

Formulation and Evaluation of Herbal Gel from Cynodon Dactylon for Mouth ulcer

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Abstract- The current study has been embraced with the aim to formulate and evaluate herbal Gel from Cynodon Dactylon for Mouth Ulcer" depicts the turn of events and assessment of a natural gel for the treatment of mouth ulcers. The natural gel was arranged involving HPMC as a gelling specialist, propylene glycol, methyl paraben, propyl paraben, sodium citrate, and refined water. , the Cynodon dactylon extract was integrated into the gel, Cynodon dactylon, otherwise called Bermuda grass, was chosen as the essential fixing with Alum because of its known therapeutic properties. The gel was formulated utilizing regular polysaccharides and assessed for its physicochemical properties, thickness, spreadability, and delivery rate. The gel was viewed as protected and safe in treating mouth ulcers, making it a promising option in contrast to manufactured drugs. Generally, the outcomes showed that the gel had great actual properties and medication content. the review gives proof to the capability of Cynodon dactylon as a characteristic solution for mouth ulcers. because of its mitigating and wound recuperating properties. By this we had formulated a herbal gel which has efficacy to treat mouth ulcer and we had tested it with standard evaluation test.

Keywords: Cynodon dactylon, plant extract, Alum, HPMC, Herbal Gel, mouth ulcer, Anti-inflammatory, Antimicrobial

1) INTRODUCTION: -

Mouth ulcers are a typical condition that can cause distress, torment, and trouble in eating and talking.

Herbal gels made from using cynodon dactylon extract are a well-known solution for mouth ulcers. These gels regularly contain a high centralization of the active compounds found in the plant, which have been displayed to have anti-inflammatory and pain-relieving properties. When applied to the impacted region, the herbal gel can assist with decreasing agony and aggravation, and may likewise advance quicker healing of the ulcer. It is critical to take note of that while herbal gels might give some help from mouth ulcers, they are not a substitute for clinical treatment, especially assuming that the ulcers are steady or intermittent.

The utilization of herbal gels produced using cynodon dactylon extract might be a helpful expansion to a complete treatment plan for mouth ulcers, yet it is important to talk with a medical service proficient to decide the best strategy for your particular requirements.



Fig 1: - Mouth Ulcer

A mouth ulcer, also called an oral ulcer or infection, is a little, difficult injury or sore that creates on the delicate tissues inside the mouth, like on the tongue, lips, or internal cheeks. Mouth ulcers can differ in size, shape, and variety, and they might show up as red, white, or yellowish spots encompassed by a red boundary.

Mouth ulcers can be caused by various elements, including injury to the mouth, hormonal changes, stress, certain food sources or drugs, and fundamental ailments. They can be very agonizing and may make it hard to eat, drink, or talk easily.

Bermuda Grass: -

Bermuda grass is consisting of dried whole plant of Cynodon dactylon (Linn.) belongs to the family poaceae.

Cynodon dactylon, regularly known as Bermuda grass or Durva grass, that is generally conveyed in tropical and subtropical locales around the world. it is a famous restorative herb that has been utilized for quite a long time in Ayurvedic and traditional medication to treat various illnesses, including mouth ulcers.



Fig 2: - Bermuda grass

Cynodon dactylon is accepted to have anti-inflammatory, pain relieving, and antibacterial properties, which make it an effective regular solution for mouth ulcers. Research has shown that Cynodon dactylon can assist with diminishing agony and irritation related with mouth ulcers, and may also help to promote healing of the affected tissue.

Alum: -

Alum, also known as potassium alum or potassium aluminium sulphate, is a chemical compound that has been used for various medicinal purposes for centuries.



Fig 3: - Alum

It has astringent properties, which means that it can help tighten and contract tissues, and it is commonly used as a home remedy for mouth ulcers. When used for mouth ulcers, alum can be applied topically to the affected area. It works by drying out the ulcer and creating a protective layer that prevents further irritation. It may also help to reduce the size of the ulcer and promote faster healing.

1.2- Benefits of herbal gel

Herbal gels for mouth ulcers can provide a number of benefits.

Here are some of them: -

1. Pain relief: Herbal gels can help to reduce the pain associated with mouth ulcers.
2. Anti-inflammatory properties: Herbal gels have anti-inflammatory properties that can help to reduce the swelling and inflammation associated with mouth ulcers. This can help to speed up the healing process and reduce discomfort.
3. Antibacterial properties: - The herb also has antimicrobial properties, which can help to prevent the growth of bacteria and other microorganisms that can exacerbate mouth ulcers. This can help to prevent the ulcer from becoming infected and promote faster healing.
4. Soothing and cooling effect: herbal gels have a soothing and cooling effect on the mouth which can provide relief from the discomfort of mouth ulcers. This can also help to reduce inflammation and speed up the healing process.
5. Natural ingredients: Herbal gels are made from natural ingredients, which means they are less likely to cause side effects or irritation than synthetic products. This can be particularly important if you have sensitive skin or are prone to allergies.
6. Promotes healing: Cynodon dactylon contains compounds that can help to promote healing and regeneration of the tissues in the mouth, which can speed up the healing process of the ulcers.

- 2) **Objectives:** -The reason why we are preparing herbal gel is because of that we are finding a way to treat mouth ulcer with high efficacy and low side effects. The extract of cynodon dactylon has the potency to treat mouth ulcer and can give soothing effect . So we are preparing the herbal gel with the extract of cynodon dactylon.

3) MATERIALS AND METHODS :-

3.1) Materials :-

The unrefined components including the excipients and synthetic substances expected for the current work were obtained from various sources.

3.2) Chemicals :-

Ethanol , Hydroxy propyl methyl cellulose , Methyl paraben, propyl paraben, propylene glycol, sodium citrate, Distilled water

3.3) Equipment :-

Magnetic stirrer, Digital balance, pH meter, Hot water Bath

3.4) Preparation of plant Extract :-

The plant of cynodon dactylon were washed Under running regular water to eliminate dust particles and shade Dried at room temperature for 15 days.The dried plant parts were diminished to coarse powder with a mechanical processor and gone through a 40 no.mesh sieve . The powder Was then exposed to extraction by dissolvable extraction technique utilizing Ethanol, to accomplish there individual Extracts. 30 g of dried Bermuda grass powder were macerated in 200 ml of ethanol, for 24 hrs at room temperature, under infrequent shaking. After 24 hrs combination were sift through utilizing basic filtration technique and Channel were gathered in discrete vessels.To obtain the extract the solvent were removed from the filtrate by the concentrate it on hot water bath . The appropriate method for the purification of apigenin is that the crude apigenin (mass fraction 0.93) is dissolved in a warm ethanol–water mixture ($x_2 = 0.85$) at about $T = 70^\circ\text{C}$, filtered, and crystallized by adding water to the solution.. This is how we get pure extract of active constituents to add in gel .

3.5) Preparation of herbal Gel:-

Take 15 ml of refined water in a container and scatter Determined measure of HPMC in it with keep mixing Kept the receptacle aside to enlarge the HPMC for thirty minutes. In another measuring glass take 5 ml of refined water and add required amount of methyl paraben and propyl paraben to it by Warming on hot water bath . Cool the solution then, at that point, add Propylene Glycol . Further required amount of concentrate was added to the above combination and this arrangement was blended appropriately to the HPMC gel with keep mixing volume made up to 30 ml by adding remaining refined water and sodium citrate added drop wise to the detailing for change of required mouth skin pH (6.8-7) and to acquire the gel at required consistency.

Formulation table :- For formulation of 20 ml gel

Sr. No.	Ingredients	Quantity	Role
1.	Cynodon dactylon (Extract)	1 gm	Antiulcer activity
2.	Alum	0.5 gm	Antiulcer activity
3.	HPMC	0.5 gm	Gelling agent
4.	Polyethylene glycol	2.5 ml	Base
5.	Methyl paraben	0.06 gm	Preservative
6.	Propyl paraben	0.03gm	Preservative
7.	Sodium citrate	Few drops upto 6.5 to 7 PH	PH adjustment
8.	Distilled water	qs upto 20 ml	Aqueous base

5) Evaluation parameters :-

• Physical evaluation :-

Physical parameters , for example, colour, odour and consistency were checked visually .

Physiochemical parameters	Observation
Colour	Greenish
Odour	Characteristics
Consistency	Good
PH	6.8
Viscosity (cp)	4458 cp
Homogeneity	Good

- **pH :-**

The pH meter was utilized to really look at the pH. Around 0.5 gm of the gel was weight and dissolve in 50.0 ml of refined water and its pH was estimated

- **Viscosity :-**

The viscosity of gel was studied using Viscometer.

- **Spreadability :-**

Spreadability is expressed in terms of time in seconds taken by two slides to slip off from gel that is placed in between the slides under the direction of a certain load. Lesser the time taken to separate the slide better is the spreadability.

Spreadability is calculated by using the formula:

$$S = M \times L / T$$

Where M = weight tied to upper slide

L = length of glass slides

T = time taken to separate the slides

- **Homogeneity :-**

All formulated gel preparation were tried for homogeneity by visual review after the gels have been set in to the container.

- **Clarity :-**

The clarity of all the gel was determined by visual inspection .

Phytochemical analysis:

The tests performed for Phytochemical screening showed the presence of flavonoids, saponins, tannins

Phytocostituent	Test done to detect them	Result
1.Flavonoids	Shinoda test	Positive
2.Tannins	Ferric chloride test	Positive
3.Saponins	Foam test	Positive
4.Glycoside	Keller Killiani test	Positive
5.Alkaloids	Mayers test	Positive
6.Phenols	Litmus test	Positive

6) Result & Discussion:-

After the preparation of complete herbal gel it has been concluded that the herbal gel is upto all the parameter tested and have the property to treat mouth ulcer . As it have Anti-inflammatory , Antimicrobial , property and have ability to get relief form mouth ulcer .As the result the main constitution for our action is flavonoid (apigenin) so with the help of test we had determined that our herbal gel contain flavonoids as well as many more constituent for our required action . Herbal gel have accurate organoleptic properties as well as physical and chemical property which are needed for the help formulation.

7) Conclusion :-

In view of the plan and assessment of the herbal gel from Cynodon dactylon for mouth ulcer, it tends to be presumed that the gel showed promising outcomes concerning its physical and compound properties, as well as its viability in treating mouth ulcers.

The consequences of the review recommend that the natural gel figured out from Cynodon dactylon has huge wound healing and anti inflammatory properties, which can help in the treatment of mouth ulcers. The gel was viewed as steady, safe, and non-aggravation, making it a reasonable choice for skin application in the treatment of mouth ulcers.

Generally, the study gives proof to help the possible utilization of natural details from Cynodon dactylon in the treatment of mouth ulcers, and further exploration might assist with enhancing the definition and investigate its expected in other related applications.

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