

Formulation and Evaluation of Polyherbal Lozenges for Cold and Flu

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ABSTRACT

Background: Lozenges are solid dosage form which are intended to slowly dissolve in the mouth for therapeutic effect. The main objective of the study is to formulated and evaluate polyherbal lozenge remedy for suppressing cough for sore throat and cold the polyherbal extract based lozenge includes vasaka [Adhatodavasica], ajwain [Trachyspermum ammi], mint Tulsi [Ocimum tenuiflorum], ginger, haldi, liquorice ,honey, jaggery which are nutritive effect and soothing effect on the mucus membrane of the respiratory tract. The fresh leaf juices of all the ingredients were Used for the preparation of polyherbal lozenges of both soft herbal Lozenge and hard lozenge were prepared. The polyherbal lozenges Were evaluated for their physicochemical parameters such as weight Variation, thickness, hardness, moisture content, hardness friability, disintegration diameter Were identified and there results were revealed as all the physicochemical parameter for polyherbal lozenges were within the monograph standard which are mentioned in GMP Guidelines. The Polyherbal lozenges in which the Liquorice and haldi were incorporated for the first time and these polyherbal lozenges Can be an effective, economical and easily available remedy for minor throat infections.

KEYWORD:- Polyherbal lozenges, Flu, Polyherbal Formulations, Cold, Flu.

INTRODUCTION :-

HERBAL MEDICINE

Herbal Medicine (Also Herbalism) Is The Study of Pharmacognosy And The Use Of Medicinal Plants, Which Are A Basis Of Traditional Medicine. There Is Limited Scientific Evidence For the Safety and Efficacy of Plants Used In 21st Century Herbalism, Which Generally Does Not Provide Standards for Purity or Dosage. The Scope of Herbal Medicine Commonly Includes Fungal and Bee Products, As Well As Minerals, Shells and Certain Animal Parts. Herbal Medicine Is Also Called Phytomedicine or Phototherapy. The herbal Lozenges are the medicated tablet kept in the mouth until it get.dissolve and release 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 ,cold and sooth irritation of the tissue in the throat. Herbal Lozenges are similar in size, and sometimes in flavour, to hard candies but intended to ease sore throats and help recover from cold, influence. There are number of Lozenges on the market but herbal Lozenges are usually made with primarily natural ingredients such as Leaf, fruit, extract and honey

TYPES OF LOZENGES :-

1. **Hard**
2. **Soft**
3. **Chewable**

1. **Hard Lozenges:-**

These types of Lozenges are the mixture of sugar and carbohydrates. They are in non-crystalline forms usually in amorphous glassy state. They are also called as a syrup of sugar. Hard lozenges are widely used to treat the sore throat pain or relief from irritation by delivering the drug having the category of topical anaesthetic or antibiotic activity.

2. **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 moulded cavities.

3. **Chewable Lozenges:-**

The medicament in Chewable Lozenges are incorporated into caramel base, hence instead of dissolving it into mouth it is chewed. These lozenges are prepared or formulated by using glycerine, gelatin and water.

ADVANTAGES:-

- Herbal lozenges are made with natural ingredients which mean they do not contain synthetic chemicals or artificial additives.
- Some herbs used in polyherbal lozenges have been shown medicinal properties that can help soothe sore throat and relieve cough/cold.
- Herbal lozenges are easy to use; they can be taken orally and do not require any special equipment or preparation.
- It can help soothe a sore throat and provide relief from cold/flu.
- Keeping the drug in contact with the oral cavity for an extended period of time.

IDEAL PROPERTY 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. Some have medications that help fight colds, and most have anesthetic to help ease the Pain.
6. Lozenges also contain menthol or eucalyptus, which can help cool and sooth the throat.

INGREDIENTS

Sr.No	Ingredients	Quantity
1	Tulsi	30g
2	Vasaka	4g
3	Ajwain	30g
4	Ginger	40g
5	Liquorise	2g
6	Haldi	1g
7	Honey	30ml
8	Jaggery	103ml
9	Sugar	42g
10	Corn syrup	16g
11	Crystal menthol	2g
	Total	300

ABOUT INGREDIENTS :-**1. Tulsi:-**

Fig no. 1

Botanical name of Tulsi is *ocimum tenuiflorum* it help enhance the immunity and it help relieve inflammation and redness of the mucosa of the throat .Tulsi plant leaves are used in the preparation of herbal lozenges.

2. Vasaka:-

Fig no. 2

Botanical name of vasaka is *adhtoda vasica*. It help relieve cough,cold, and breathlessness and treating bronchitis asthma.

3. Ajwain:-



Fig no. 3

Botanical name of Ajwain is *trachyspermum ammi* . the rich anti-inflammatory properties of ajwain helps provide relief from cold.

4. Ginger :-



Fig no. 4

Botanical name of ginger is *zingiber officinale* (family-zinziberaceae) ginger contain bioactive compound that have beneficial effect on your health.

5. Liquorice :-



Fig no. 5

Botanical name of Liquorice is *glycyrrhiza glabra*. (family-leguminosea) it is widely used in ayurvedic system of medicine it is used as expectorant and demulcent.

6. Turmeric:-



Fig no. 6

Botanical name of turmeric is *curcuma longa* (family-zinziberaceae) turmeric is another herb that possesses healing properties to treat your dry cough and contain anti-inflammatory property

7. Honey :-

Fig no. 7

Botanical name of Honey is APIs. It contain antioxidant and is through to help lower inflammation in your throat and it help in relieve cough and cold.

8. Jaggery :-

Fig no. 8

Botanical name of jaggery is saccharum officinarum. It help in treating throat infection.

9. Corn syrup:-

Fig no. 9 It thins the secretions and loosens the cough.

10 Crystal menthol:-

Fig no. 10

Menthol crystals can help relieve respiratory issues such as congestion, coughing and sore throat.

METHOD OF PREPARATION:-

1. Measure the raw materials
2. Rinse the raw material prior grinding(vasaka+Mint tulsi+ajwain + 100ml water and ginger)
3. After grinding extract the juice with help of mesh.
4. Marc and menstrum is obtained
5. Menstrum includes ginger juice and leafs extract is mixed Thoroughly.
6. Liquify Jaggery at low flame
7. Menstrum is added to the vessel containing jaggery
8. Continuously stir at low flame until the desired density is obtained
9. Cool the preparation for few minutes before adding honey (30ml).
10. pour preparation into oval or semi oval shaped silicon moulds.
11. let it dry for ½ days
12. Remove the polyhedral lozenges from mould once it is ready Hard lozenges are ready.

EVALUATION:-

1. 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.

2. 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 The Average 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. Calculation Was done by using the following formula.

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

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

3. 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 6.4 maintained at $37 \pm 0.5^\circ\text{C}$. The lozenge of optimized batch disintegrated in 85 Seconds which is acceptable for throat Lozenges. Disintegration time was also within acceptance criteria of 85 seconds to 3 minutes depending up on type of lozenges.

4. 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:

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

Initial weight

5. Determination of moisture:-

This test is used to determine the water content of a material by drying a sample to constant Mass at a specified temperature. By the gravimetric method, 1 g sample was weighed and Placed in an oven at 100-110°C for 3hrs. Cool to room temperature. Repeat until constant Weight observed. Percentage friability is given by the equation.

$$\% F = \frac{(\text{Initial Weight} - \text{Final weight})}{\text{Initial weight}} \times 100.$$

6. Determination of Thickness:-

The thickness of the tablets was determined by using vernier caliper. 6 tablets were used. The average values were calculated.

$$\text{Average thickness} = \frac{\text{Total 6 lozenges thickness}}{6} \times 100$$

6

7. 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

RESULT:

Organoleptic evaluation

microscopic evaluation:

S. No	Parameter	Observation
1	Colour	Brown
2	Odour	Pleasant
3	Taste	Sweet
4	Texture	Smooth
5	Shape	Round

Physiochemical evaluation:

SR. No	Evaluation parameters	F1	F2	F3	F4	F5
1	Weight variation	1.28	1.27	1.29	1.24	1.25
2	Disintegration time	1.2	1.4	1.5	1.3	1.6
3	Friability	0.5	0.7	0.9	0.4	0.3
4	Moisture content	0.2	0.2	0.4	0.3	0.5
5	Thickness	191.5	192.6	195.6	196.2	194.3
6	Hardness	8.3	7.8	9.2	9.1	8.5

F3 is ideal formulation & is passes all evaluation parameter

DISCUSSION:

Lozenge are used to treat the symptoms like sore throat and congestion of throat which are The common in cold and flu. The developed lozenges includes polyherbs like tulsi, vasaka, ginger, liquorice, haldi, crystal menthol. In addition jaggery, honey flavors and their antitussive property works wonder for the Formulation. Both the soft and hard polyherbal lozenges were evaluated for its quality and Therapeutic efficacy by various organoleptic and physicochemical parameters and feed-back of People having symptoms of cold and flu were recorded. The developed formulations comply With all the standards mentioned in GMP and can be used safely without any side effect.

CONCLUSION:-

The present research work is performed on development and evaluation of an herbal medicine as the herbal medicine are safe and effective with negligible side effects. Our work is based on the polyherbs which are used to make a Polyherbal lozenges. This study reveals that the Lozenges are suitable dosage form for the symptomatic relief of cold and Flu.

We formulate Polyherbal lozenges with herbs like -tulsi, ginger they show anti-inflammatory activity it also contain the other ingredients like vasaka,ajwain, liquorice,haldi,honey, jaggery which use as sweetners and give the soothing property.

The polyherbal lozenges Were developed by through study of herbs, followed by optimization of formulation dosage and evaluation of qualitative and quantitative analysis by precised advanced analytical instrumrntal method Of assessment hence the Lozenges pass all the parameter and was found to be more effective in the treatment of cold and flu.

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