



Formulation & Evaluation Of Herbal Lozenges For Flu And Cold

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Abstract—Lozenges are solid dosage form which are intended to slowly dissolve in the mouth for therapeutic effect. Common cold and flu are common diseases which usually infects the respiratory tract including symptoms like head and body ache, fever, drowsiness, runny nose, congestion and cough. Aim: The present herbal lozenge formulations developed to eliminate all symptoms of cold and flu. Although many herbal and allopathic drugs are available, but they are not sufficient to treat all the symptoms through one formulation. Materials and Methods: Jaggery and sugar were dissolved in water and all the juices of drugs mixed and heated till suitable consistency and finally poured in lozenges mold and cooled to form lozenges. Results: The lozenges are evaluated for various quality parameters like hardness, friability, thickness, weight uniformity and disintegration time which comply with the standard mentioned in GMP guidelines. Conclusion: Lozenge is completely herbal containing no synthetic ingredient and is economical to treat all the symptoms of cold and flu.

INTRODUCTION

The lozenges are the medicated tablet kept in the mouth until it gets dissolved and releases the medicament and produces the soothing effect on throat. Varieties of lozenges are usually used to treat cough and sore throat. Lozenges are dissolved slowly in the mouth to stop the cough and soothe irritation of the tissues in the throat. Lozenges are used for patients who cannot swallow solid oral dosage forms as well as for

medications designed to be released slowly to yield a constant level of drug in the oral cavity or to bathe the throat tissues in a solution of the drug. Drugs often incorporated into lozenges include analgesics, antimicrobials, antiseptics, antitussives, aromatics, astringents, corticosteroids, decongestants, and demulcents. However, this is by no means an exhaustive list as many other drugs may lend themselves to delivery by a lozenge. As well, both single and multi ingredient lozenges can be compounded, depending on the particular patient's need

DEFINITION

Lozenges are solid dosage forms that are intended to be dissolved or disintegrated slowly in the mouth. They contain one or more active ingredients and are flavored and sweetened so as to be pleasant tasting. It is generally used for their topical effect, but may also have ingredients that produce a systemic effect.

ADVANTAGES

- It is easy to administer to both pediatric and geriatric patients.
- It has a pleasant taste and will extend the time a quantity of drug remains in the oral cavity to elicit local activity.
- Systemic absorption of drugs can be possible through buccal cavity.
- It can be prepared with minimal equipment.
- Taste of the drugs can be masked by sweeteners and flavours used in the formulation.

DISADVANTAGES

- It could be mistakenly used as candy by children.
- Parents should be cautioned not to associate medications with candy and to keep the product out of the reach of children.
- Some drugs may not be suitable with aldehyde candy bases eg; benzocaine.
- Heat stable drugs are suitable.
- Children having above 6 years of age can use lozenges safely.
- Drugs having minimum bitter taste are suitable.

TYPES OF LOZENGES

- Hard candy lozenges
- Soft candy lozenges
- Chewable lozenges

d) HISTORY OF LOZENGES

- Candies were used to soothe the throat since date back to 1000 BC in Egypt's Twentieth Dynasty, when the candies were made from pure honey and flavored with juices of citrus fruits, various herbs and some valuable spices. In the 19th century, some of the physicians used morphine and heroin from opium, which has antitussive property. Most popular formulations at that era were by Smith Brothers Cough Drops and was first advertised in the year 1850 and Luden's, created in 1880. Later the concern over the risk of opioid dependence and addiction which led to the development of alternative medications.

f) Aim

- the aim of present study to formulate and evaluate herbal lozenges.

h) Objective

- to prepare herbal lozenges for eliminate and control flu and cold

j) Plan of work

- To achieve this objective the following plan of work was made

- 1-Selection of herbal ingredients

- 2-method of preparation

- 3- evaluation of herbal lozenges

- 4- conclusion

- 5- reference

ABOUT HERBAL DRUG

An herb is a plant or plant part used for its therapeutic properties, flavor or scent. Herbal drugs are type of dietary supplements, hence they are marketed as different dosage forms like tablets, capsules, powders, in the form of tea bags, solid extracts and sometimes as fresh or dried plants. People use herbal drugs to maintain or improve their general health

- It is the root of Glycyrrhiza glabra (Family: Leguminosae) from which a sweet flavour can be extracted. The liquorice plant is a herbaceous perennial legume native to southern Europe and parts of Asia, such as India. It is also known as mulethi and Jestamadhu in India and is widely used in Ayurvedic system of medicine for various ailment related to respiratory system. Used as Expectorant and Demulcent. These properties are due to the presence of Glycyrrhenic acid.
- It was used traditionally for treating a variety of conditions, Including lung, liver, circulatory, and kidney diseases. licorice root is promoted as a dietary supplement for conditions such as digestive problems, menopausal symptoms, cough, and bacterial and viral infections.

CLOVE

- Cloves are the aromatic flower buds of a tree (Myrtaceae) Syzygium aromaticum (Eugenia caryophyllus). They are native to the Maluku Islands (or Moluccas) in Indonesia. Used as an analgesic and antiviral. These effects are because of the presence of Eugenol and other

constituents in the flower bud.

- Cloves are full of antioxidants. These compounds help your body to fight free radicals, which damage your cells and can lead to disease. By removing free radicals from your system, the antioxidants found in cloves can help reduce your risk of developing heart disease, diabetes, and certain cancers.

GINGER



- It consists of rhizomes of *Zinziber officinale* (Fam.: Zinziberaceae), scrapped to remove the dark outer skin and dried in the sun. Ginger mainly contain oleo-resin which has aromatic, carminative and expectorant property. Gingerol is the active principle of fresh ginger, it is normally found as a yellow pungent oil and has spicy-sweet aroma.
- Ginger contains antioxidants. These molecules help manage free radicals, which are compounds that can damage cells when their numbers grow too high.

LONG PEPPER



- It consists of the dried unripe or nearly ripe fruits of perennial climbing vine s (Family: Piperaceae). It is also called as long native pepper and pipili in Hindi. In Ayurveda long pepper is widely used for various formulations because of its wide range of therapeutic applications. It has a taste same to, but hotter than other closely related species of pepper. Pepper is mainly indicated in respiratory disorders in cold, as decongestant, helps in expelling out mucus accumulated in the respiratory tract, bronchodilator in asthma

patients, also in fever

HONEY



- It is a saccharine fluid (From the nectar of flower) deposited in the honey comb by the hive bee, *Apis mellifera*, *Apis dorsata* and other species of *Apis* (Fam: Apidae). Honey is well known home remedy for dry cough as well as wet cough because of its consistence. It is having soothing effect helps in relieving irritation in the throat.

GUDUCHI

Guduchi consists of dried, matured pieces of stem of *Tinospora cordifolia* (Family- Menispermaceae). It is also known as Giloy which very popular herb in Ayurveda is extensively used in fever and respiratory problems, diabetes, anemia, cardiac disorders etc.

VASAKA



- It consists of the fresh and dried leaves of *Adhatoda vasica* (Family: Acanthaceae). Vasaka is an important Ayurvedic medicinal herb. The entire parts of the plant from roots to leaves are used to treat many diseases. Leaves of the plant have great importance in the treatment of asthma, bronchitis, tuberculosis and other it is very good mucolytic. Vasaka contains vasicine which has mucolytic property used in various herbal expectorant formulations

TURMERIC

- They are dried rhizomes of *Curcuma longa* (Zingiberaceae). Turmeric is one of the spice widely used in Indian dishes because of its yellow colour. It possesses antiseptic property hence used for respiratory conditions like common cold, bronchitis, cough and other upper respiratory problems. It is also protective to skin and hence used in cosmetic products. It contains curcuminoids and curcumin is chief constituents which

has many therapeutic applications.

MATERIALS AND METHOD

METHOD OF PREPARATION

Jaggery and sugar were dissolved in little water till a sufficient consistency was obtained. In another container little water was added and all the herbs were added and mixed thoroughly and finally filtered. Sugar and jaggery syrup was poured in the beaker containing the filtered herbal juice. Honey was added. The mixture was heated with constant stirring until it reached a temperature of 150°C. The preparation was then removed from heat and was poured on a lozenge mold to get lozenges of ideal size. The mold was allowed to cool and harden at room temperature. After cooling the hard lozenges were tossed over powdered sugar to avoid getting sticky in humidity. The sugar powder tossed lozenges are stored in a wide mouthed air tight container in a cool place. Herbs used for formulation are Liquorice, Clove, Ginger, Long pepper, Guduchi and Turmeric. Honey was used for to produce soothing effect on throat.

FORMULA FOR HERBAL LOZENGES

INGREDIENTS	QUANTITY FOR 10 LOZENGES
Liquorice	125 mg
Clove	5 mg
Ginger	5 mg
Long pepper	50 mg
Guduchi	50 mg
Turmeric	10 mg
Honey	q.s
Jaggery	2.5 gm

EVALUATION TEST FOR HERBAL LOZENGES

A) PHYSICAL PARAMETERS

Shape	Triangular
Color	Brown
Odour	NA
Texture	Smooth
Test	NA
Type	Hard lozenges

B) PHYSICO-CHEMICAL PARAMETERS

The prepared lozenges were evaluated for its organoleptic parameters like colour, odour, taste and touch, hardness, weight variation etc. The Hardness testing was done by using PFIZER harness tester of (n=3) and the average was taken. Thickness (n=3) of lozenges were calculated using thickness apparatus, friability test is done by friability test apparatus (n=3). Weigh variation was determined by weighing 5 lozenges individually, the average weigh was calculated and the percent variation of each tablet was determines.

DISINTEGRATION TIME STUDIES

Disintegration time is the interval required for complete disappearance of a lozenges or its particles from the tester net. Disintegration test of the prepared lozenges was performed according to USP30, using a disintegration tester through the disintegration medium of phosphate buffer with pH 6.2 maintained at $37 \pm 0.5^\circ\text{C}$.

RESULTS AND DISCUSSION

The hardness (n=3), friability (n=3), thickness (n=3), weight variation (n=3) and disintegration time (n=5) of prepared lozenges were evaluated and results are given in Table.

QUALITY CONTROL FOR LOZENGES

• Candy base

for candy base it essential to check for corn syrup and sugar delivery gears; Temperature steam pressure, cooking speed, and vacuum of candy based cooker.

• Microbiological test for lozenges

The presence of bacteria, mold or spore in formulated lozenges is checked on a raw materials, finished

products, machinery used, cooling tunnels, environment conditions and storage drums etc, Laboratory microbial tests include the counts on total plate, total coliform, yeast and mould, E. coli, staphylococcus species and salmonella.

• stability test for lozenges

Lozenges soon after prepared is subjected to stability testing as per the prescribed conditions either 1-2 months at 60 °C RH for 6-12 months for its stability study as per ICH guidelines

• Packaging of lozenges

Lozenges are usually hygroscopic in nature hence an involute and multiple packing system should be used in order to maintain its stability during marketing. The single unit of lozenges it to be wrapped in a moisture impervious liner. These wrapped lozenges are then placed in a tamper proof or water resistant glass, finally, these are over-wrapped using aluminium foil.

• **Storage** Lozenges should be stored from extremes of temperature or humidity condition. Refrigerator or room temperature is generally specified on label of the product depending on the storage requirements of both the drug and the base used in the lozenges formulation. Lozenges should be kept out of reach by the children as per the label instruction.

CONCLUSION

herbal lozenges have been developed with 6 different herbs. The various measures taken for the qualitative, quantitative analysis and physical parameters of finished product are in compliance with the standard mentioned in GMP guidelines and requirements simultaneously supporting the impression of the herbal lozenges which can compete with the standard lozenges available in market. The herbal lozenges were developed by thorough study of herbs, followed by optimization of formulation dosage and evaluation of qualitative and quantitative analysis by precised advanced analytical instrumental methods for assessment. The effectiveness has been analyzed by a survey through questionnaire. The study carried out has endorsed the quality and effectiveness of the herbal lozenges. This study reveals that the lozenges are suitable dosage form for the symptomatic relief of cold and flu. The standardization which provides a specific

and rapid tool for setting the quality standard, identity and reproducibility in herbal lozenges for cold and flu. Hence the lozenges pass all the parameters and was found to be more effective in the treatment of cold and flu. Hence this formulation can be recommended for patients having cold and flu symptoms.

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