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A Research On Formulation And Evalution Of Gulvel Syrup Treatment Of Cough Condition.

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ABSTRACT:-

The cough it is a most common problem face by the all people. Coughing is a frequent respiratory symptom that can significantly affect one's quality of life. There are two types of cough one is the dry cough and second is wet cough. The dry cough is no mucous and secretion while in wet cough there is cough mucous or secretin. The syrup is the most often used and well-like dose form for treating colds and coughs sinceit makes patient compliance easier. The gulvel cough syrup was formulated using natural ingredients such as gulvel steam powder & Tulsi, Turmeric powder, Ginger, Clove as main ingredient along with Honey. Due to these herbs anti-inflammatory, anti-tussive, expectorant, immunomodulatory, and antioxidant properties, Ayurveda has been usingcompounds. Honey was used as the base and sweetening agent. Gulvel is an effective modulator and aids in the creation of a reboost immune system. Giloy helps relive cough due to pollen, smoke, or pollution allergies. The formulation was carrid out at the laboratory scale and evaluated for several characteristics, including pH, viscosity, density, and stability testing. During the evalution process, the formulation was found to be stable and appropriate for use as a cough remedy. It was found that these formulations anti-tussive action, even at the lowest dosage, was significantly more effective to the reference substance.

KEY WORDS:- Gulvel , Anti-oxidant, expectorant, Mucus, Inflammation, decoction extraction, Evaluation.

INTRODUCTION:-

Gulvel syrup: Gulvel syrup is also known as immunity booster syrup. The definition of gulvel syrup is made by combining sugar honey and occasionally alcohol. The syrup was prepared by decocting a mixture containing gulvel powder, tulsi, turmeric powder, ginger, cloves.gulvel plant and formulation are used for many types of disease like cough, fever,diarrhoea,acidity, jaundice ,urinary tract infection and other disease.

Everyone of you has probably experienced several cough attacks. Symptoms such as sore throat and cough can arise from illnesses of the respiratory syatem. A cough may be productive or dry. The discharge of mucus, or phlegm, clears your airways and lungus. In addition to shortness of breath, a build-up phlegm in the lungs can cause respiratory issues such congestion, coughing can wear you out and leave you with a sore throat from coughing too much. Coughing for an extended length time can strain the muscles in the chest and lungs. In the worst case , you might also experience heaviness in the chest and chest pain. The cough syrup medication is liquid dosage form that can be used orally. Its basic ease of administration to individuals with the condition in the process of ingesting a solid medicine dosage. A concentrated mixture of sugar and purified water is called syrup. In syrup derived from alternative kinds of syrup solution .The syrup might or might not contain mixed flavouring agents or medication. Flavored or non-medicated syrup is defined as syrup that contains flavouring but no medication. Medicated syrup also, known as flavouring syrup ,are commonly used as a vehicle for unpleasant test results of medications. The absence of drosiness is correlated with the use of natural ingredients. With these cough syrups, you can use them normally without worrying that you fall asleep. All of the natural component in these indian ayurvedic formulas have a variety of uses. A component that eases throat discofort aids in digestion as well. Another might be improving liver function in addition to thinning the phlegm. Ayurveda has long been aware of the naturally boost immunity against infection ,allergies and other threats in addition to curing your cough. Gulvel it is helps create a robust immune system and is an efficient immune modulator. Eliminating cough due to pollen, smoke, or pollution allergies is easier with giloy. Tonsillitis and can also be cured with it. Combining gulvel with honey is traditional remedy in Ayurvedic medicine for treating cough. Honey has soothing properties that can help alleviate throat irritation, while gulvel is believed to have anti-inflammatory effect. When combined, they may work synergistically to provide relief from cough symptoms by reducing inflammation in the respiratory tract and soothing the throat.

Adventages of Gulvel cough syrup:

- No side effects.
- No harmless.
- Easily available.
- Patient can be self administred.
- Easy to adjust the dose for patient's weight.
- It can redused coughing and help you sleep better.
- It can boost immune system and help the body fight infection.
- It is natural and safe medication.
- It is also the most effective herb for cough and cold.
- Strong patient adherence, particularly for younger patients because the syrup testes good during testing
- As osmotic pressure, it acts as a preservative by preventing the growth of bacteria.

Disadventages of gulvel cough syrup:

- Microbial contamination take place if preservatives are not added in accurate proportion.
- Flucution in storage temperature may cause crystallization of sucrose from saturated syrup.
- Another disadvantage is the risk of self dosing ofsyrup which is very rare.

Material And Method

Following parts are used in the formulation of syrup for treatment of cough.

SR NO.	INGREDIENT
1.	Gulvel powder
2.	Tulsi
3.	Turmeric powder
4.	Ginger
5.	Clove
6.	Honey

FOLLOWING ARE THE INGREDIENTS USED IN FORMULATION:-

1.GULVEL PLANT

Scientific name: Tinospora cordifolia.

Family: Menispermaceae.

Biological source: It is fairly common plant of of deciduous & dry forests, growing over hedges & small trees. The plant is distributed throughout the tropical region of india up to 1,200 m above sea level from kumaon to Assam & in north extending through west Bengal, Bihar, Deccan, Konkan, Karnataka & Kerala.

Fig.1 Gulvel plant

Though it can be grown in nearly every climate, the plant prefers a warm one and is extremely stiff. Planting is usually done during rainy season. In Ayurveda,tinspora has been used over centuries to treat various diseases. Gulevl is one of the main herbs with a bitter taste. It is used in various disorders and also helps alleviate vata and kapha dosha during last two decades, the drug has been subjected to extensive phytochemical , pharmacological and clinical investigation and many interesting finding in the areas of immunomodulation , anticancer activity, liver disorder and it is used to treat corona virus infection. This plant has a fairly succulent stem that is long, filiform, fleshy, and tends to climb. Aerial roots arise from the branches. outer bark is thin and papery which is brown to greyish in colour and leaves are membranous and cordate. The flowers clustered. steam powder is creamish brown to dark brown in colour with odour bitter taste. Gulvel is a multipurpose herb with a range of health advantage. It is recognized for its immunomodulatory, antioxidant, anti- inflammatory, antipyretic, possibly anticancer effects.

2. TULSI LEAVES

Scientific name: Ocimum tenuiflorum

Family: Lamiaceae

Biological source: It is believed that tulsi originated in north central india and is currently a native plant of the tropical regions of the estern world.

Fig.2 Tulsi leaf

Tulsi is grown for its essential oil as well as for use in traditional medicine and realigion. It is popularly used as a herbal tea, frequently used in Ayurveda, and has a place in the hindu vaishnava tradition,where devotees use holy basil grows to a height 30 to 60cm(12 to 24 inches) and has numerous branches. Its steams are hairly . the leaves exhibit a strong scent and adecussate phyllotaxy. They are green or purple in color,simple,petioled, and have an ovate blade that grow up to 5cm (2in) in length,usually with a slightly toothed margin. On long raxemes, the purple blossoms are arranged in close whorls. Ram tulsi is grown in three main morphotypes in India and Nepal. Tulsi is rich in vitamin c and zinc. It thus acts as a natural immunity booster and keeps infetions at bay. It has immense anti-bacterial, anti-viral and anti-fungal propertis which protect us from a variety of infections. Tulsi leaves extract incrases the T helper cells and natural killer cells activity, boosting the immune system. Chest congestion and colds are lessened by tulsi. In cases of bronchitis, asthma,influenza, cough, and cold, tulsi leaf juice combined with honey and gingers beneficial. Tulsi is useful in treating respiratory releted conditions. Tulsi leaves have expectorant qualities that aid in clearing the bronchial tube of mucus.

3. TURMERIC POWDER

Scientific name: Curcuma longa

Family: Zingiberaceae

Biological source: As a native of southeast asia, turmeric is cultivated there for trade, mostly in india. Both traditional medicine and culinary applications exist for its rhizome, or underground stem.

Fig.3 Turmeric powder

Turmeric has long been used in medicine to treat and prevent illness. Current in vitro research indicates that turmeric possess strong anti-oxidant, anti- inflammatory, antimutagenic, antibacterial, and anticancer properties. With varying degreesof activity. Turmeric is utilized in food preparation and home treatment possesses strong antioxidant properties. As a nutritional supplement, turmeric is being recommended these days for a wide range of ailment, such as melancholy, liver illness, allergies,lung infections, arthritic pain, digestive issues. One of the main ingredients of curry powder is turmeric, a popularspice. Curcuminoids, or curcumin and its closely related compounds, are widely thought tobe the primary component responsible for the health benefit of turmeric. Turmeric is yellow because of curcumin. For drycough, turmeric powder mixed with a teaspoon of honey taken three to four times a day is effective. A number significant changes in our worldviewand way of life have occurred sice the coronavirus hit the globe. People have begun to take their immune system more seriously, which has led to an increase in the consumption of food that strengthen our defences. A common remedy for colds and coughs world wide was combination of honey and turmeric.

4. GINGER

Scientific name: Zingiber officinale

Family: Zingiberaceae

Biological source: Although grownin the Caribbean, Africa, Australia, and ,India, ginger is originally from South East Asia.India accounts for the production of over 35% of the world's ginger.

Fig.4 Ginger

Ginger is widely used in folk medicine. To be more precise, ginger 's rhizomes become popular not merely by exceptional powerful flavour but also health promoting properties. It believed that fresh roots with added honey are effective as cough suppressant. Furthermore, zingiber officinale plays a protective role against fever, common cold,respiratory problem like bronchitis and sinusitis. The partial explanation is that ginger is a warming spice which supports sweating . This type of action is meaningful in colds, not only because of detoxication but also it protects against microorganisms causing skin infections. Ginger juice has the ability to reduce inflammation. A sore throat or bronchitis cause you to cough. The immune system's reaction to an infection or an irritant, such as postnasal drip, may be cause of this inflammation. Ginger gives defence against germs and infections. Ginger ability to shield you form germs, viruses, and poisons might help reduce cough brought on by sore throats. We refer to thses as bacteria. Sore throats are caused by some of these microorganisms. This includes streptococcus bacteria induced pharyngitis.

5. CLOVE

Scientific name: Syzygium aromaticum

Family: Myrtaceae

Biological source: clove tree's unopened flower buds are knownas cloves.the cloves tree is an evergreen that is native to Indonesia and india. It may reach a height of eight to twelve meters. When the flower buds are ready to harvested, they seem pale at first, turn green, and finally turn vivid red**.**

Fig.5 Clove

In traditional medicine across the globe, it is one of the most often utilized spices. Typically, the clove buds are utilized in the syrup mixture. Essential oils are responsible for the medicinal effects and are extracted by adding water and damaging the buds' grains. Clove oil's naturally occurring bioactive qualities make it useful againsta variety of infections, including Escherichia coil, Mycobacterium phlei, Bacillus substilis, and streptococcus aureus, as well as analgesic, antiseptic, warming, and disinfectant. Essential to traditional cold remedies is that S. aromaticum oil is meant to be inhaled for the relief of sore throats, colds, and inflammations of mouth's mucous membranes. Consequently, aids in the treatment of neuralgia, general weakness and respiratory problems.

6. HONEY

Scientific name: Hexose sugars

Family: Apidae

Biological source: It is possible to get honey from both cultivated beehives and wild bee colonies. About 29kilos (65 pounds) of honey can be produced annually by a hive. A honey guide bird can occasionally be used to detect colonies of wild bees.

Fig.6 Honey

The sweetness of honey is attributed to its high sugar concentration, which is the most prevalent ingredient. Every variety of honey has a different concentration of active ingredients.it relies on a number

of variables, including the production process, geographic location, and plant source. However, the primary constituents include sugar (fructose and glucose, making nearly 75% of the total sugar content), mineral (potassium, magnesium, calcium, iron, phosphorus, sodium), vitamin (in particular, those in the B series), enzymes (glucose oxidase and catalase), and acids (amino and organic). Flavonoids (kaempferol, quercetin), polyphenols, and other compounds also play a role in differential chemical composition. Honey's unique properties, which include its prebiotic qualities, immunomodulatory capabilities, antioxidant qualities, and its ability to fight bacterial infection,are able to be use as an alternative agent in ordinary medicine.

PREFORMULATION OF RAW MATERIAL:

SR. NO	TEST	PROCEDURE
1.	**Mositure content**	1. weight 2gm of sample and take in petridish 2. heat in the hot air ovenat 100c for 1hr 3. then allowed to cool. Weight the sample again
2.	**Determination of ethanol extractive value**	1.Take macerated 5gm of air dried, shaken coarsely powdered drug with 100ml of 95% ethanol in closed flask for 24 hrs. 2.shake it frequentlyfor 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 105c and weighed.
3.	**Determination of water extractive value**	1 Macerated 5gm of air dried drug coarsely powdered with 100ml chloroform water(2.5ml chloroform in 100ml water) inclosed flask for 24hrs. 2. Shaken frequently for first 6hrs. 3. Allowed to stand for 18hrs. 4. Evaporate 25ml of filtrate to dryness in a flat bottomedpetridish. 5. Dry at 105c and weighed

PREFORMULATION STUDIES:

SR.NO.	TEST	RESULT
1.	Moisture content	1.3
2.	Ethanol soluble extractive	10.4
3.	Water soluble extractive	11.6

METHOD OF PREPARATION

Preparation of gulvel steam powder:

1) A fresh gulvel stem, measuring 1.6 to 2.0 cm in thikness, was cut into 1.5 to 2.0 inch length segment.
2) Clean the the gulvel steam and take off the outer husks.
3) Mash the stemwithin the specified amount and let it settle and dry for 15 to 20 days.
4) After that, a fine powder was obtained using a mortor pestle.

Fig.7 mortor pestle

Fig.8 gulvel powder

Preparation of extraction:

1) 20gm of gulvel stem powder, on average, should be added to 200ml of water and heated slowly to produce extract. The extract was filtered and then cool.
2) To make extract, mix 5gm of turmeric powder with 100ml of water and heat slowly. The extract was filtered and then cool.
3) To make extract, mix 10gm of tulsi leaves with 100ml of water and heat slowly. The extract was filtered and then cool.
4) To make extract, mix 10gm of ginger with 100ml of water and heat slowly. The extract was filtered and then cool.
5) To make extract, mix 10gm of clove with 100ml of water and heat slowly. The extract was filtered and then cool.
6) Filtrate was taken to prepare final syrup.

Fig.9 Extraction of ingredients

Method of preparation for final syrup:

1) To prepared final syrup 50ml of gulvel powder extrat and 8ml tulsi leaves , turmeric 5ml , ginger 5ml, clove 5ml extract added 30ml honey precisely mix with preservative slowly by side by side continually stirring.
2) All extract are mixed with each other and 100ml of syrup was obtained.
3) The final syrup was prepared and then subjected for evaluation
4) Syrup was prepared and solubility was checking by observing clarity of solution visually.
5) After prepared syrup are transferred to amber color bottle, close it tightly and neat labelled, store in cool place

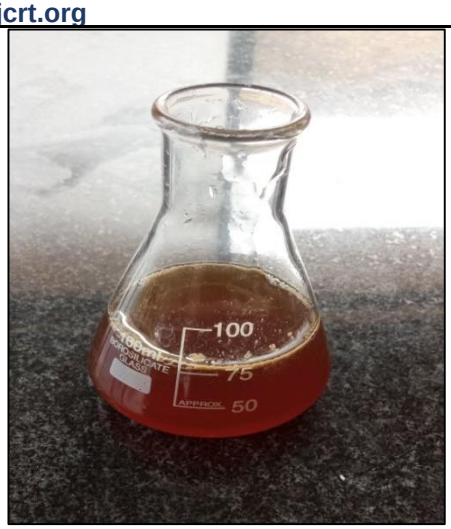

Fig.10 Final mixture of the syrup

Fig. 11 Final Syrup

Sr.No.	Ingredients	Quantity	Role of ingredients
1.	**Gulvel powder extract**	30ml	Immunomodulator
2.	**Tulsi leaves extract**	8ml	Antiviral
3.	**Turmeric powder extract**	5ml	Antibacterial
4.	**Ginger extract**	5ml	Redusing Inflammation
5.	**Clove extract**	5ml	Expectorant
6.	**Honey**	45ml	Base viscosity modifier
7.	**Methyl paraben**	2ml	Preservative

Table:1 Formulation table in syrup

Evalution test of syrup:

1.Physicochemical parameters: The syrup was assessed for a nuber of physicochemical factor, including pH and physical characteristics(color,flavour, and odour).

(a) color analysis: The final 5 ml of syrup were poured into watch glass and set under a while tube light with a white backdrop. The color be seen with the unaided eye.

(b) Odour analysis: 2 ml of the finished syrup were each smelled. 2 minutes was the tme interval between scents in order to counteract the effects of the preceding scent.

(c) Tasting analysis: A small amont of finished syrup was taken and its flavour was assessed using tongue taste buds.

2. Determination pH: Placed an accurately measured amount of final syrup in a beaker by using pH paper to determine pH range of final syrup.

3. Stability testing: When the samples were kept at accelerated temperatures, a stability test was conducted on the prepared syrup. At 4c, room temperature , and 47c, respectively, the final syrup was transferred into culture tubes and stored at an accelerated temperature . At intervals of 24 hours, 36 hours and 72 hours, te sampls were examined for all physicochemical parameters, homogeneity, and turbidity to detect any changes.

4. Determination viscosity:

1.Use warm chromic acid to thoroughiy clean the Ostwald viscometer. If necessary, use organic solvent like acetone.

2. Install the viscometer vertically on a stand that is appropriate.

3. Reach the mark G with water in the dry viscometer.

4. Calculate how long it takes, in seconds, for water to move from mark A to mark B.

5. To obtain an accurate reading, repeat step 3 a minimum of three times.

6. Fill the viscometer to mark A after rinsing it with test liquid and note how long it takes it liquid to flow to mark B.

7.Calculating liquiddensities as specified in the experiment for determing density.

Formula of viscosity:

$$\text{Density of test liquid} \times \text{Time required to flow test liquid} \quad \text{viscosity} = \text{X Viscosity of water}$$
$$\text{Density of water} \times \text{Time required to flow water}$$

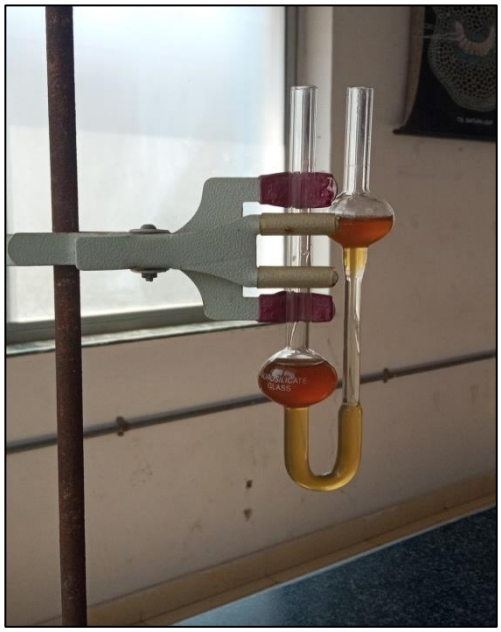

Fig.12 Viscosity modifier

Fig.13 pH Determination

Result:

Sr. No.	Organoleptic characters	F1	F2	F3
1.	Color	Yellowish brown	Yellowish brown	Yellowish brown
2.	Odour	Aromatic	Aromatic	Aromatic
3.	Taste	Sweet	Sweet	Sweet

Table:2 Result of Evalution Test of Syrup

Sr. No.	Parameter	F1	F2	F3
1.	pH Determination			
	pH paper	Acidic	Acidic	Acidic
2.	Density	1.07gm.	1.05gm.	1.08gm
3.	Specific gravity	0.5160	0.5153	0.5129
4.	Viscosity	0.0039pa.s 3.90cp.	0.0042pa.s 4.20cp	0.0039pa.s 3.90cp

Table: 3 Result of Evalution Test of Syrup

CONCLUSION: The formulation of Gulvel cough syrup likely involves a combination of ingredients aimed at soothing cough symptoms. These ingredients may include herbal extracts, cough suppressants, expectorants, and possibly some sweeteners or flavorings for palatability. Also the physichemical properties of prepared syrup like colour, odour, taste, pH , viscosity were satisfactory but among the formulationis was within all specification it has proper concentration of honey as per IP and also a good preservative. The present study help to devlop effective and safe cough with honey as a base of cough syrup.

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