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Formulation & Evaluation Of Ginger Macerated Honey Base Herbal Cough Syrup

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ABSTRACT

The most common problem suffered by individuals everywhere over many centuries is cough. Coughing is the protective mechanism of the body. Coughs are classified further accordingly which are depending upon factors such as signs and symptoms, duration, type, character, etc. Most commonly used, prepared and popular dosage form to cure cough and cold is syrup. The most preferred dosage form to cure cough is herbal syrup, which is used mostly due to its benefits over synthetic syrups. Medicinal plants are used as primary health care agents, mostly in Asian countries. Ingredients showing expectorant antitussive activity are used. Hereby cough and herbal treatments associated with cough are studied briefly. The herbal cough syrup is studied which is liquid dosage form, it is easy to administer than solid dosage form and is more effective and fast acting in order to cure cough. Method of preparation of cough syrups were discussed. The material and quantity used in preparation were listed. Here honey based three batches were performed having concentration such as 35%, 40%, 45% w/v. the quality of final syrup was evaluated for post formulation studies.

Keyword:- Antitussive, Maceration, Herbal Formulation, Quality Control Test.

INTRODUCTION

Herbal plants and formulations are used for the many types of diseases like cough syrup and many more other diseases. In cough syrup many types of herbal plants are used, for example ginger, tulsi, honey, clove. In that whole plants are used for making herbal medicine since a many years. Herbal formulations are most commonly used in development as well as developing countries as health care aid.

The another name for “Cough” is “tussis”, the voluntary or involuntary act which clears the throat and breathing passage of foreign particles, microbes, irritants, fluids and mucus is nothing but cough. It is the rapid expulsion of air from lungs. When we have blockage or irritation in the throat or upper air passage, the brain thinks a foreign element is there in body and it inform body immediately to cough to expel out foreign element out of our body.

The cough reflex consists of the 3 phases which are an inhalation, a forced exhalation against a closed glottis, and a violent release of air from the lungs following opening of the glottis, and followed by a distinctive sound It is symptom related to most respiratory problems such as asthma, viral infections, lung cancer, tuberculosis, pulmonary embolus .

The repetition of coughing produces inflammation and discomfort, which result in more coughing in individual. Respiratory tract infections are mostly common in children; some of them are self-limiting and the risk of complication may be very small.

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] Depending upon duration

It may be classified into acute, sub acute and chronic cough depending upon duration.

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.

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.

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.

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 causesof 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 is actual cause of it

3) 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.

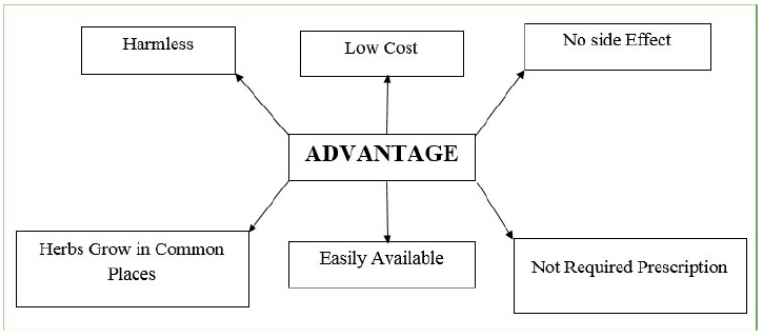
HERBAL TREATMENT FOR COUGH

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.

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.

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. 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.

ADVANTAGES



DISADVANTAGES

- paranoia and confusion.
- excessive sweating.
- nausea and vomiting (large quantities of cough syrup almost always cause people
- to throw up)
- belly pain.
- irregular heartbeat and high blood pressure.
- restlessness.
- dry, itchy skin and facial redness.

ADR with prescription drugs :

- Herbal medicine cane produce adverse effect if they are mixed with drugs like antidepressants which are tacking regular basis.
- Also herbal medicines having another disadvantage is the risk of self dosing of
- herbs which is very rare.

Patients:

- Herbal medicine are the natural product. The effectiveness of herbal medicines is
- not optimized in laboratory so it taken time to produce effect.

MATERIAL AND METHODS

Following herbal parts are used in the formulation of herbal syrup for treatment of

cough.

SR. NO.	INGREDIENT
1.	Tulsi
2.	Ginger
3.	Liquorices
4.	Fennel
5.	Cardamom
6.	Peppermint
7.	Adulsa
8.	Honey
9.	Clove

INGREDIENT

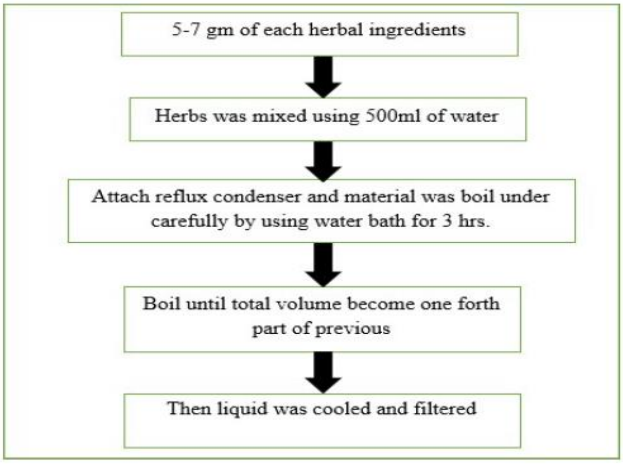
FORMULATION OF RAW MATERIALS

SR.NO	TEST	PROCEDURE
1	Moisture content	1. Weigh 2 gm of sample and take in petridish 2. Heat it in the hot air oven at 100°c for 1 hr 3. Then allowed to coo. Weigh the sample again
2.	Determination of ethanol extractive value	1. Take macerated 5 gm of air dried, shaken coarsely powdered drug with 100ml of 95% ethanol in closed flask for 24 hrs. 2. Shake it frequently for first 6 hours and then allowed to stand for 18 hrs. 3. Then filter it rapidly (take care for loss of ethanol) 4. Evaporated 25 ml filtrate to dryness in a flat bottomed petridish 5. Dry at 105 °c and weighed
3	Determination of water extractive value	1. Macerated 5 gm of air dried drug coarsely powdered with 100 ml chloroform water (2.5ml chloroform in 1000ml water) in closed flask for 24hrs. 2. Shaken frequently for first 6 hrs. 3. Allowed to stand for 18hrs. 4. Evaporate 25 ml of filtrate to dryness in a flat bottomed petridish 5. Dry at 105 °c and weighed

PREPARATION OF LIQUID ORAL

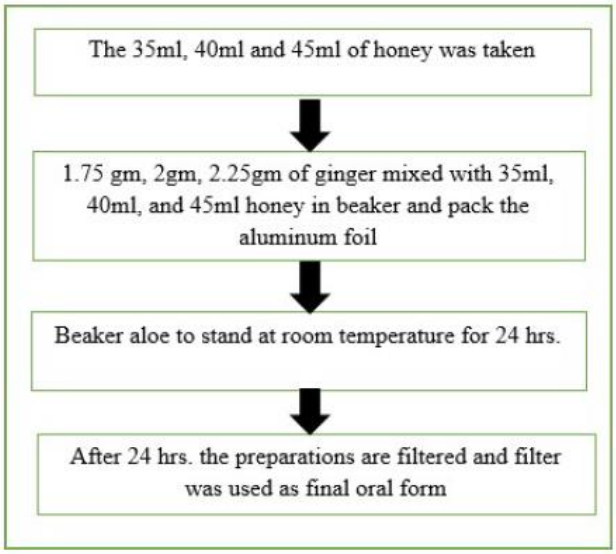
The liquid oral is prepared by two methods; first is decoction method and maceration method.

A) Method of preparation



Preparation of decoction

B) Method of preparation Maceration



Maceration of ginger with honey

C) Final herbal cough syrup

To prepared final cough syrup 35ml of macerated ginger with honey add 25 ml of decoction was mixed slowly by continuous stirring

↓

Again 40ml and 45 ml macerated ginger with honey added 15 ml and 20 ml of decoction was mixed slowly by continuous stirring

↓

Herbal cough syrup was prepared and Solubility was checked by observing clarity of solution visually.

FORMULATION TABLE

Sr. No	Ingredients	F1	F2	F3	USE
1.	Ginger	2-3 gm	2-3 gm	2-3 gm	Antitussive, Expectorant
2.	Liquorice	4 gm	4 gm	4 gm	Expectorant
3.	Tulsi	15-20 leaves	15-20 leaves	15-20 leaves	Antitussive, Expectorant
4.	Fennel	4 gm	4 gm	4 gm	Aromatic,Flavoring agent
5.	Cardamon	3 gm	3 gm	3 gm	Aromatic, Flavoring agent
6.	Honey	35%	40%	45%	Base, Viscosity modifiers, sweetener
7.	Peppermint	2 gm	2 gm	2 gm	Pain reliever
8.	Adulsa	3 gm	3 gm	3 gm	Antitussive
9.	Clove	2 gm	2 gm	2 gm	Expectorant

EVALUATION PARAMETER

Sr. No.	Test	Procedure
1	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.
2	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.
3	Taste Examination	i.A pinch of final syrup was taken and was examined on test buds of the tongue
4	pH 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 iv.pH was measured using digital pH meter

RESULT

Herbal Cough Syrup

Sr. No.	Test	Result (%)
1	Moisture content	1.4
2	Ethanol soluble extractive	11.9
3	Water soluble extractive	13.1

FORMULATION STUDIES

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

1. 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.

CONCLUSION

The Preformulation studies of all three formulations were within specifications. Also the physiochemical properties of prepared syrup like colour, odour, pH, taste were satisfactory but among the all three formulation is was within the all specification, it has proper concentration of honey as per IP and also a good preservative. The present study help to develop affective and safe herbal cough syrup with 40% W/V honey as a base of cough syrup. 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-based syrups.

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