



# “FORMULATION AND EVALUATION OF HERBAL COUGH SYRUP OF CLOVE BY USING JAGGERY BASE”

<sup>1</sup>Miss. Telange-Patil P.V, <sup>2</sup>Miss. Gorad S.U., <sup>3</sup> Miss. Mane P.K., <sup>4</sup> Miss. Thavare S.B.

<sup>2</sup>Assistant Professor, <sup>2</sup> student, <sup>3</sup>student, <sup>4</sup>student.

<sup>1</sup>PHARMACEUTICS DEPARTMENT.

<sup>1</sup>Collage of Pharmacy Paniv, Solapur, Maharashtra,

INDIA.

## ABSTRACT:

Medicine presently used to treat cough are among the most extensively used over the counter medicines in the world, despite a recent analysis suggesting that there is a little evidence to similar medicines produce any meaningful efficiency. Syrup is generally useful and popular dosage form which is used for the treatment of cough and cold. We prepared the herbal cough syrup by adding decoction of herbal drugs such as Ginger, Tulsi, Liquorice, black pepper, funnel, peppermint, clove and excipients like peppermint oil, methyl paraben with jaggery as a base. The herbal cough syrup is formulated by using decoction method. Adding the decoction of herbal drugs with base of jaggery is helpful to the formulation for thick and preserve the formulation. That was helpful to increase the shelf life of formulation of herbal syrup. The added jaggery sweetener can also help to increase the palatability of some herbal drugs. The finally develop the herbal cough syrup with the base of jaggery.

The aim of this study is to develop a herbal cough syrup and evaluate the parameters such as turbidity, colour, odour, taste were compared with the changes in accelerated stability testing. Quality of final herbal cough syrup was evaluated with the parameters such as physical appearance like colour, odour, taste, pH, viscosity. Clove oil acts as an expectorant for treating respiratory disorders, including colds, bronchitis, cough, asthma and upper respiratory conditions.

**KEYWORDS:** herbal cough syrup, jaggery base, quality control test, clove, ginger etc.

## 1. INTRODUCTION:

Herbal cough syrup was prepared by adding decoction of herbal drugs with jaggery as a base. The herbal cough syrup is formulated by using decoction method. Mix decoction of herbal drugs with base of jaggery helpful to the formulation for thicken and preserve the formulation. That was helpful to increase the shelf life of formulation. The added jaggery sweetener can also helpful to increase the palatability of some herbal drugs. [1] Unpleasant taste and odour. [2] Examine solubility of drug. [3]

The spice is one of the ingredients of teas used in tropical asia to facilitate coughing.[4] Clove oil acts as an expectorant for treating respiratory disorders ,including colds bronchitis,cough,asthma and upper respiratory conditions.[5]

A cough is a sudden and often repetitively occurring process which helps to clear the large breathing passge from secretion,irritants,foreign particle and microorganisms.When there is a blockage or irritation in the throat or upper air passage ,the brain thinks a foreign element is present and tells the body to cough to remove that element.Generally coughing is perfectly normal.A cough can help to keep your throat clear from phlegm and other irritants.However,sustained coughing can also be symptomatic of a number of condition .The cough reflex consist of three places: an inhalation ,a forced exhalation against a closed glottis,and a violent release of air from the lungs following opening of the glottis,usually accompanied by a distinctive sound.Coughing is either voluntary or involuntary.[6]

Some of the symptoms of a cough are itchy throat,chest pain and congestion.The repetition of coughing produces inflammation and discomfort,which in turn result in more coughing.[7,8] Natural product itself or compounds derived from natural products play a major role as drugs or lead molecules for the development of synthetic drugs.[9] Many antibiotic materials are unstable when maintained in solution for appreciable length of time ,and therefore,from a stability standpoint,insoluble forms of the drug substances in aq.suspension or as dry powder for reconstitution are attractive to manufactures.[10]

Many microorganism,bacteria and viruses are responsible for causing a person to cough,which helps to spread the disease to new hosts.Most of time irregular coughing is called by triggered by respiratory tract infection but can also be triggered by respiratory tract choking,smoking,air pollution ,asthma,gastro esophageal reflux disorder(GERD),post nasal drip,chronic bronchitis,lung tumors,heart failure and medications such a angiotensin converting enzyme(ACE)inhibitors.[11] Gastro- oesophageal reflux is associated with a wide range of respiratory disorders,including asthma,isolated chronic cough,idiopathic pulmonary fibrosis,chronic obstructive pulmonary disease and cystic fibrosis.[12]

In adults with a chronic cough ,i.e a cough longer than 8 weeks ,more than 90 percent of cases are due to post nasal drip,asthma,eosinophilic bronchitis and gastroesophageal reflux disease.[13] There are many types of drugs that are used to supperss cough and are often prescribed in combination.Before dealing with the particular type of drug used,it is important to consider briefly the nature of cough production ,its role in disease and desirability of suppressing it.[14]

## **2.Type of cough :**

2.1.Dry cough

2.2.Wet cough

### 3. Classification of cough :

- 3.1. Acute cough- Not more than 3 weeks duration.
- 3.2. Chronic cough- More than 3 weeks.
- 3.3. Dry cough- No mucous or secretion.
- 3.4. Wet cough- with mucous or secretion.
- 3.5. Cough from chest and throat- productive and non-productive.
- 3.6. Paroxysmal cough- spasmodic and recurrent.
- 3.7. Bovine cough- soundless cough due to paralysis or larynx.
- 3.8. Psychogenic cough- self conscious activity of the patient to draw attention.

#### 3.1. Advantages of herbal medicines:

- 3.1.1. Harmless
- 3.1.2. Low cost
- 3.1.3. No side effect
- 3.1.4. Herbs grow in common places
- 3.1.5. Easily available
- 3.1.6. Not required prescription

#### 3.2. Disadvantages of herbal medicines:

- 3.2.1. ADR with prescription drug.
- 3.2.2. Risk of self dosing of herbs which is very rare.
- 3.2.3. The effectiveness of herbal medicines is not optimized in laboratory so it takes time to produce effect.

### 4. Method of preparation of jaggery syrup :

40gm of jaggery was dissolved in sufficient water to get 100 ml of conc.

Syrup. Then the solution was filtered. There jaggery syrup was used as vehicle.

#### 4.1. Methodology for herbal cough syrup:

4.1.1. Crude herbs were taken in quantity as .

4.1.2. All the herbs were taken in water bath and added sufficient water and boiled till 1/3 rd part was left.

4.1.3. Syrup solution of varying conc. (40% w/v) was prepared. 4.1.4. Filtered extract of herbs and jaggery solution.

4.1.5. Jaggery solution was added to the filtered extract slowly by continuous stirring.

4.1.6. Volume made up to 100 ml add preservative and flavour and evaluated it. [15]

**5. Material and Equipments:****5.1. Material:**

Sr.no.	Material	Uses
1	Clove [API]	Expectorant
2	Jaggery	Base
3	Tulasi	Anti-tussive
4	Fennel	Flavouring agent
5	Black Pepper	Preservative

**Table No.1**

IMG . NO.1



### 5.2. Equipment:

IMG.2.

Sr.no.	Equipment
1)	UV-Spectrometer
2)	pH meter
3)	Colorimeter
4)	Centrifuge
5)	IR
6)	Chromatography

Table No. 2

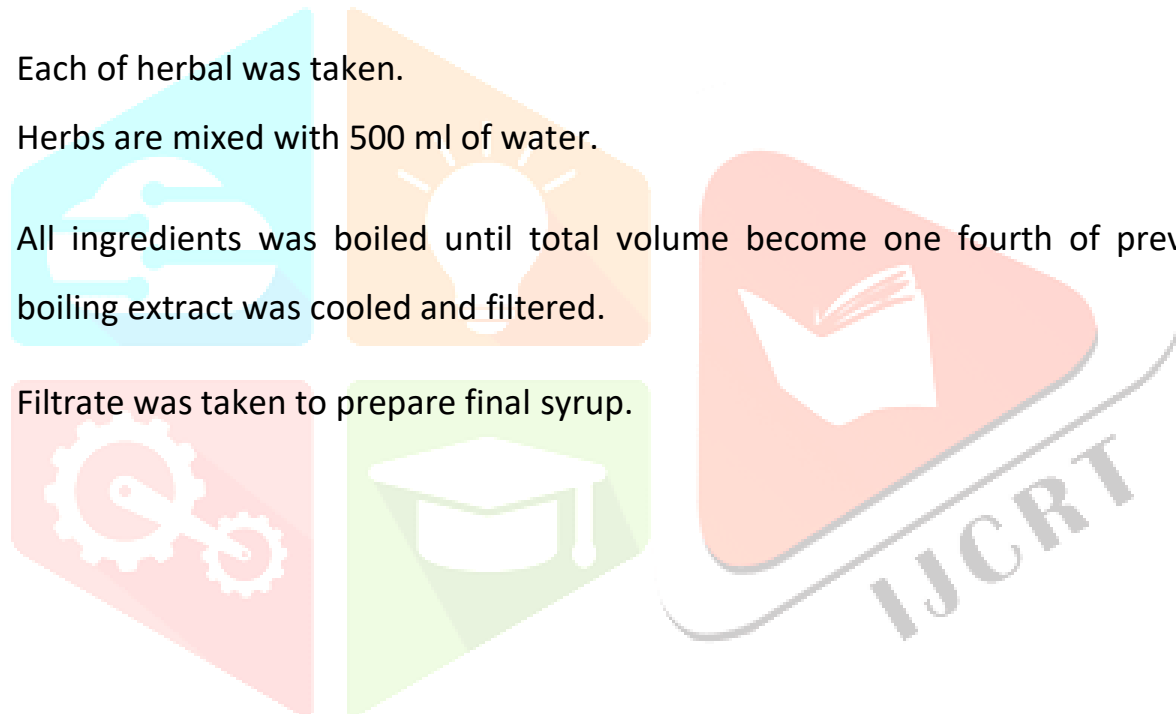
### 6. Formula:

Sr.no.	Ingredients	Q.T (50ml)	Q.G. (30ml)	Uses
1.	Ginger	8.2 ml	4.6 ml	Anti-inflammatory
2.	Tulsi	3.1 ml	1.6 ml	Antitussive

3.	Cardamom	2.1 ml	1.7 ml	Aromatic
4.	Black pepper	4.2 ml	2.1 ml	Preservative
5.	Fennel	6.5 ml	3.2 ml	Flavoring Agent
6	Peppermint	6.7 ml	3.1 ml	Cooling Agent
7	Clove	4.2 ml	3.0 ml	Expectorant
8	Liquorice	5.8 ml	3.6 ml	Anti-Inflammatory
9	Jaggery.	9.2 ml	7.1 ml	Base

### 7. Formulation of herbal cough syrup-

1. Each of herbal was taken.
2. Herbs are mixed with 500 ml of water.
3. All ingredients was boiled until total volume become one fourth of previous after boiling extract was cooled and filtered.
4. Filtrate was taken to prepare final syrup.









## 8. Evaluation parameters of formulation-

### 8.1. Colour examination:

1) 2ml of prepared syrup was taken and smelled. 2) Then odour was observed.

### 8.2. Odour examination:

1) 2ml of prepared syrup was taken and smelled. 2) Then odour was observed.

#### 8.2.1. Taste examination:

A pinch of final syrup was taken and examined the taste of syrup. [16]

#### 8.2.2. pH examination:

1) Washed to glass electrode with distilled water and cleaned.

2) Placed the electrode in PH 7 buffer solution and set the value of 7 on the PH meter turning the calibrate knob on the meter.

3) Removed the electrode and washed with distilled water and cleaned. 4) placed electrode was in the PH 4 buffer solution. Adjust the value.

5) Then electrode was placed in the final syrup and PH was Observed. [17]

#### 8.2.3. Density examination :

1. Cleaned the specific gravity bottle.

2. The bottle was cleaned at least two times with distilled water. 3) Measured the weight of empty dry bottle syrup with stopper (w1)

3. The bottle was filled with final syrup and placed the stopper, wipe out excess syrup from outside the tube.

4. Measure the weight in grams of syrup (w2). 6) Calculate weight in grams of syrup (w3).

5. Formula of density:  $\text{Density of liquid under test (syrup)} = \frac{\text{weight of syrup under test}}{\text{volume of final syrup under test}} = \frac{W3}{V}$ .

#### 8.4. Viscosity examination:

1) Cleaned the Ostwald viscometer with warn chromic acid and necessary used an organic solvent such as acetone.

2) Placed the viscometer an vertical position on a suitable stand. 3) Filled water in dry viscometer up to mark G.

4)The time was counted in second for water to flow from mark A to mark B. 5)This step was repeated at least 3 time to obtained accurate reading .

6)Then washes the viscometer with sample liquid and then fill it up to mark A,then observed out the time required for liquid to flow of mark B.[18]

Formula for viscosity:

Viscosity=Density of the test liquid \*time required to flow test liquid/density of of water\*time required to flow water\*100

### 8.5.Stability testing:

1. Stability testing of the prepared herbal syrup was performed on keeping the samples at accelerated temperature condition.
2. The final syrup was taken in culture tubes.
3. Then kept at accelerated temperature at 4 degree celcius,Room temperature and 47 degree celcius respectively.
4. The samples were tested for all the physicochemical parameters (colour,odour,taste) turbidity and at the interval of 24 hr,48 hr and 72 hr to observe any change.[19]

### 9.RESULT:

Sr .no.	Test	Percentage
1.	Moisture content	17.6
2.	Water extractive value	27.2
3.	Ethanolic extract value	41.2
4.	Total ash value	7.5

**Table No.4 Preformulation study**

Sample	Distance travelled by sample	Distance travelled by solvent	Rf value
powder	3.5	6.3	0.55

**Table No.5 Determination of Rf value by TLC**

Sr.no.	Solvent	Solubility
1.	Water	Insoluble
2.	Ethanol	Soluble
3.	Methanol	Soluble
4.	Chloroform	Soluble
5.	Acetone	Insoluble

**Table No.6 Determination of solubility of sample**

## 10.CONCLUSION:

Our overall study is determination of general physical and chemical parameters that are essential for the identification of crude drugs on the basis of available standard data. The physicochemical property of herbal cough syrup finished product were: PH(5.454), Viscosity(0.03), The colour (brownish), Odour(aromatic), taste(sweet) of herbal cough syrup was satisfactory in physical appearance. The herbal product is in high demand because of the least possibilities of side effect. The present studies help to develop a herbal cough syrup with 40%w/v jaggery base syrup, which is effective and safe.

## 11.REFERENCE:

1. Ankush Ganpat Patil, Kaivalya Gajanan Mirajkar, Laxman Savekar, Chetana V. Bugadikattikar, Somesh S. hintre. "Formulation and evaluation of ginger macerated honey base herbal cough syrup". International Journal of Innovation science and research technology ISSN No-2456-2165.
2. <https://www.omicsonline.org/conferences-list/benefits-of-herbal-medicine>
3. Dr. DD Gaikwad, Sachin K Shinde, Ashwini V kawade, Dr. SJ Jadhav, Dr. MV Gadhave. "Isolation and standardization of gingerol from ginger rhizomes by using TL, HPLC and identification test." The pharma innovation journal 2017;6(2):179-182.
4. Bhowmik, D.; kumar, K.S.; Yadav, A.; Shrivastava, S.; Paswan, S.; Datta, A.S. Recent trends in Indian traditional herbs syzygium aromaticum and its health benefits. J. Pharm phytochem. 2012, 1, 13-22.
5. Mittal, M.; Gupta, N.; Parashar, P.; Mehra, V.; Khatri, M. Phytochemical evaluation and pharmacological activity of syzygium aromaticum: A comprehensive review. Int. J. pharm. pharm. sci. 2014, 6, 67-72.
6. Chung KF, Pavord ID. Prevalence, pathogenesis and causes of chronic coughs. Lancet 371(9621), 2008, 1364-74.
7. Irwin RS, Glomb WB, Chang AB. Habit cough, tic cough and psychogenic cough in adult and pediatric populations: ACCP evidenced-based clinical practice guidelines. Chest 129(1 suppl), January 2006, 1745-1795.
8. Thompson M, Vodicka TA, Blair PS, Buckley DI, Heneghan C, Hay AD. Duration of symptoms of respiratory tract infection in children: systematic review. BMJ (clinical research

ed.)347,2013,f7027.

9. Newman DJ,Cragg GM,Snader KM.Natural products as sources of new drugs over the period 1981-2002.J.Nat.prod.2003;66(7):1022-37

10.Howard CA.Introduction of pharmaceutical dosage forms; Lea and febiger,Philadelphia;1981.P.139-66.

11.Dicpinigaitis PV ,Colice GL,Goolsby MJ,Rogg GI,Spector SL,Winther B. Acute cough: a diagnostic and therapeutic challenge, cough 5,2009,11.

12.Houghton LA,Lee AS ,Badri H,Devault KR,Smith JA.Respiratory disease and the oesophagus: reflux,reflexes and microaspiration.Nat Rev Gastroenterol Hepatol.Aug;13(8),2016,445-60.

13.Goldsobel AB,Chippis BE.cough in the pediatric population.J.Pediatr.156(3),2010,352-358.

14.Kumar D,Bhat ZA,Chashoo IA,Deoda R Sand Kumar V: Bronchodilator Activity in Traditional medicines:Gift of God kingdom.Intech2011:171-190.

15.Anu Kaushik,"Formulation and evaluation of herbal cough syrup".European journal of pharmaceutical and medical research 2016,3(5),517-522.

16.AnkushGanpat Patil,Kaivalya Gajanan Mirajakar,LaxmanSavekar,Chetana V.Bugadikattikar,Somesh S.hintre."Formulation and evaluation of ginger

17.macerated honey base herbal cough syrup.Internation journal of Innovation science and research technology ISSN No-2456-2165.

18.[https://nitsri.acin/Department/civil%20Engineering/CWE-301\\_WATER\\_QUALITY\\_AND\\_ENVIRONMENT\\_pH\\_Meters.pdf](https://nitsri.acin/Department/civil%20Engineering/CWE-301_WATER_QUALITY_AND_ENVIRONMENT_pH_Meters.pdf)

19.Dr.JaveshK.Patil ,DipaliR.Mali, KomalR.More ,Shraddha M.Jain."Formulation and evaluationof herbal syrup".World journal of pharmaceutical research volume 8,1061-1067.

20.Vikash Sharma, saurabh singh,Arushi Dixit and Alka Saxena."Formulation and evaluation of herbal cough syrup from seeds extract of hedge Mustard",International Journal of research pharmacy and chemistry ISSN:2231-278.