsiness
- Dizziness
- Nausea and vomiting
- Slowed breathing
- Nervousness or irritability

Marketed Formulations

- Honeytus (Dabur)
- Joshina (Hamdard)
- Koflet (Himalaya)
- Kasamrit (Baidhyanath)
- Others

INGREDIENTS OF ZINGER MACERATED COUGH SYRUP

Sr. No	Ingredient	Use in Formulation
1	Ginger	Antitussive
2	Tulsi	Antitussive

Sr. No	Ingredient	Use in Formulation	
3	Liquorice	Expectorant	
4	Vasaka	Antitussive	
5	Ashwagandha	Stimulant	
6	Cardamom	Aromatic	
7	Black Pepper	Cough relief	
8	Cinnamon	Carminative	
9	Clove	Expectorant	
10	Fennel	Sweetening agent	
11	Honey	Base, viscosity modifier	

Botanical Information

Each ingredient was selected based on its traditional use and scientific evidence for efficacy in managing respiratory conditions. Active phytochemicals include **gingerols**, **eugenol**, **vasicine**, **glycyrrhizin**, and **terpenoids**, contributing to the overall antitussive and expectorant properties of the formulation.

MATERIALS & METHODS

Pre-formulation Studies

Moisture Content Determination

- Sample heated at **100°C** for 1 hour in a hot air oven.
- Final moisture content determined after cooling.

Ethanol Extractive Value

- 5 g powdered drug macerated with **95% ethanol** for 24 hours.
- Extract evaporated and dried at 105°C. Water Extractive Value
- 5 g powdered drug macerated with chloroform water for 24 hours.
- Extract evaporated and dried at 105°C. Method of Preparation

1. Herbal Extraction:

5–7 g of each herbal ingredient boiled with 500 ml water for 3 hours using reflux condenser.

2. Reduction:

Volume reduced to one-fourth.

3. Filtration:

Liquid cooled and filtered.

4. Ginger Maceration:

2.25 g ginger macerated with 45 ml honey for 24 hours.

5. Final Mixing:

45 ml macerated ginger + 20 ml herbal decoction, mixed with continuous stirring.

6. Syrup Formation:

Visual clarity checked to ensure complete solubility.

FORMULATION TABLE

Sr. No	Ingredient	Quantity	Use in Formulation
1	Ginger	5–7 gm	Antitussive
2	Tulsi	15-20 leaves	Antitussive
3	Liquorice	5–7 gm	Expectorant
4	Vasaka	5–7 gm	Antitussive
5	Ashwagandha	5–7 gm	Stimulant
6	Cardamom	5–7 gm	Aromatic
7	Black Pepper	5–7 gm	Cough relief
8	Cinnamon	5–7 gm	Carminative
9	Clove	5–7 gm	Expectorant
10	Honey	q.s.	Base, viscosity modifier

POST-FORMULATION STUDIES

Organoleptic Properties

- Color: Yellowish Brown
- Odor: Aromatic
- Taste: Sweet & Pungent

Physicochemical Properties

- pH: 1.8
- Viscosity: Measured using

Ostwald's U-tube viscometer Pre-formulation Results

Test	Result
Moisture content	1.6%
Ethanol soluble extractive	11.6%
Water soluble extractive	12.8%

RESULTS & DISCUSSION

The prepared Zinger Macerated Herbal Cough Syrup demonstrated:

- Acceptable physicochemical properties.
- Stability of herbal components in syrup form.
- A pleasing organoleptic profile (color, odor, taste).
- Adequate viscosity and pH compatible with oral administration.
- The formulation met all desired specifications, with honey at 40% W/V providing an effective preservative base.

CONCLUSION

This study successfully formulated an effective and safe **herbal cough syrup** using a macerated ginger base complemented by traditionally recognized herbs. The **pre-formulation** and **post-formulation** results indicate that the syrup meets acceptable pharmaceutical standards. The use of **40% W/V honey** as a base not only enhanced palatability but also contributed to stability and preservation.

The present work demonstrates that combining traditional knowledge with modern formulation techniques can yield a **natural**, **cost-effective alternative** to conventional cough syrups. Future studies may focus on **clinical efficacy trials** and **shelf-life evaluation** to support widespread adoption.

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