

International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 4, June 2025



Formulation and Evaluation of Herbal Lozenges for Sore Throat Treatment"

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Abstract: 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 flavoured 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

Throat infections are most common disease in today's world. Chronic sore throat can lead to serious throat problems, like Pharyngitis. Common respiratory tract infections such as common cold and flu cause symptoms like headache, fever, runny nose, congestion, and cough.

This poly-herbal extract-based lozenges have proven the quality. The polyherbal extract based lozenges include Zingiber officinale Roscoe, Justicia adhatoda, Rosa Rubiginosa, Punica granatum, Psidium guajava, Piper Longum which is envisioned for cough and sore throat. A sore throat is pain, scratchiness or irritation of the throat that often worsens when you swallow. The most common cause of a sore throat (pharyngitis) is a viral infection, such as a cold or the flu. A sore throat caused by a virus resolves on its own.

The fresh leaf juices of all the ingredients is used to prapare polyherbal lozenges. Although many Herbal and allopathic medicines are available, but they are not enough to treat all the Symptoms with a single formulation. The polyherbal lozenges Were evaluated for their physicochemical parameters such as weight Variation, thickness, hardness, moisture content, hardness friability, disintegration diameter and from the result it was revealed that all the physicochemical parameter for lozenges were within the monograph standard which are mentioned in GMP Guidelines. These polyherbal lozenges can be a useful, Affordable, and widely available treatment for minor throat infections..

Keywords: Polyherbal, lozenges, sore throat, vasaka, formulation

I. INTRODUCTION

In the modern world, throat infection is the most prevalent illness. Throat infections can lead to throat cancer and other throat infections, including pharyngitis. Sore throat is the most common symptom caused by the inflammatory process in the pharynx, tonsils or nasopharynx. Most of these diseases are of viral origin and are part of the common cold.

A respiratory tract infection often begins with throat discomfort, inflammation, and pain in the pharynx. Bradykinin and prostaglandins influence on sensory nerve terminals in the upper respiratory tract are most likely create a painful throat.Influenza viruses is a pathogen responsible for cause of respiratory infections(sore throat). one of the most prominent symptoms of sore throat including pain, dryness, or irritation in a throat.

sore throat : a sore throat is pain and irritation in the throat that worsens when swallowing. The most common cause of a sore throat (pharyngitis) is an infection such as a cold or flu. Sore throats may be caused by viral infections, bacterial infections, irritants and injuries. Signs and symptoms may include a sore or itchy throat, severe pain when swallowing or speaking, difficulty swallowing, swelling in the neck or jaw, red tonsils, white patches or pus on the tonsils, and a hoarse or hoarse voice.

Common infections causing a sore throat might result in other signs and symptoms, including fever, cough, sneezing, headache. To overcome these problems new dosageforms that are lozenges were designed which dissolves and breaks up quickly in saliva without the need to swallow the whole dosage forms.

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DOI: 10.48175/568





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Volume 5, Issue 4, June 2025



Healthy throat Sore throat





FIG.2: Normal, Bacterial and Viral Throat Infection

Sore throats are divided into types, based on the part of the throat they affect. The types of sore throat include:

- 1. Tonsillitis, which is swelling and redness of the tonsils, the soft tissue in the back of the mouth.
- 2. Pharyngitis, which causes swelling and soreness in the throat.
- 3. Laryngitis, which is swelling and redness of the voice box, or larynx.

Upper respiratory infections that can cause sore throat include common cold, epiglottitis, laryngitis and pharyngitis.

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DOI: 10.48175/568





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Volume 5, Issue 4, June 2025



Lozenges : lozenges are solid dosage forms containing one or more medicaments, usually in a flavored, sweetened base, that are intended to dissolve or disintegrate slowly in the mouth. The development of lozenges dates back to the 20th century and they are still produced commercially. Most of the lozenge preparations are available as over the counter medications. [2] lozenges are used by people who are unable to swallow solid oral dosage forms and for medications that need to be given slowly to provide a continuous dose of medication in the oral cavity or to coat the tissues of the throat with the medication. Lozenges have been used for the relief of minor sore throat pain and irritation.

Lozenges are typically taken by placing one tablet in the mouth and allowing it to dissolve slowly over several minutes. They should not be chewed or swallowed whole. It's important to follow the dosage instructions provided by the manufacturer or your healthcare provider to avoid overuse or potential side effects. Overall, lozenges are a convenient and effective way to provide relief from minor throat and mouth symptoms, and they are widely available overthe-counter at most pharmacies and grocery stores. Herbal lozenges are small tablets or pills that are typically made with a blend of herbs and other natural ingredients. The theory behind herbal lozenges is that they can be used to provide a variety of health benefits, depending on the specific herbs used (13). The herbs used in herbal lozenges are often chosen for their therapeutic properties.

Advantages

1. It is easy in Delivering to both paediatric as well as geriatric patients.

2. It has a pleasant taste and will extend the time a quantity of drug remains in the oral cavity to elicit local activity.

- 3. Systemic absorption of drugs can be possible through buccal cavity.
- 4. Taste of the medicine can be masked by sweetening and flavouring agents used in the formulation.
- 5. Do not require water intake form administration.
- 6. Avoid first pass metabolism of drugs.
- 7. Increase contact time of drug so gives prolong drug action.
- 8. Cost of production is less.

Disadvantages.

- 1. Heat stable drugs are suitable.
- 2. Drugs having minimum bitter taste are suitable.
- 3. Hard candy lozenges the high temperature required

for their preparation

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Types of lozenges

There are three basic types of lozenges:

Hard candy Lozenges

Hard candy lozenges are mixtures of sugar and other carbohydrates in an amorphous (no crystalline) or glassy condition. These can be considered solid syrups of sugars and Lozenges historically have been used for the relief of minor sore throat pain and irritation and have been used extensively to deliver topical anesthetics and antibiotics.

Lozenges are various-shaped, solid dosage forms usually containing a medicinal agent and a flavoring substance, intended to be dissolved slowly in the oral cavity for localized or systemic effects. Usually they have a moisture content of 0.5 to 1.5% Hard lozenges should provide a slow, uniform dissolution or erosion over 5 to 10 minutes, not disintegrate, have a smooth surface texture and have a pleasant flavor masking the drug taste.

A primary disadvantage of hard candy lozenges is the high temperature required for their preparation. Hard candy lozenges generallyweigh between 1.5 to 4.5 gm. Excipients such as sorbitol and sugar have demulcent effects, which relieve the discomfort of abraded tissue resulting from irritation due to cough and sore throat. A portion of the active drug product actually may be absorbed through the buccal mucosa, thereby escaping the first-pass metabolism which occurs when a drug is swallowed and absorbed through the gut.

Soft lozenges

Soft lozenge is often made using PEGs of sufficient molecular weight to provide slow dissolution in thesaliva. Additionally, hydrocolloids such as acacia may also be added as an adhesive agent. Soft clotrimazole troches can be made this way by adding drug and acacia to melted PEG 1450 base and pouring into troche moulded cavities.

Soft lozenges have become popular because of the ease of extemporaneous preparation and applicability to a wide variety of drugs. The bases usually consist of a mixture of various polyethylene glycols, acacia or similar materials. One form of these soft lozenges is the pastille, which is defined as a soft variety of lozenge, usually transparent, consisting of a medication in a gelatin, glycerogelatin or acacia: sucrose base. Pastilles may be colored and flavored and can be either slowly dissolved in the mouth or chewed, depending upon the action desired for the particular incorporated drug.

Chewable lozenges

Chewable are typically based on glycerinated gelatine, a base of glycerine, gelatine, and water. This base can be mixed with drug, acacia, and suitable flavouring and sweetening agents.

Soft, chewable candies have been on the market for a number of years. They are very highly flavored and many often contain a slightly acidic taste. They are an excellent way of administering drug products as the taste of the drug often can be masked very effectively with fruit-flavored products.

One of the more popular lozenges for pediatric use is the chewable lozenge, or "gummy-type" candy lozenge. The gelatin base for these chewable lozenges is similar to the former Glycerin Suppositories, or Glycerinated Gelatin Suppositories, which consisted of 70% glycerin, 20% gelatin and 10% purified water. Some of the earlier pastilles consisted of a gelatin or a glycerogelatinm base. These gelatin-based pastilles were prepared by pouring the melt into molds or out onto a sheet of uniform thickness.

Ideal properties of lozenges

1. Is a solid preparation consisting of sugar and gum, the latter giving strength and cohesiveness to the lozenge.

2. Facilitating slow release of the medicament.

3. It is used to medicate the mouth and throat for the slow administration in digestion or cough remedies.

4. It is intended to dissolve slowly in the mouth to temporarily suppress the cough, and lubricate and soothe irritated tissues of the throat.

5. Lozenges also contain menthol or eucalyptus, which can help cool and sooth the throat.



DOI: 10.48175/568





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Aim and objective

The main objective of the study is to formulated and evaluates polyherbal lozenges remedy for suppressing cough for sore throat and cold. The polyherbal extract based lozenges includes guava leaves, vasaka leaves, pomegranate peel, ginger which are traditionally used for cough suppressant and in cold and flu and the other ingredients are honey, rose petals and lemon which are nutritive effect and soothing effect on the mucus membrane of the respiratory tract.

Objective

- To develop lozenge formulations incorporating selected herbal extracts or active pharmaceutical ingredients known for their soothing, anti-inflammatory, and antimicrobial properties against sore throat pathogens.
- To optimize the formulation in terms of taste, texture, hardness, and disintegration time to ensure patient acceptability and effective drug release.
- To evaluate the prepared lozenges for physical parameters including weight uniformity, hardness, friability, and thickness.
- To assess the in vitro disintegration and dissolution profiles to predict the release kinetics of active ingredients and their availability in the oral cavity.
- To perform stability studies under specified storage conditions to determine the shelf-life and maintain the efficacy of the lozenges.
- To conduct organoleptic evaluation to ensure taste masking and overall patient compliance.
- To ensure microbiological safety by testing for microbial contamination and ensuring compliance with pharmacopeial standards.

Plan of work :

Literature survey Selection of herbal drug Determine Active Constituent of Herbal Drug Selection of Excipients Selection of material and equipments Preparation of Formulation

Material and Methods

Collection and authentication of herbal plants

The plant materials of guava,vasaka, pomegranate ,ginger, rose were collected from college and home premises . The collected leaves of vasaka, leaves of guava, rose petals and peels of pomegranate were washed and dried under shade. Powder of pippali was collected from nearby ayurvedic shop, sugar and lemon premix prepared at home and used as sweetener and antioxidant and honey from ayurvedic shop as well. After proper drying, all materials were grinded using mixer and the powders were passed through sieve no.120 to get a fine powder.

This study was performed to expedite a new formulation and evaluation of formulated polyherbal lozenges to know their effectiveness against the minor throat problems.

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logy Impact Factor: 7.67

Volume 5, Issue 4, June 2025

Vasaka leaves



Family: Acanthaceae

Biological Source:

Plant: Vasaka is derived from the fresh or dried leaves of Adhatoda vasica Nees.It is a small, evergreen shrub found throughout India and parts of Sri Lanka.

Description:

Habit: Erect shrub, about 1-2 meters tall.

Leaves: Opposite, simple, ovate-lanceolate, entire margins, dark green, with a smootsurface.

Flowers: Tubular, purplish or reddish, arranged in dense axillary spikes.

Fruits: Small capsule with many seeds.

Habitat: Grows wild in open areas, along roadsides and wastelands.

Chemical Constituents:

Alkaloids: The most important are vasicine and vasicinone.

Other constituents: Vasicinol, vasicine acetate, and several flavonoids.

Essential oils: Found in leaves. Tannins, saponins, and sterols may also be present in minor quantities.

Medicinal Uses:

Respiratory disorders: Vasaka is mainly used as a bronchodilator and expectorant to treat cough, asthma, bronchitis, and other respiratory problems.

Antitussive: Reduces cough.

Anti-inflammatory: Helps reduce inflammation in respiratory tract.

Uterine stimulant: Used traditionally to induce menstruation and relieve menstrual pain.

Antimicrobial: Shows activity against certain bacteria.

Other uses: Sometimes used to treat rheumatism, and as a diaphoretic (promotes sweating).

Guava (Psidium guajava)









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Synonyms: Botanical name: Psidium guajava Linn. Family: Myrtaceae Description: Habit: Small tree or large shrub, 3–10 meters tall. Leaves: Opposite, simple, aromatic, elliptic to oblong with prominent veins. Flowers: White, fragrant, solitary or in small clusters, with numerous stamens. Fruits: Round or pear-shaped berries, with green to yellow skin and pink, red, or white pulp filled with small hard seeds. Distribution: Native to Central America; widely cultivated in tropical and subtropical regions worldwide. Chemical Constituents: Leaves: Flavonoids: Quercetin, avicularin Tannins: Ellagic acid, gallic acid Essential oils: Eucalyptol Saponins and alkaloids Medicinal Uses: Leaves: Antidiarrheal: Used in traditional medicine to treat diarrhea and dysentery. Antibacterial and antifungal: Effective against some pathogens. Anti-inflammatory and analgesic

Antioxidant properties

Used in oral care: As a mouthwash for toothache, swollen gums, and bad breath

Pomegranate peel



Synonyms: Botanical Name: Punica granatum Linn. Family: Lythraceae (formerly Punicaceae)

Biological Source: The peel (pericarp) of the fruit of Punica granatum Linn.Used in dried or powdered form in traditional medicine.

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DOI: 10.48175/568





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Description: Plant Type: Deciduous shrub or small tree up to 5-8 meters tall. Leaves: Simple, shiny, and opposite. Flowers: Bright red, tubular. Fruit: A large, round berry with a thick, leathery peel, enclosing many juicy arils (seeds). Peel: Tough, leathery rind; bitter in taste; usually discarded or dried for medicinal use. Chemical Constituents: Pomegranate Peel contains: Tannins: Punicalagin (major ellagitannin), punicalin, ellagic acid, gallic acid Flavonoids: Quercetin, kaempferol Alkaloids: Pelletierine, pseudopelletierine Phenolic compounds Organic acids: Citric, malic, ascorbic acid Minerals: Potassium, calcium, magnesium Medicinal Uses: Traditional Uses (Ayurveda, Unani, Folk): Antidiarrheal: Peel powder used to treat diarrhea and dysentery due to high tannin content. Anthelmintic: Kills or expels intestinal worms, especially tapeworms. Astringent: Useful for healing wounds, ulcers, and as a mouthwash for oral health. Antioxidant: Protects against oxidative damage. Anti-inflammatory: Reduces inflammation in the gut and skin. Antibacterial/Antiviral: Used in treating infections of the gastrointestinal tract. Oral health: Prevents gingivitis, mouth ulcers, and bad breath.

Pippali:



Pippali (Long Pepper) Synonyms: Botanical Name: Piper longum Linn.

Family: Piperaceae Biological Source:

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DOI: 10.48175/568





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The dried spike (fruit) and roots of Piper longum Linn., a climbing perennial shrub native to India. Chemical Constituents: Alkaloids: Piperine (major active principle) Piperlongumine ,Piperlonguminin, Volatile oils, Resin, Lignans ,Essential oils, Sesamin, myristicin, β-sitosterol Medicinal Uses:

Traditional Uses (Ayurveda, Unani, Siddha):

Deepana-Pachana (Digestive stimulant): Enhances digestion and absorption.

Shwasahara (Respiratory relief): Used in cough, asthma, bronchitis.

Rasayana (Rejuvenative): Used as a general tonic.

Anulomana (Carminative): Relieves flatulence and indigestion.

EXCIPIENTS PROFILE:

GINGER (Zingiberis rhizoma):



Synonyms: Zingiberis rhizoma, Ardraka (Ayurvedic)

Biological Source: Ginger is the dried or fresh rhizome (underground stem) of the plant Zingiber officinale Roscoe. **Family:** Zingiberaceae

Description:

Plant type: Perennial herb with thick, knotted, irregular-shaped rhizomes. Rhizome: Aromatic, thick, pale yellowish brown when dried. Leaves: Long, narrow, lance-shaped. Flowers: Greenish-yellow with purple spots. Height: Grows up to 1 meter tall. Habitat: Cultivated extensively in India, China, Jamaica, Nigeria, and Thailand.

Chemical Constituents:

Volatile oils – Zingiberene, bisabolene, cineole, borneol (responsible for aroma). Non-volatile pungent compounds – Gingerol, shogaol, zingerone (responsible for pungency). Resins and starch

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Medicinal Uses:

Digestive aid: Stimulates digestion, relieves bloating, flatulence, and indigestion.

Anti-emetic: Effective against nausea and vomiting (especially motion sickness and morning sickness).

Anti-inflammatory: Used for treating arthritis, muscle pain, and inflammation.

Antioxidant: Protects against oxidative stress.

Carminative: Helps in expelling gas from the stomach and intestines.

Cold and cough remedy: Used in teas and home remedies to soothe sore throat, cold, and congestion. Antimicrobial: Helps fight infections.

Circulatory stimulant: Improves blood flow and heart health.

Anti-diabetic potential: Helps lower blood sugar levels in mild cases.

Menstrual pain relief: Chewing ginger or taking ginger tea reduces cramps.

HONEY (MADHU):



Synonyms of Honey: Madhu (Sanskrit)

Biological Source:

Honey is a natural substance produced by honey bees (*Apis mellifera* and other *Apis* species) from the nectar of flowers or secretions of living parts of plants, which the bees collect, transform, and store in honeycombs **Family:** Apidae

Medicinal Uses of Honey:

Honey has been used in traditional and modern medicine for centuries due to its various therapeutic properties:

Antibacterial and antiseptic: Due to hydrogen peroxide and low pH

Wound healing: Promotes tissue regeneration and reduces infection (e.g., Manuka honey)

Soothing cough and sore throat: Especially in children and during infections

Antioxidant: Protects cells from oxidative stress

Digestive aid: Mild laxative effect and prebiotic properties (supports gut flora)

Energy source: Instant energy due to simple sugars

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JAGGERY (SACCHARUM OFFICINARUM):



Synonyms of Jaggery:

Gur (Hindi/Urdu) Unrefined sugar Saccharum officinarum jaggery

Biological Source:

Jaggery is a natural, unrefined sugar obtained by boiling and concentrating the juice of: Sugarcane (*Saccharum officinarum*), or Date palm (*Phoenix sylvestris*), or Palmyra palm (*Borassus flabellifer*) Family: Arecaceae Chemical Constituents of Jaggery:

Jaggery contains a complex mixture of carbohydrates, minerals, and trace elements. Major constituents include: Carbohydrates (70–85%): Minerals (unlike refined sugar): Iron, Calcium, Magnesium, Phosphorus, Potassium Vitamins: Small amounts of B-complex vitamins

Antioxidants: Phenolic compounds and flavonoids

Proteins and amino acids (in trace amounts)

Medicinal Uses of Jaggery:

Jaggery has been widely used in Ayurveda and folk medicine due to its numerous health benefits: Digestive aid: Helps in digestion and stimulates bowel movements Detoxifier: Purifies blood and cleanses the liver and lungs (removes dust and toxins) Iron supplement: Helps prevent and treat anemia due to its iron content Energy booster: Provides quick energy due to simple carbohydrates Respiratory relief: Eases cough, cold, and asthma symptoms Menstrual relief: Helps in reducing cramps and mood swings Improves immunity: Due to antioxidant and mineral content Natural sweetener: Better alternative to refined sugar with additional nutrients

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DOI: 10.48175/568





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Volume 5, Issue 4, June 2025



METHODS OF PREPARATION: FORMULATION TABLE:

Sr.No	Name of ingredients	Quntity taken F1	F2	F3
1	Vasaka leaves	5gm	4gm	6gm
2	Guava leaves	5gm	6gm	4gm
3	Pippali	3gm	2gm	3gm
4	Pomegranate peel	2gm	3gm	2gm
5	Rose petals	2gm	2gm	2gm
6	Ginger juice	20ml	15ml	10ml
7	Jaggery	20gm	25gm	30gm
8	Honey	5gm	6gm	5gm

Table :2 Formulation Table For Herbal Lozenges

PROCEDURE:

The raw materials which are used in the polyherbal lozenges preparation vasaka leaves, guava leaves, pippali, rose petals, pomegranate peel, Jaggery and honey are added in required quantity.

* Weighing and measuring the raw materials: Measure and weigh the lozenges raw materials in given

values: vasaka,guava, rose petals,pomegranate peel, and ginger and lozenge base materials: home made jaggery and honey.

* Grinding and shifting: Vasaka leaves, guava leaves is rinse before grinding (with mortar and pestle)

collectively with frequent addition of water (100 ml) to make juice of the formulation. Peel the ginger, crush it and extract the juice. Then menstrum is remove in the beaker with help of mesh and marc is discarded.

* Preparing the base: To prepare the base steel cooking vessel was selected, in which crushed jaggery

(25gm) is subjected to heat at low flame on induction in order to melt it.

* Adding the raw medicinal ingredients: Mix ginger and leaf extract with powdered sugar before adding to the vessel containing Jaggery while giving continuously gentle stir to it.

* **Consistency:** Once the desired consistency is achieved, cool the mixture under a fan for a few minutes and then add 30 ml of honey to it.

* Measuring and pouring in to the mould: Use a pipette to pour 1 ml of the preparation into the star mold.

* **Cooling and refrigerating:** Cool lozenges for 20-30 minutes in room temperature of 15-20C before storing into refrigerator for hard formulation.





Storage:

Lozenges should be stored away from heat and out of the reach of children. They must be protected from moisture. Room temperature or refrigeration is usually indicated, depending on the storage requirements of the drug and base.

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Packaging:

Lozenges are hygroscopic and frequently prone to absorption of atmospheric moisture. Considerations must include the hygroscopic nature of the candy base, storage conditions of the lozenges, length of time they are stored and the potential for drug interactions. These products should be stored in tight containers to prevent drying if a disposable mould with a cardboard sleeve is used, it is best to slip this unit into a properly labelled, sealable plastic bag or container. Packaging should be proper and attractive.

Dispensing:

The patient should receive counselling about the purpose of a hard lozenge which is to provide a slow, continual release of the drug over a prolonged period of time.



Prepared lozenges

EVALUATION PARAMETERS:

Macroscopic Evaluation: The formulation developed were evaluated for its acceptability based on visual observation for various organoleptic properties like Colour, Odour, Taste, Texture, Shape.

Weight Variation: Twenty lozenges of the formulation were weighed using a digital balance and the test was performed according to the official method. Ten lozenges were selected from each group and weighed individually. Calculate the mean weight and standard deviation of 20 lozenges. The batch passes the test for weight variation test if the weight of a lozenges does not differ by more than 2 from the average weight.

The yield value between 90-110% of average weight. Calculation was done by using the following formula

Average weight = Weight of 20 Lozenges÷20

Weight variation = Individual Weight- Average Weight x 100 %

Average Weight

Friability: The friability of tablets was determined using Roche Friabilator. It is expressed as a percentage (%). Ten lozenges were initially weighed and transferred to the friabilator. The friabilator was operated at 25 rpm for 4 minutes. The lozenges were weighed again after removing out lozenges from friabilator and dusting it. If tablets are found broken or cracked and the final value exceed the limit test is consider as failed. The value should not exceed 1% (0.5-1.0%). If exceed repeat three time for complete estimation. The percentage of friability is calculated using the following formula.

Friability = Initial Weight - Final Weight X 100

Initial Weight

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Measurement of pH: The acidity or alkalinity of a lozenges was indicated by using laboratory pH meter, a scale from 1.0 to 14.0. 1% W/V Solution was prepared by dissolving 1 g lozenges in 100 ml distilled water and its pH was recorded.

Determination of moisture:

Gravimetric analysis: Weigh approximately 1g of sample and note the initial weight. Then, it should be kept in a vacuum oven at 60-70 oC for 12-16 hours. After specific period of time, once again weigh the sample and moisture content can be calculated by subtraction of initial weight from final weight. Formula used for calculation moisture content is

Moisture content = Initial weight - Final weight

Disintegration time studies: Disintegration time is the interval required for complete disappearance of a lozenges or its particles from the tester. The prepared lozenges was tested according to USP30. By using a disintegration tester through the disintegration medium of phosphate buffer with pH 6.2 maintained at 37 ± 0.5 °C. The optimized batch of lozenges disintegrated in 90 Seconds which is acceptable for throat Lozenges. Disintegration time was also within acceptance criteria of 90 seconds to 1.5 minutes.

Hardness: Hardness indicates the ability of a lozenges to withstand mechanical shocks while handling. The hardness of the lozenges was determined using Monsanto hardness tester. It is expressed in Kg/cm2. Three lozenges were randomly selected and hardness of the lozenges was determined.

Stability study: The stability study was performed to evaluate physical and chemical stability of the drug, which may affect the organoleptic properties of the lozenges. Accelerated stability study was conducted as per ICH guidelines at 45°C and 75% relative humidity over a period of seven weeks. Sufficient number of optimized formulations were packed in amber colored screw capped bottles and kept in incubator maintained at 37°C. Samples were taken in intervals of 15 days to estimate the drug content and to evaluate organoleptic properties.

RESULT AND DISCUSSION:

Organoleptic Parameters of prepared herbal lozenges:

Sr.NO.	Parameters	Observations
1	Colour	Brownish
2	Odour	Pleasant
3	Taste	Sweet
4	Texture	Rough
5	Shape	Square and different

Physiochemical parameters of prepared herbal lozenges:

Sr.NO.	Parameters	Observations
1	Weight variation	±0.20
2	pH	7.5-8.0
3	Disintigration	8.10
4	Stability	stable

The lozenges were found to be square in shape with rough texture. This square shape was due to moulds used for preparation. The taste of the lozenges was determined using human volunteer and was sweet in taste. The sweet taste could be attributed to the use of sugar as base. The odour of prepared lozenges was pleasant; it can be attributed to the presence of rose petals powder and other crude drugs. Colour of lozenges was brownish green due to honey sugar base and crude drugs which were dark coloured.

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II. CONCLUSION

The present research work is performed for development and evaluation of a polyherbal lozenges to treat sore throat as the herbal medicine are safe and effective with negligible side effects. Present work is based on the multiple herbs. We have formulated hard polyherbal lozenges with different herbs like Vasaka, pippli, ginger, dried pomegranate peels, dried rose petals, dried guava leaves in addition it also contains honey.

Vasaka has proven bronchodilator activity. In Ayurveda, the swarasa or juice of Vasaka leaves are administered for respiratory conditions. The herbal lozenges are formulated from aqueous extract of Vasaka with bitter taste masked with jaggery and flavoured with ginger extract and menthol, easy for pediatric patients to administer.

polyherbal hard lozenges were evaluated for the different parameters by précised advanced analytical instrumental Methods for assessment. The study reveals that the polyherbal lozenges are suitable dosage form for relief from cough, sore throat and cold which can be used for special population (geriatrics, pediatric) purpose hence polyherbal lozenges passes all the parametersand it was found with the feedback responses that it is more effective in the treatment of cough minor throat infections hence this polyherbal lozenges it is one of its own kind which is formulated with combination of multiple herbs and it can be recommended for minor upper respiratory infections and in future further development of the formulation can be done.

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