



Formulation and Evaluation of Herbal Mouth Ulcer Gel

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ABSTRACT :

The aim of present research were to formulate and evaluate herbal mouth ulcer gel treatment from dried powder of guava leaves . Causes of mouth ulcer includes the deficiency of some nutrition such as iron ,vitamins B12 and vit c , poor oral hygiene , infections, stress, indigestion , mechanical injury , food allergy , hormonal imbalance , skin disease etc. The mouth ulcer is also known as Canker sores .

Herbal gel was prepared by using active ingredient psidium guajava leaves and excipients are mint as preservative , tulsi as antibacterial agent , carbopol 934 as gelling agent , trimethanolamine as nutrelizer which adjust the pH .

The evaluate the formulated gel transparency , homogeneity, sprediability , viscosity ,and pH ranges from 6-7 . It show significant antioxidant , antifungal, antimicrobial effect . Developed formulation was stable ,safe, and effective .

KEY WORDS : Guava Leaves (Psidium Guajava) , Aphthous Ulcers , Mouthwash.

INTRODUCTION :

Topical Drugs delivery system : -

An effective route for drug delivery is the skin which have many drawbacks of the oral, inhalational ,and parenteral routes . The skin is a complex multilayered structure . Is act as barrier between body and the relatively hostile external environment .Topically applied products may target sites in one or more different skin layer i.e. epidermis ,dermis ,and hypodermis . Transdermal products target the systemic circulation . Most solutes suitable for transdermal delivery are characterized by low molecular weight ,low melting point, moderate lipophilicity ,and few hydrogen bonding sites .

The topical route was the first route of medication used to deliver drugs to humans in ancient Egyptian and Babylonian in 3000 BCE.



Fig.no.1. Topical mouth ulcer gel .

Topical dosage forms :-**Solid :-**

- Dusting powder
- Poultices
- Plasters

Liquids :-

- Lotion
- Solution
- Suspension
- Colloidions
- Emulsion

Semi-solid :-

- Ointment
- Creams
- Pastes
- Gels
- Suppositories

Miscellaneous :-

- Transdermal delivery system
- Rubbing alcohol
- Gauzes
- Surgical tape or medical tape

Topical dosage forms : GEL(Mouth Ulcer)

Mouth ulcer gel are topical treatments used to alleviate pain and promote healing of mouth ulcers,also known as canker sores . These gels typically contain ingredients like benzocaine or lidocaine to numb the area and reduce the discomfort ,as well as ingredients like hydroxypropyl cellulose to form a protective barrier over the ulcer .

Symptoms of Mouth ulcer :

1. lining the mouth .
2. Swollen and red mucous membrane around the sores .
3. Problem with chewing or tooth brushing because of the tenderness .
4. One or more painful sores on part of the mucous membrane
5. Irritation of the sores by salty ,spicy or sour foods .

Causes of mouth ulcers :

- a. Accidentally biting the inside of your cheeks .
- b. Injury from a tooth brush
- c. Constant rubbing against misaligned or sharp / broken teeth .
- d. Constant rubbing against dentures or braces .
- e. Burns from eating hot food .
- f. Irritation from strong antiseptics, such as a mouthwash .
- g. Aphthous ulcers .

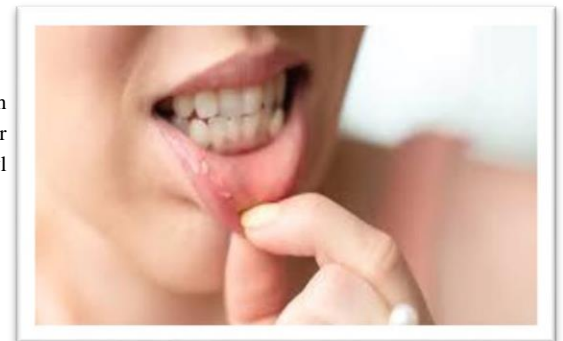


Fig. no. 2. Mouth ulcer.

Treatment for mouth ulcers :

- 1) Avoid spicy , salty and sour foods until the ulcers heal .
- 2) Drink plenty of fluids .
- 3) Keep your mouth clean .
- 4) Apply antiseptic gel to the ulcers.
- 5) Rinse your mouth out with warm ,slightly salted water ,keeping the rinse in your mouth for upto 4 minutes at a time .Repeat four times daily .
- 6) Use an alcohol – free medicated mouth wash twice daily .
- 7) Use a topical alcohol – free steroid mouthwash or ointment – this is generally prescribed by your dentist or oral medicines specialist .
- 8) If required in serve cases ,immunosuppressants medication may be prescribed by your oral health professional or appropriate medical specialist .

Prepared of herbal mouth ulcer gel from guava leaves :

Guava leaves have various health benefits ,including being rich in antioxidants and having antimicrobial properties . They are often used in traditional medicines to treat ailments like diarrhea ,wound , and infections . Additionally , they are believed to aid in weight loss and help control blood sugar levels . You can brew them into tea or use them topically in poultices .



Fig.no.3.Guava leaves

Properties of Guava leaves :***Antimicrobial:***

Guava leaves contain compounds like flavonoids and tannins, which exhibit antimicrobial activity, making them effective against bacteria, viruses, and fungi .

Anti-inflammatory:

Certain compounds in guava leaves have anti-inflammatory properties, helping to reduce inflammation and alleviate related symptoms.

Antioxidant:

Guava leaves are rich in antioxidants such as flavonoids, quercetin, and catechins, which help neutralize harmful free radicals in the body, reducing oxidative stress and lowering the risk of chronic diseases.

Antidiarrheal:

Tannins found in guava leaves have been shown to possess antidiarrheal properties, helping to alleviate diarrhea by reducing intestinal fluid secretion and inhibiting bacterial growth.

Antidiabetic:

Studies suggest that guava leaf extract may help lower blood sugar levels by inhibiting certain enzymes involved in carbohydrate metabolism, potentially benefiting individuals with diabetes.

Wound healing:

Guava leaf extract has been found to promote wound healing by accelerating the formation of collagen, which is essential for skin regeneration and repair.

Analgesic:

Some research indicates that guava leaf extract may have analgesic properties, providing pain relief when applied topically or consumed orally. These properties make guava leaves valuable in traditional medicine and as a natural remedy for various health conditions.

Formulation of herbal mouth ulcer gel :

Ingredients	Quantity
Guava leaves extract	5ml
Carbopol 934	5ml
Mint and methyl paraben	3ml
Tulsi	4ml
Triethanolamine	2ml
Distilled water	upto 20 ml

Material and Method :

- 1) Material:
 - ◆ **Guava leaves** extract is the main active constituent .
 - ◆ **Carbopol 934** are used as a gelling agent
 - ◆ **Mint** are used as natural anti-inflammatories and have anti- microbial agents that helps cure mouth ulcer.

- ◆ **Tulsi** leaves with its wonderful properties serves as a natural remedy to cure your mouth ulcer faster and better .
- ◆ **Triethanolamine** are used as a nutrilizers

2) Method of preparation :

Take 5ml distilled water and add specific amount of carbopol 934 slowly with

continouse stirring

↓

5ml distilled water + Mint or Methyl parabean

↓

Heating on water bath

↓

After cooling add Tulsi

↓

Then add guava leaves extract

↓

Add all ingredient are mix well until uniform mixture are form

↓

Then add prepared carbopol 934 gel with continouse stirring

↓

After add all ingredient together then check the ph and add triethanolamine for adjust pH.

Evaluation of gel :

Sr.No	Test	Observation
1.	Visual appearance Color assessment Gritty particles	Gel was visually inspected to determine its profile . A through visual inspection is detected the presence of any gritty particles
2.	Measurement of pH	Measure the pH by using pH paper
3.	Homogeneity	All developed gel formulation were tested for homogeneity by visual inspection after the gels have been set in to the container .
4.	Skin irritancy test	Apply the gel on the skin to check the irritability .

RESULT AND DISCUSSION :

Pharmacognostic study :

Morphological Evaluation :

Sr.no	Morphology	Observation
1.	Color	Green
2.	Taste	Slightly bitter
3.	Shape	Oval or Round
4.	Size	7.6 cm length and 2.5cm broad
5.	Margin	The leaf margin is entire, having smooth edges and not toothed
6.	Leaf type	Ovate – elliptic

Microscopy of Powder :



Formulation of herbal mouth ulcer gel :



Evaluation of prepared herbal mouth ulcer gel :

Sr.no	Test	Observation
1.	Visual Appearance : Color assessment Gritty particles	Slightly brown No observe any gritty particles
2.	Measurement of pH :	pH between 6-7
3.	Homogeneity :	Homogeneous
4.	Skin irritancy	Non-irritant

CONCLUSION :

Psidium guajava was collected from Kada and Authenticated from Shri Amolak Jain Vidya Prasarak Mandal, college of Pharamceutical science and research centre ,Kada .The plant material were dried in sunlight .From the dried leaves of psidium guajava the powder is form for extraction by using ethanolic solvent using soxhlet extraction. The Morphological study was performed . After the morphological study the powder is extract in ethanol by using soxhlet .Then formation of gel and mix all ingredient in carbopol gel and prepared herbal mouth ulcer gel from guava leaves . After the formulation the evaluation test was performed .The result shown that it gives soothing effect and healing the sore.

From the result it is clearly shown that the prepared gel formulations having good homogeneity and gelling properties. The pH of gel formulations was in the range of compatible with normal pH range of the skin.

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