

# Formulation and Evaluation of Herbal Cough Syrup

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**Abstract:** 1. Cough is a common problem faced by individuals worldwide, acting as the body's protective mechanism, classified based on various factors like signs, duration, and type of cough.  
2. Syrup is a widely used form of medication to treat cough and cold, with herbal syrup being the preferred choice due to its benefits over synthetic alternatives.  
3. Medicinal plants, especially in Asian countries, are utilized as primary healthcare agents, with ingredients showing expectorant and antitussive properties being commonly used in herbal treatments for cough.  
4. Herbal cough syrup, a liquid dosage form, is considered easier to administer than solid forms and is noted for its quicker and more effective action in curing coughs.  
5. The preparation of cough syrups involves specific methods and quantities of ingredients, with honey-based syrups evaluated for their quality based on different concentrations like 35%, 40%, and 45% w/v..

**Keywords:** Cough Syrup

## I. INTRODUCTION

1. Coughing, also known as "tussis," is the body's way of clearing the throat and air passages of foreign particles and irritants by rapidly expelling air from the lungs.
2. The cough reflex involves three phases: inhalation, forced exhalation against a closed glottis, and a sudden release of air with a distinctive sound.
3. Coughing is a common symptom associated with respiratory issues like asthma, viral infections, lung cancer, tuberculosis, and pulmonary embolism.
4. Repetitive coughing can lead to inflammation and discomfort, resulting in more frequent bouts of coughing in affected individuals.

### 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.

### Types

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 [Ken , 2021, Herbycin, 2020].

Medicine: Cough suppressant and antitussive.

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 [Patil et al, 2020, Herbycin, 2020]. Medicine: Expectorant.  
B] Depending upon duration  
It may be classified into acute, sub acute and chronic cough depending upon duration [Patil et al, 2020].

1) Acute cough

The cough lasting for less than 3 weeks are categorized under this type.  
Causes for acute cough is due to common cold, URTI, COPD, environmental pollution, and infective bronchitis [Kalpesh, 2013, Kathleen, 2021].

2) Sub acute cough

The cough lasting for at least the period of 3 to 8 weeks is categorized under this type. The respiratory causes are pneumonia, and B. pertussis infection.  
Non respiratory causes are GERD and rarely Tourette's syndrome [Kalpesh, 2013, Kathleen, 2021].

3) Chronic cough

The cough lasting for more than period of 8 weeks or more are chronic coughs.  
The respiratory causes are COPD, asthma, lung cancer, tuberculosis and pneumoconiosis [Kalpesh, 2013, Kathleen, 2021]. Coughs in pediatrics  
A cough is a sign that indicates that the child's body is trying to get out of itself from irritant, pollutants, and other Foreign particles. Cough is one of the most common problems of visiting parents with their child to healthcare Practitioner. Common causes of cough include:

1) Allergies or sinusitis: It can cause a prolong cough including an itchy throat, runny nose, watery eyes, sore Throat, or rash. Allergy tests are done to find out which allergens cause the problem and doctor advice how to avoid Those allergens.

2) Asthma: Asthma can be very difficult to diagnose in children as symptoms may vary from every child to child. While wheezing cough, that get worse at night is one of the many signs. The other cough occurs with increased in Physical activities like playing, exercise, etc. Treatment for asthma is dependent upon what Infection: Cold, flu, and croup this leads to a prolong cough for children. Colds cause mild to moderate hacking Cough while the flu a sometimes cause severe, dry cough and croup has a "barking" cough mostly occurs at night with Noisy breathing. 4)

Other reasons children cough: Children's may also cough as they get habit of coughing after sick with a Cough, after inhaling a foreign element like food or a small object, or in contact with irritants like pollution, cigarettes Smoke or firecrackers smoke.

Herbal treatment for cough

The most preferred treatment for cough is herbal treatment. Herbal formulations are playing major role in improvement Of health care sector. The Herbal treatments are used for mild to severe health disorders including, asthma, tuberculosis, Cough, pneumonia, kidney diseases, cancer, diabetes, allergies, lung cancer and viral infections [Patil et al, 2020, Ambrogio, 2001].

As stated, to estimate of WHO, there are 80% population even uses herbal medicines for primary health care Requirements. Medicinal herbs have always been used as traditional primary healthcare agents and especially in Asian Countries [Francine, 2011]. Major use of herbal medicines is for health promotion and therapy for chronic, as opposed To condition which are life threatening.

Most of the synthetic drug treatment used causes many side effects like vomiting, nausea, sedation, allergies, respiratory

Tract infections, appetite change, irritability, drowsiness, addiction and excess use can damage organs or parts of organs

[Patil et al, 2020]. In recent years, researchers are mainly focusing on herbal drugs and herbal treatments which have Less or have no side effects during and after treatment [Carroll, 2019, Abiodo, 2020] Material and Method Herbal parts are use in formulation of herbal syrup for treatment of cough as shown in Table Material and Method

Herbal parts are use in formulation of herbal syrup for treatment of cough as shown in Table 1 and fig. 1 [Patil et al, 2020].

Take some quantity of each herbal ingredients



- 1) Herbs are mixed in 500 ml of water
- 2) Attach reflux condenser and boil material carefully by using water bath for 3 hours
- 3) Boil until total volume become one fourth part of previous
- 4) The liquid was cooled and filter out



#### **Test Procedure**

Colour Examination

- i. 2ml of syrup was taken on a watch glass

ii. Watch glass was placed against white background under white tube light.

iii. Colour was observed.

Odour Examination

i. 2ml of prepared syrup was taken and smelled by an individual.

ii. The time interval between two smelling was 2 min to nullify effect of previous smelling.

Taste Examination

i. A pinch of final syrup was taken and was examined on test buds of the tongue

Determination

i. 10 ml of prepared syrup was taken in 100 ml volumetric flask. ii. Makeup volume up to 100ml with distilled water.

iii. Sonicate for 10 min. pH was measured using digital pH meter Test

Result (%) 1

Moisture content 1.4

Ethanol soluble extractive 11.9

Water soluble extractive 13.1

Post Formulation Studies



Table 5: Physicochemical parameters of formulated herbal cough syrup. Formulations

Colour Odour

Formulation Taste

PH

Viscosity F1

Yellowish brown Aromatic

Sweet 6.1

0.0132

Yellowish brown Aromatic Test

Result (%) 1

Moisture content 1.4

2

Ethanol soluble extractive 11.9

3

Water soluble extractive 13.1

Post Formulation Studies

Table 5: Physicochemical parameters of formulated herbal cough syrup. Formulations

Colour Odour Taste PH

Viscosity F1

Yellowish brown Aromatic

Sweet 6.1

0.0132

F2

Yellowish brown Aromatic

Sweet 6.2

0.0398

F3

Yellowish brown Aromatic

Sweet 6

0.0581

Sweet 6.2

0.0398

F3

Yellowish brown Aromatic

Sweet

1) 0.0581 Colour: The colour of herbal cough syrup formulation was found to be yellowish brown. 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, F2 and F3 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, F2 and F3 batches.

4) pH: Table 5 shows the result obtained for pH of formulated batches of cough syrup. The pH of formulation is 6.1, 6.2 and 6 for F1, F2 and F3 formulated batches respectively.

5) Viscosity: Table 5 shows the result obtained for viscosity of formulated batches of cough syrup. The viscosity Of formulation is 0.0132, 0.0398 and 0.0581 for F1, F2 and F3 formulated batches

## II. CONCLUSION

The aim of this project was to formulate and evaluate herbal cough syrup. The present study helped us to understand What actually cough means, what are different types of coughs, factors responsible for causing cough. Herbal treatments

For cough were studied briefly. As the study shows that the herbal treatment is more beneficial than that of allopathy Treatment which uses standard drugs for treatment as Herbal drugs have less or no side effects. Herbal treatments are More preferred widely. Herbal drugs are easy to available than that of prescribed drugs. This study helps us to understand

Cough and measures to be taken in order to avoid cough. The pre-formulation studies of all three formulations were

Within specification. Three formulations were prepared and evaluation test such as colour, odor, taste and pH were Performed. The present study will help us to understand effectiveness of herbal cough syrup compared to chemical

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