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A Comprehensive Review of Herbal Granules in the Mouth Freshener

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Abstract

Herbal granules have gained significant attention as an alternative to conventional mouth fresheners due to their natural composition, potential health benefits, and minimal side effects. This review aims to comprehensively examine the role of herbal granules in oral care, focusing on their efficacy, ingredients, and consumer acceptance. The granules often contain a blend of herbal extracts, such as mint, fennel, cardamom, and clove, which are known for their antimicrobial, antioxidant, and digestive properties. The review also highlights the advantages of these herbal formulations over synthetic mouth fresheners, including

their ability to promote oral hygiene, reduce bad breath, and provide therapeutic benefits like improving digestion and soothing oral irritation. Moreover, the environmental sustainability of herbal products and their market trends are discussed. Challenges such as the standardization of dosage, product consistency, and consumer perceptions are also addressed. Overall, this review underscores the promising potential of herbal granules as an effective and eco-friendly alternative to traditional mouth fresheners, emphasizing the need for further research to optimize formulations and enhance their therapeutic application in oral health.

Keywords: Herbal Granules, Mouth Freshener, Digestive Properties, Environmental Sustainability and Oral Hygiene

Introduction

Mouth fresheners and a bad breath maskers are typically used to prevent bad breath and to provide immediate therapeutic benefits. Mouth fresheners can be made as sprays, granules, powders, strips, and more. Herbal mouth fresheners are made with either dried or hydrated herbal components, which operate as a flavour and nutritional masking agent. An unpleasant mouth Odor is the main indicator of poor dental health ^[1].

Oral sanitation items are used as additives to provide consumers a noticeable cooling feeling, particularly to cover up foul smell. The cavity inside the mouth or respiratory tract is home to over 400 bacteria that produce Odors. To prevent bad breath, people are advised to use mouthwashes, fresheners, dental floss, chocolate products, and frequent flossing. Bad Odors are said to be nauseous during intimate moments, in public settings, or when one is in close proximity to other people. In addition to dental issues and poor oral hygiene, smoking, drinking, and tobacco use are major contributors to halitosis. Halitosis can also be brought on by overeating or famine. The mouth of nutrition Flaxseed and omega-3 fatty acids are examples of fresheners that provide both health and financial advantages. Herbal leaves include a variety of physiologically active substances that give them their well-known antibacterial, antifungal, anti-allergic, and chemo preventative properties. mouth malodour is another name for the ailment, which is characterized by a disagreeable smell that comes from the mouth cavity. Social awkwardness and anxiousness are the main symptoms. Halitosis is awful and has long-term effects, even though it could seem simple and be ignored. However, 50% of people globally suffer from some form of oral bad breath ^[2, 3].

Medical research has shown that using natural herbs to make herbal mouth fresheners can prevent bad breath and improve oral health ^[4, 5]. These mouth fresheners can be used as astringents, deodorizers, to cure dental cavities, and to kill germs. The purpose of herbal mouth fresheners is to lessen inflammation, stop bacteria, and ease oral discomfort and irritation. The main cause of foul breath is the presence of bacteria in a dirty mouth ^[6]. As a result, using an antibacterial herbal mouth freshener improves people's dental health. After toothpaste, mouth fresheners and mouth washes are the most well recognized delivery systems for antimicrobial compounds. The absence of harmful components in the preparation is the main advantage of the

herbal formulation. Herbs that boost immunity and aid in the recovery of dental infections are widely accessible and reasonably priced^[7, 8]. Oral health was determined to be a crucial and important component of overall health in the 2003 World Health Report. Consequently, because herbal mouth fresheners have antibacterial properties, their traditional use eliminates the infectious agent in the mouth. When compared to chemical mouth spray, herbal mouth fresheners that don't include any chemicals produce the best effects^[9].

Background

The condition, a foul and disagreeable Odor in the mouth, is caused by a variety of alimentary types, bacterial coating of the tongue, systemic problems, and other periodontal diseases. Throughout history, halitosis has been a worry^[10]. Ancient societies such as the Greeks and Egyptians utilized a variety of plants and spices to cure it. In the Middle Ages, some individuals saw it as a moral or spiritual shortcoming. Comprehension of bad breath developed as a result of the 19th century's advances in medical research. Oral foul smell is now recognized as a complex illness including both underlying medical conditions and poor oral health. Bad breath's technical phrase comes from the Greek word "osis," which means aberrant or unhealthy, and the Latin word "halitus," which means breath. The general public finds it difficult to understand the synonyms for halitosis, which are breath malodour, foul breath, and factor the company or fetor per ore. A disease known as oral malodour causes a person's confidence to steadily decline along with a decline in social contacts^(11, 12, 13).

▪ Mouth Fresheners

Mouth fresheners are typically used as a bad breath maskers to prevent mouth Odor and provide an immediate therapeutic impact. It keeps teeth clean, lowers the risk of cancer, improves dental health, avoids cavities, freshens breath, eases coughing and colds, aids in weight loss, and more. The development of dental care in the dentistry community has been greatly influenced by herbal medicine. Herbs including clove, tea tree oil, coconut water, German rosemary, cranberries, liquorice, neem, and others are frequently used in dental treatment^[13, 14].



Fig 1: Mouth Freshener

➤ Herbal mouth fresheners have the following advantages over synthetic ones:

Phytochemicals are naturally occurring substances found in herbs that have strong antibacterial and anti-inflammatory

properties. They function without the use of artificial Flavors, colours, preservatives, or alcohol^[13].

▪ Absence of synthetic chemicals:

Herbal medications are preferred for mouth fresheners as they don't include artificial colouring, flavouring, or preservatives, which are utilized for oral hygiene.

▪ Benefit to Digestion:

The majority of herbal ingredients aid in the Digestion process and soothe the **stomach after meals**.

▪ Abundant in Essential Oils:

Essential oils with strong antiviral, anti-inflammatory, antifungal, and antimicrobial qualities are found in all herbal medications.

▪ Natural Substances:

Mint, Several Mouth Fresheners are formulated by using natural ingredients like cardamom, clove, fennel, etc. which are easily available and provide breath refreshment.

▪ Not addictive:

Cocaine and other addictive chemicals are used in synthetic mouth fresheners. For frequent usage, herbal alternatives are therefore safer.

▪ Economical:

Herbal mouth fresheners are more affordable because we frequently find them in our kitchen, but using conventional mouth fresheners might be costly.

➤ Disadvantages

- Allergic Reactions
- Respiratory problem
- Addiction & Dependency

Herbal Ingredients used in Mouth Fresheners



Fig 2: Ingredients used in Herbal Granules

➤ Caffeine

Some mouth fresheners contain caffeine to improve breath or give you more energy Mouth fresheners that increase energy^[14, 15].



Fig 3: Caffeine Powder

➤ **Arecanut**

In addition to its recognized digestive and salivary stimulating qualities, chewing areca nut is believed to have a neurologically stimulating impact. Chewing on areca nut with betel leaf extract is a healthy way to combat bad breath, according to ancient Ayurvedic treatment ^[15,16].



Fig 4: Arecanut powder

➤ **Fennel**

One of the most popular and preferred organic breath fresheners in Indian homes is fennel seeds. After a meal, chewing a few decorated or untreated fennel seeds provides a quick boost of energy and aids in preventing foul breath. Furthermore, these small seeds have a number of therapeutic benefits ^[11, 15].



Fig 5: Fennel Powder

➤ **Sugar Powder**

Mouth fresheners frequently contain sugar to enhance their taste.



Fig 6: Sugar Powder

➤ **Cardamom**

Cardamom aids in the battle against oral microorganisms. Cardamom, one of the oldest and most flavourful spices, aids in the battle against oral bacteria ^[15]. The spice contains flavonoids, ether extracts, flammable oil (cineole), calcium, iron, and phosphorus, among other health-promoting components.



Fig 7: Cardamom

➤ **Peppermint**

In addition to naturally freshening breath, the combination of eucalyptus and mojito essential oils with menthol crystals offers a cool and energizing taste sensation. Additionally, these oils contain antibacterial qualities that promote good dental hygiene and leave your mouth feeling refreshed and clean ^[16].



Fig 8: Peppermint powder

Evaluation Parameters of Mouth Freshener:

❖ Viscosity:

The density of the formulation is tested using Brookfield's viscometer in order to ascertain the product's performance, flow characteristics, and stability during administration [14, 16]. Viscosity was determined by measuring the consistency of the value on the viscometer's designated spindle scale.

❖ Spray Angle:

Five centimetres above white ordinary paper, the solution is sprayed. At four distinct locations, the spray angle between the centre rod tip and the outside border is measured. The spray angle is then calculated from this average. The degree of contact is a quantifiable angle at which a liquid drop occurs on a solid surface. The wettability of a certain substance on a solid surface is quantified using this method.

❖ Test for Microbial Growth:

The streak plate agar technique was used to evaluate the mouth freshener's formulation for microbial growth. The control portion is likewise produced, and the preparation is infected in the agar plate using the streak plate method. These inoculated agar plates are kept in an incubator for twenty-four hours at 37°C. [12, 17] After removing the plates, the proliferation of bacteria is examined, and a comparison with the control is made.

❖ PH:

A meter that measures pH and a beaker filled with the herbal mouth freshener formulation are used to measure the pH of

the product.

❖ Visual Inspection:

Physical characteristics including colour and Odor were tested in order to conduct a visual evaluation. African descent, Odor, taste, understanding, oil particle presence, phase separation, and other aspects of the formulation's appearance are assessed. After rating the entire performance as both favourable and bad, it is reported [17, 18].

❖ In-Vitro Antibacterial Activity:

Colonies of Streptococcus mutans are obtained in order to conduct the *in vitro* assessment test. The agar well diffusion technique is used to measure the Zone of Inhibition (ZOI) and Minimum Inhibitory Concentrations (MIC). The Streptococcus mutans strains are injected into a premade blood agar plate.

After the strains have dried, four wells are created using a 6mm agar well cutter. 20 µ ml, 40 µ ml, 60 µ ml, and 80 micro ml of produced mouth freshener are placed into each six microns well. It is maintained in an undisturbed state to allow for passive diffusion of the mouth freshener and the agar culture media. The ZOI is measured and computed in millimetres while the stainless-steel plates undergo incubation at 37 degrees Celsius. The average diameter of the inhibition zone [18].

Marketed Products

S. No	Marketed Product	Therapeutic Uses	Company Name
1	Urban Platter Digestive Anar dana Goli	Mouth Freshener / mukhwas to relish your cravings	Urban Platter
2	Mr. Merchant Rajasthani Mukhwas, Traditional Mouth Freshener	Relish the delicious combination of sweet and mint in every bite that will refresh your mouth.	Rajasthani Mukhwas
3	Delight Foods Premium Calcutta Meetha Paan Mukhwas Mouth Freshener	Meetha Paan Mukhwas Mouth Freshener	Calcutta Meetha Paan
4	Fisherman's Friend Mouth Freshener, Refreshing and Cool Lozenges	Refreshing and Cool Sugar Free Mint lozenges for a super fresh and ever pleasant breath	Fisherman's
5	Mr. Merchant Paan Shots	Paan Shot is an instant and refreshing Chewable Pan mouth freshener	Mr. Merchant
6	Jyoti Ben's Mukhwas - Roasted Fennel Seeds (Saunf) With Dhana Dal	Saunf is the delightful and flavourful taste	Jyoti Ben's Mukhwas
7	Mr. Merchant Mango Slice	A delicious, fun Mouth Freshener / mukhwas to relish your cravings for tingling taste and mouthwatering aroma.	Mr. Merchant

Future Prospects-

Major factors that are expected to increase the interest in mouth fresheners over the projected period include growing alcohol and tobacco usage as well as increased awareness of oral hygiene. This factor is anticipated to boost mouth freshener sales, which will support the expansion of the mouth freshener market. As individuals grow more aware of the need of maintaining good oral hygiene, the size of the worldwide mouth freshener market is expected to increase. It is anticipated that the readily accessible of a large range of mouth fresheners would increase demand growth over the near future [19, 20]. The mouth freshener market is expected to grow at a compound annual growth rate (CAGR) of 6.3% from 2022 to 2032, from an estimated USD 18,150.3 million in 2022 to USD 33,436.16 million by 2032. The global market share for mouth fresheners is being driven by the increase in oral hygiene knowledge among adults and children worldwide. Alcohol consumption, smoking, and tobacco use can lead to oral health issues like discoloured teeth and foul breath. These are important elements that affect the market demand for mouth fresheners, which is

expected to boost future sales of these products [20, 21].

Conclusion

People all throughout the world continue to worry about bad breath, which causes anxiety and social discomfort. In order to manage this problem, mouth fresheners—including herbal formulations—are a useful tool since they provide both instant comfort and therapeutic advantages. Herbs and spices have been used historically to treat halitosis [21, 22]. Thanks to developments in medical research, we now recognize halitosis as a complex disorder resulting from a combination of lifestyle variables including smoking and nutrition, serious medical conditions, and inadequate dental hygiene. Herbal mouth fresheners have several advantages over synthetic ones, such as long-lasting freshness, digestive benefits, and natural components free of dangerous chemicals. To guarantee the quality and efficacy of herbal mouth fresheners, scientific techniques must be used to assess criteria such as visually inspecting the viscosity, pH balance, and microbiological activity of the product. These methods provide insightful information about how to

improve overall dental hygiene and fight bad breath^[20, 4].

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