

Formulation and Evaluation of Polyherbal Lozenges for Cold and Cough

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Abstract: *The main objective of the present study was formulation & evaluation of Polyherbal Lozenges For Cold and Cough. Lozenges are solid dosage form which are intended to slowly dissolve in the mouth For therapeutic effect. Cold and cough are common diseases which usually infects the respiratory Tract including symptoms like head and body ache, fever, drowsiness, runny nose, congestion and Cough. The present polyherbal lozenge formulations developed to eliminate all symptoms of cold And cough. Material and method of polyherbal lozenges is Measure the raw materials. Rinse the raw Material prior grinding. After grinding extract the juice with help of mesh. Marc and menstrum is Obtained. Menstrum includes ginger juice and leafs extract is mixed Thoroughly. Liquify Jaggery At low flame. Menstrum is added to the vessel containing jaggery. Continuously stirr at low flame Until the desire density is obtained. Cool the preapation for few mins before adding honey (30ml). Cool it and form in tablets manually (Mould).Store In a glass container containg powder Sugar to avoid cohering. The lozenges Are evaluated for various quality parameters like hardness, Friability, thickness, weight variation and disintegration time which comply with the standard Mentioned in GMP Guidelines. Lozenge is completely herbal containing no synthetic ingredient And is economical to treat all the symptoms of cold and cough.*

Keywords: Polyherbal Lozenges , Mould, Cold, Cough , Respiratory tract

I. INTRODUCTION

The word “Lozenge” is derived from French word “Losenge” which means a diamond shaped geometry having four equalsides. Lozenges and pastilles have been developed since 20th century in pharmacy and is still under commercial production . Lozenges are solid preparations that are intended to dissolve in mouth or pharynx. They may contain one or more medicaments in a flavored and sweetened base and are intended to treat local irritation or infection of mouth or pharynx and may also be used for systemic drug absorption.^[1] Lozenges are the flavored medicated dosage forms intended to be sucked and held in the mouth or pharynx containing one or more medicaments usually in the sweetened base. Drugs often incorporated into lozenges include analgesics, anesthetics, antimicrobials, antiseptics, antitussives, aromatics, astringents, corticosteroids, decongestants, and demulcents.^[7]

Advantages of lozenges

- It can be given to those patients who have difficulty in swallowing.
- Easy to administer to geriatric and pediatric population
- Systemic absorption of drug can be possible through buccal cavity.
- Taste of drug can be masked by sweeteners and flavors used in formulation .
- It can increase in bioavailability.
- It can reduce dosing frequency.^[3]

TYPES OF LOZENGES

There are three basic types of lozenges:

- Hard lozenges
- Soft lozenges
- Chewable Lozenges

- **Hard lozenges:** Hard lozenge is generally formed using sucrose or other sugars similar to the process for hard candy confections that produce a hardened amorphous glassy material. To slow the rate of dissolution, polymers such as PEGs and HPMC may be added. Another type of hard lozenge may be made of compressed powders. An example of this is clotrimazole troches (lozenges) made as a large compressed tablet that is slowly dissolved in the mouth. The tablet base material is made of dextrose, MCC, and povidone .^[4]
- **Soft lozenges:** Soft lozenge is often made using PEGs of sufficient molecular weight to provide slow dissolution in the saliva. 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 molded cavities.^[4]
- **Chewable lozenges:** Chewable are typically based on glycerinated gelatin; a base of glycerin, gelatine, and water. This base can be mixed with drug, acacia, and suitable flavoring and sweetening agents.^[4]

II. MATERIALS AND METHODS

Materials: Vasaka, Liquorice, Tulsi leaves, Giloy leaves, Ginger, Honey, Jaggery .

Methods:

Method of Preparation of Polyherbal Fresh Juice :-

- The leaves of Giloye and Tulsi are taken in required quantity as mentioned in Formula.
- They were rinsed thoroughly with tap water.
- All the three herbs were grinded by adding 100 ml of water and the juice is extracted with a mesh.
- Marc and menstruum were separated.
- Ginger juice was also extracted and added to the formulation.^[4]

Method Preparation of Lozenges:-

- Measure all the raw materials in proper Quantity
- Rinse all the raw material with tap water prior grinding.
- Grind all the herbs with adding 100ml of water (Tulsi + Giloye+ Ginger and 100ml water)
- After grinding extract the juice with help of mesh.
- Marc and menstrum is obtained .
- Menstrum includes ginger juice and leafs extract is mixed Thoroughly.
- Liquify Jaggery at low flame.
- Menstrum is added to the vessel containing jaggery.
- Continuously stirr at low flame until the desire density is obtained.
- Cool the preapation for few mins before adding honey (30ml).
- Add Honey and Cool it and form in tablets manually (Mould)
- Store in a air tight glass container and spread the powder of sugar to avoid cohering.^[4]

Table 1: Material used for making polyherbal lozenges

S.No	Ingredients	Quantity
1	Vasaka	15gm
2	Liquorice	10gm
3	Tulsi	5gm
4	Giloy	20gm
5	Ginger	30gm
6	Honey	20ml

7	Jaggery	100gm
	Total	200gm



Figure No.1 : Polyherbal Lozenges

III. EVALUATION OF POLYHERBLE LOZENGES

Macroscopic Evaluation:-

The formulation developed in the laboratory were evaluated for its acceptance based on Visual observation for various organoleptic properties like Colour, Odour, Taste, Texture, Shape.

Weight Variation:

Study weight variation twenty tablets of the formulation were weighed Using a digital balance and the test was performed according to the official method. Ten lozenges were randomly selected from each batch and individually weighed. To TheAverage weight and standard deviation of 20 lozenges were calculated. The batch passes the Test for weight variation test if not more than 2 of the individuals lozenges weight deviates From the average weight. Yielding value between 90- 110% of average weight. CalculationWas done by using the following formula.

$$\text{Average weight} = \text{Weight of 20 Lozenges}/20$$

$$\text{Weight variation} = \text{Individual Wright- Average Weight} / \text{Average weight} \times 100\%$$

Friability:

The friability of tablets was determined using Roche Friabilator. It is expressed in Percentage (%). Ten tablets were initially weighed and transferred into friabilator. The Friabilator was operated at 25 rpm for 4 minutes. The tablets were weighed again after taking Out tables and brushing the dust away. If tablets are found broken or cracked and the final Value exceed the limit test is consider failed. The value should be no more than 1% (0.5-1.0%). If exceed repeat three time for overall estimation. The % friability was then Calculated with help of following formula:

$$\text{Friability} = (\text{Initial Weight} - \text{Final Weight}) / \text{Initial weight} \times 100\%$$

Disintegration time studies :-

Disintegration time is the interval required for complete disappearance of a lozenges or its Particles from the tester. Test of the prepared lozenges was performed according to USP30.By using a disintegration tester through the disintegration medium of phosphate buffer With pH 6.2 maintained at $37 \pm 0.5^\circ\text{C}$. The lozenge of optimized batch disintegrated in 90Seconds which is acceptable for throat Lozenges. Disintegration time was also within Acceptance criteria of 90 seconds to 1.5 minutes dependingup on type of lozenges.

Measurement of pH :

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

Determination of Thickness:-

The thickness of the tablets was determined by using verniercaliper. Five tablets were used.

Hardness :-

Hardness indicates the ability of a tablet to withstand mechanical shocks while handling. The Hardness of the tablets was determined using Monsanto hardness tester. It is expressed in kg/cm². Three tablets were randomly picked and hardness of the tablets was determined.

Diameter :-

Ten tablets for diameter uniformity are carried out. Then the value of the diameter is Taken. The deviation of each is calculated and the deviation of individual unit from the mmeaDiametershould not exceed $\pm 5\%$ for tablets with diameter of less than 12.5 and $\pm 3\%$ for Diameter of 12.55mm or more.

IV. RESULT

The lozenges Are evaluated for various quality parameters like hardness, friability, thickness, weight variation, disintegration time, Macroscopic Evaluation, measurement of PH and Diameter. Results are given in Table No.2

Table 2: Evaluation of Polyhebal Lozenges

S. No	Parameters	Results
1	Macroscopic Evaluation	
	Colour	Brown
	Odour	Pleasant
	Taste	Sweet
	Texture	Solid
	Shape	Square
2	Weight variation	± 0.14
3	Friability	0.6
4	Disintegration time studies	1 min
5	Measurement of PH	8.45%
6	Determiration of Thikness	212.8
7	Hardness	7.8 kg/cm
8	Diameter	2.30mm

V. CONCLUSION

Polyherbal lozenges have been developed with 5 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 polyherbal Lozenges. The polyherbal 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

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