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Review Article

Review on Polyherbal Lozenges

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ABSTRACT
A common method of dose is lozenges. Benefits of medicated lozenges include increased bioavailability, decreased stomach irritation, and circumvention of first-pass metabolism by the liver due to the medicinal form's prolonged residence time in the oral cavity. If you have an oral infection, you can treat it with lozenges, which are solid dose forms of sweetened or flavoured medications that you keep in your mouth. For a more gradual release of their medicinal contents, lozenges are taken orally after a solid dose form. The respiratory system is often infected by the typical cold and flu, which causes symptoms such as body aches and headaches, fever, lethargy, runny nose, congestion, and cough

1. Introduction

Lozenges are flavoured, medicated spoons that contain one or more medications in a sweetened foundation and are meant to be sucked while held in the mouth or pharynx. Oropharyngeal symptoms, sometimes brought on by local infections, can be alleviated and even alleviated systemically with the help of lozenges. When swallowed or absorbed through the buccal lining, the medicine works effectively [1-5].

Lozenges are solid pharmaceutical preparations that gradually dissolve or disintegrate in the mouth. They typically contain one or more medications in a flavored, sweetened foundation [6-10]. They can be made by compressing sugar-based tablets or by using gelatin and/or a mixture of melted sucrose and sorbitol. There is a possibility that pressed lozenges will be called lozenges, and vice versa. For patients who have difficulty swallowing solid oral dosage forms, or for slow-release medications to maintain a steady drug level in the mouth, or to immerse the tissues of the throat in a drug solution, these devices are utilized. Lozenges typically contain the following drugs: aromatics, antitussives, antimicrobials, decongestants, corticosteroids, antiseptics, antitussive, analgesics, and demulcents [11-15].

A. History of Lozenges

Candies were manufactured from pure honey and flavored with citrus juices, various herbs, and certain expensive spices. They were used to ease the throat as early as 1000 BC in the Twentieth Dynasty of Egypt. The antitussive effects of opium-derived morphine and heroin were utilized by certain physicians in the nineteenth century. In 1850, Smith Brothers Cough Drops were advertised for the first time, and in 1880, Luden's was invented; these were the two most popular formulations at the time. Subsequently, new pharmaceutical options were developed in response to growing concerns around the potential for opiate addiction and dependence.

B. About Herbal Drugs as lozenge

Any plant or plant component that has medicinal, aromatic, or flavorful uses is considered a herb. Various dosage forms of herbal pharmaceuticals are available for purchase, including pills, capsules, powders, tea bags, solid extracts, and occasionally even fresh or dried plants. This is because herbal drugs are categorized as dietary supplements. Herbal medicines help people stay healthy or even feel better. Lozenges are of great importance when it comes to respiratory tract infections.

C. Types of lozenges

A] Hard candy Lozenges

- Amorphous (non-crystalline) or glassy sugar and carbohydrate mixes are what make hard candy lozenges what they are.
- Pastilles have a long history of usage in relieving minor throat irritations and sores; they are essentially solid sugar syrups.
- Thirdly, buccal mucosal absorption may allow some of the active pharmaceutical ingredient to bypass first-pass metabolism.

B] Soft lozenges

- Soft lozenges are a popular choice for many different drugs since they are easy to make when needed and may be used for a wide range of purposes.
- Most bases are composed of a combination of acacia, different polyethylene glycols, or other comparable compounds.
- Thirdly, there is the lozenge, a type of soft lozenge that is characterized as a spectrum of translucent lozenges that contain a medicine in gelatin.

C] Chewable lozenges

- For a long time, people have been able to purchase soft chews.
- Their flavor is intense, and many of them have a slightly sour undertone.
- Thirdly, fruit-flavored goods are great for administering medicinal drugs since the drug's flavor is usually well-masked.

D] Pressed lozenges

- Pressing can be used to manufacture active ingredients that are heat sensitive.

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- The granulation process is the same as that of any compressed tablet.
- As compared to regular tablets, these have different organoleptic qualities, non-disintegrating characteristics, and slower dissolving profiles. The tablets are shown in figure 1.

Figure 1. Types of lozenges

D. **Advantages**

- It's easy to provide to both young and old patients.
- It produces local action, has a nice flavor, and prolongs the drug's retention in the mouth.
- The buccal cavity could be a potential route for systemic medication absorption.
- Requires little in the way of tools for preparation.
- Flavorings and sweeteners used in medicine formulation can hide their taste.

E. Disadvantages

- It could be mistaken for candy by children.
- It is important to inform parents not to combine medicine with sweets and to store the product away from youngsters. For example, benzocaine and other medications that include aldehyde sugar bases may not work as intended.
- Medication that remains stable when exposed to high temperatures is an appropriate choice.
- Children over the age of 6 can safely use lozenges.
- Medicines with minimal bitter taste are suitable.

2. General Method of Preparation

- The first step was to melt the jaggery and sugar in a little water until a thick enough consistency was reached. The herbs were put to a separate container with a small amount of water, stirred well, and then filtered.
- Step 2: The beaker with the strained herbal juice was then filled with sugar and jaggery syrup.
- The third step was to add honey. The mixture was stirred continuously while being heated until it reached 150 °C.
- The fourth step was to get the right size lozenges by taking the mixture off the heat and pouring it into a mold.
- After that, it was left at room temperature to cool and cure the mold.
- The sixth step was to coat the hard lozenges with powdered sugar once they had cooled so that they wouldn't become sticky when exposed to moisture.
- Step 7: Put the lozenges in a chilled, airtight container with a wide opening and sprinkle with powdered sugar.
- Step 8: Licorice, cloves, ginger, long pepper, guduchi, and turmeric are the herbs used in formulation-1, while vasaka, licorice, ginger, guduchi, and long pepper are the herbs used in formulation-2.
- Step 9: Honey is a relaxing ingredient that has been incorporated into both recipes for the neck.

2.1 Ingredients

A] Liquorice

- The sweet flavor comes from the root of the Glycyrrhiza glabra plant, which is a member of the Leguminosae family.
- The perennial herb licorice originally hails from southern Europe and certain regions of Asia, including India.
- Useful as a demulcent and expectorant. Glycyrrhenic acid is responsible for these characteristics.
- Some people refer to licorice as sweet root.
- B] Clove
- A member of the Myrtaceae family tree, Syzygium aromaticum (Eugenia caryophyllus) produces fragrant blossoms that are known as cloves.
- They're originally from the Indonesian Maluku (or Moluccas) Islands.
- As an antiviral and analgesic.
- Clove is also called Laung.

B] GINGER

- Consists of rhizomes of Zingiber officinale (Family: Zinziberaceae), scraped to remove the dark outer skin and dried in the sun.
- Ginger mainly contains oleoresin, which has aromatic, carminative and expectorant properties.
- Gingerol is the active component of fresh ginger, commonly found as a yellow pungent oil and has a spicy-sweet smell.
- Ginger is also called Adrak.

C] Long pepper

- The dried fruits of perennial climbing vines (family: Piperaceae) that are either not yet ripe or are nearly ripe make up this.
- In Hindi, it is known as pipli, and it is also known as long native pepper.
- As a decongestant, pepper is most often prescribed for respiratory problems associated with colds.
- Pippali is another name for long pepper.

D] Honey

- The comb is filled with a sugary liquid that the hive bees, Apissmallifera, Apisdorsata, and other species of Apis (family: Apidae) collect from floral nectar.
- Honey's consistency makes it a popular home cure for coughs, whether they're dry or wet.
- Has a soothing effect, helps relieve throat irritation.
- Honey is also called madhu.

E] Turmeric

- They are Curcuma longa (Zingiberaceae) dried rhizomes.
- Among the many spices used in Indian cooking, turmeric stands out for its bright yellow hue.

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- Because of its antibacterial characteristics, it finds application in the treatment of respiratory illnesses like the common cold, bronchitis, cough, and other issues affecting the upper respiratory tract.
- Haldi is another name for turmeric. All the Ingredients are shown in figure 2.

Figure 2. Ingredients

3. General Methods for Evaluation of Lozenges

1) Hardness

A Pfizer or Monsanto hardness tester measures the hardness of medicinal lozenges shown in figure 3. The pressure on lozenges during transport or breaking in the situation of transport, storage and previous use depends on the hardness. The hardness of each preparation was evaluated and found to be within the acceptable range of 4.0 to 4.4 kg/cm 2.

2) Thickness and diameter

An instrument calliper shown in figure 5 is used to measure the diameter and thickness of the formulated lozenges. Measured in millimeters. Lozenge thickness ranged from 3.0 mm to 3.28 mm across all formulas, which is very consistent.

3) Friability

The Roche Friabilator is used to determine the friability of formulated pastilles. The Friabilator rotates at 25 RMP for about 4 minutes. 20 Lozenges are starting weights shown in figure 4. Then the lozenges are removed after 4 minutes and then the lozenges are dusted and reweighed. Obtained value below 1%. The % brittleness is calculated according to the plan. The percentage of lozenge friability was found to be between 1.79 ± 0.015 - 2.14 ± 0.003%.

4) Weight Variation

To conduct the USP weight change test, 20 lozenges are weighed separately, an average weight is calculated, and then the individual weights are compared to that average.

5) Mouth dissolving time test

To find out how long it took for the sweets to dissolve completely, we used a USP disintegration apparatus. We put hard-boiled sugar lozenges in each tube and timed how long it took for them to dissolve completely in a phosphate buffer at 37°C with a pH of 6.8.

Figure 3. Monsanto hardness tester

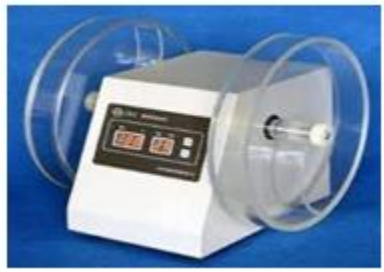

Figure 4. Friability

Figure 5. Vernier Calliper

4. Review of Literature

Rupali Chanda, Lavanya Nallaguntla(2020):-

Created and evaluated healing lozenges for sore throats. Measurements were taken of the finished lozenges to determine their drug concentration, hardness, friability, thickness, weight fluctuation, and diameter.

Apurva D.Pokale et al,(2019):- created and evaluated medicated chewable lozenges, she also studied temperature to keep the lozenges from settling. Depending on the extreme humidity and temperature.

Anshul Kumar (2019):-

Created and evaluated polyherbal lozenges. Hardness, friability, thickness, weight uniformity, and disintegration time are some of the quality factors that are used to evaluate lozenges. These lozenges are found to fulfill the standard that is defined in GMP guidelines.

Binu Anand (2018):-

He created and evaluated herbal lozenges containing eucalyptus oil and coleus aromaticus oil. The lozenge tablets were prepared by the roller compression method. The results clearly show that advance lozenge tablets can be a good alternative to traditional forms.

Hina Rehman et al, (2017):- developed a modern lozenge dosage associated with an extended duration of the local drug with a favorable therapeutic effect from Polyherbal extract preventing unnecessary side effects as with synthetic preparations.

Umashankar M.S , Lakshmi K.S(2016):-

Developed and evaluated chewable lozenges. These lozenges are the most popular dosage form for drug administration.

Dr CV Achhra et al,(2015):- Created and assessed sucrose-free compressed lozenges with 300 mg of curcumin (turmeric) apiece, using a mannitol base and a number of excipients according to the conventional way of manufacturing. Presenting an improved formulation that can be used instead of commercially available ginger throat lozenges to alleviate typical cold and cough symptoms, which are well-received by diabetics.

5. Conclusions

Lozenges are a type of medicine that has been around since before the 1900s and is being manufactured today. The majority of preparations are offered in galloping products, which are highly cost-effective dosage forms. They can be

used both topically and systemically. Making lozenges is a quick and painless task. Organoleptically, it's a better product, and that's especially true for kids. Despite their inevitable decline, lozenges will continue to play a significant role in the pharmaceutical industry.

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