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## FORMULATION AND EVALUATION OF HERBAL AQUEOUS GEL FOR MOUTH ULCER TREATMENT

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**Abstract**— Mouth ulcers, also known as aphthous ulcers, are painful sores that can develop inside the mouth, on the lips, or on the tongue. They can be caused by various factors such as injury, stress, certain foods, or underlying health conditions. Current treatment options for mouth ulcers include over-the-counter gels, mouth rinses, and prescription medications. However, there is a growing interest in herbal remedies due to their potential effectiveness and minimal side effects. This abstract presents a herbal aqueous gel developed specifically for the treatment of mouth ulcers.

### INTRODUCTION

The study of medicinal plants as a source of pharmaceutical chemicals has gained popularity all over the world. Plants are widely acknowledged as the primary therapeutic source for treating a variety of infectious ailments in impoverished nations like India. According to estimates from the World Health Organization, 6 million people and 80% of the world's population exclusively use traditional medicines for their basic medical needs. Aloe vera powder and gum acacia were mixed in recent studies, and the resulting solution was given orally to rats at a dose of 200 mg/kg to treat gastric ulcers brought on by indomethacin. The extract exhibited strong antiulcer activity that was comparable to the control. Herbal medicine is important from a medical and financial aspect. Although the benefits of herbal medicines have grown, industrialized and developing nations place a higher priority on their safety, effectiveness, and quality

### Mouth Ulcer:

Mouth ulcers are painful, tiny sores that generally appear in the mouth or at the gum line. Eating, drinking, and talking may become awkward around them.

Canker sores and sores caused on by hand, foot, and mouth

diseases are two examples of mouth ulcer types.

Mouth ulcers are rarely communicable and often go away on their own in 1 to 2 weeks.

**Diagnosis of Mouth Ulcer: Physician will be able to diagnose mouth ulcers through a visual exam.** Patient might be tested for other medical conditions if you have frequent, severe mouth ulcers.

### Aphthous Ulcer:

Aphthous ulcer is another name for a canker sore. The medical term "aphtha" has a few definitions but is mostly used to refer to a small ulcer.

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### Causes:

Mouth ulcers have no known primary cause, but a number of risk factors and triggers have been discovered. An increased risk of getting mouth ulcers is seen in infants and young children, adolescents, and people with a family history of the condition.

### Triggers Include:

Minor mouth injury from dental work, hard brushing, sports injury, or an accidental bite

Dental braces

Toothpaste or mouthwash that contains sodium lauryl sulfate (SLS)

### Symptoms:

- Painful sores that may be yellow, white, or red
- Sores on the inside of the mouth, such as on your tongue or the insides of your cheeks or lips

- c. Areas of redness surrounding the sores
- d. Pain that worsens when you eat, drink, or talk

#### Types of Mouth Ulcers:

There are three main types of canker sores:

1. Minor
2. Major
3. Herpetiform

#### Mouth Ulcer Treatment:

However, if you get mouth ulcers often or they're extremely painful, a number of treatments and home remedies can decrease pain and healing time. These include:

- a. covering the ulcer with a paste made from baking soda
- b. using other topical pastes
- c. placing milk of magnesia on the ulcer
- d. using a mouth rinse made from salt water and baking soda
- e. using a mouth rinse that contains a steroid to reduce pain and swelling
- f. applying ice to the ulcer

#### Prevention of Mouth Ulcer:

**Avoid specific food products:** Try not to consume foods that are spicy, too salty, or acidic that can irritate your mouth. If you are aware of foods that you are allergic to, avoid them completely.

**Have a balanced diet:** Plan your meals in such a way that your food becomes your medicine. By having a balanced diet, you tend to reduce the scope of any nutritional deficiency, and possibly limit the frequency of canker sores. As always, be sure to include fresh fruits, vegetables, and whole grains in your diet.

#### Herbal Aqueous Gel:

The word "gel" was coined by 19<sup>th</sup> Century Scottish Chemist Thomas Graham by Clipping from gelatin.

A gel is a semi-solid that can have properties ranging from soft and weak to hard and tough. Gels are defined as a substantially dilute cross-linked system, which exhibits no flow when in the steady-state, although the liquid phase may still diffuse through this system. A gel has been defined phenomenologically as a soft, solid or solid-like material consisting of two or more components, one of which is a liquid, present in substantial quantity.

#### Guava:

**Botanical Name:** *Psidium guajava*, Linn

**Family:** Myrtaceae

**Origin:** Tropical America (from Mexico to Peru)

#### Aloe Vera:

Spiral aloe (*Aloe polyphylla*) is a popular specimen for its compact geometric spiral of spiny leaves. Arabian aloe (*A. rubroviolacea*) has long blue-green leaves with red teeth and is planted outdoors in warm climates; the leaves turn red if exposed to full sun. Snake, or mountain, aloe (*A. broomii*) is a common potted plant grown for its dense rosette of triangular leaves with dark teeth.

#### Acacia:

Several acacia species are important economically. Gum acacia (*Acacia senegal*), native to the Sudan region in Africa, yields true gum arabic, a substance used in adhesives, pharmaceuticals, inks, confections, and other products. The bark of most acacias is rich in tannin, which is used in tanning and in dyes, inks, pharmaceuticals, and other products. Several Australian acacias are valuable sources of tannin, among them the golden wattle (*A. pycnantha*), the green wattle (*A. decurrens*), and the silver wattle (*A. dealbata*).

#### Spreadability:

Wooden blocks and a glass slide were used to determine spreadability. Weights weighing around 20 grams were added to the pan, and the duration it took for the upper slide to entirely detach from the fixed slide was recorded. This ground slide has 2 gram of extra gel that was being studied on it. The gel was then placed in a sandwich between this glass slide and another slide with a fixed ground slide and a hook. To generate a consistent gel film and remove air between the slides, a 1 kg weighted was placed on top of the slides for 5 minutes. On the edges, extra gel was scraped off.

#### Stability Study:

Stability studies were done with open and close container. Here, by subjecting the product to room temperature for 1 month Stability study

#### Anti-fungal Activity:

By using the Cup-plate method, the antifungal activity of all generated batches of formulation and blank formulation (formulation without drug-containing gel) was evaluated in comparison to commercial antifungal formulation (Zolef cream). Two distinct bacteria cultures, *Aspergillus aureus* and *Candida albicans* were used.

#### Conclusion:

The data reported in this study revealed that the produced herbal gel formulation had significant therapeutic efficacy and was a good delivery system for drugs at a reasonable cost but undoubtedly with tremendous potential. A newly created herbal gel mixture is effective for treating mouth ulcers.

Herbal formulations have reached widespread acceptability as therapeutic agents like anti-microbial, anti-diabetic, anti-ageing, anti-arthritic, anti-depressant, anti-anxiety, anti-inflammatory, anti-HIV, treatment of cirrhosis, asthma, migraine, Alzheimer's disease and memory enhancing activities.

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