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HERBAL MOUTHWASH: AN INNOVATIVE APPROACH

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ABSTRACT: The objective of this study was to develop Mouthwash formulations. A mouthwash could also be recommended as an antimicrobial, a topical anti-inflammatory agent a topical analgesic, or for caries prevention. Almost all conventional mouth freshners contain alcohol and fluoride, which are toxic (even lethal) if swallowed in large amounts. This is often not the case with natural herbal mouth rinses. Mouth rinse comes into direct contact with mucous membrane and can be absorbed directly into your bloodstream. Natural Plants such as Clove, Peppermint, Ajwain, Green tea, Neem, Tulsi, and Guava Leaf are used in preparation of herbal mouthwash. Mouthwash freshens bad breath, can help reduce plaque and gingivitis, as well as fight tooth decay and prevent cavities. Mouthwash can really help improve your oral health. It can help to freshen your breath, remove plaque and reduce your risk of cavities and gum disease. For help deciding whether to use mouthwash before or after brushing, talk to your dentist.

KEYWORDS: Tooth decay, Oral hygiene, Mouthwash, herbal, Natural plants

INTRODUCTION:

Mouthwashes are liquids which contain anti-inflammatory, antimicrobial, and analgesic action. Mouthwash may be a solution which is most often used for its deodorant, refreshing and antiseptic properties or for control of plaque. It should contain alcohol, glycerin, synthetic sweetness, surface-active agents, flavoring agents, coloring agents, etc.^[1,2] Mouthwashes that kill 99.9% of the bacteria in your mouth are also killing off good bacteria. This can damage the mouth's microbiome and its ability to fight cavities, gingivitis and bad breath.

Chlorhexidine gluconate, or CHG, is a powerful germicidal agent that kills bacteria in the mouth^[3] It is certainly fine to rinse with mouthwash in the morning, but you will also want to rinse right before bed. Mouthwash every day is also a great addition to your oral care routine. If used daily, it is a great way to freshen your breath and kill any harmful bacteria left over after flossing and brushing.^[4] Over 50% of the fashionable drugs are of natural products Origin and intrinsically natural products play a really important role in drug development^[5]



Advantages:

1. Fresh breath.
2. Reducing tooth decay using sodium fluoride.
3. Reducing gum inflammation by killing bacteria.
4. Whitening teeth using a bleaching agent
5. Preventing gum disease using an antiseptic or anti-plaque ingredient.
6. Mouthwash prevents gingivitis and gum disease by killing the bacteria that would otherwise infect the dental sockets and gums ^[6-8].
7. It can prevent the buildup of plaque, strengthen the enamel, and demineralize your teeth, allowing you to prevent tooth decay ^[9].

Benefits of herbal Mouthwash:

- Natural mouthwash uses time-tested ingredients.
- Natural mouthwash is gentle for even the foremost sensitive mouths
- Natural mouthwash feels great.
- Natural mouthwash has naturally antibacterial properties.
- Natural mouthwash contains no harsh additives.
- Natural mouthwash is effective.
- Natural mouthwash doesn't cause waterlessness.
- Natural mouthwash is in high demand, Natural mouthwash contains no “mystery” ingredients.



Figure1: Marketed herbal mouthwash

Types of Mouthwash:

Here's an inventory of the various sorts of mouthwash

Flouride mouthwash: Fluoride in mouthwashes contains salt which helps protect the teeth from cavities and cavity. Since fluoride could also be found in toothpaste and water, it's advisable to require care when using this type of mouthwash since intake of an excessive amount of fluoride isn't good for your overall health.

Antiseptic mouthwash: This is the foremost common mouthwash. This mouthwash usually contains alcohol and is typically utilized by people with mouth infection to stop bacterial growth. This is often also helpful for people that have halitosis or bad breath. This is often used alongside the proper brushing of teeth and flossing to help forbid bacteria that cause mouth infections and stinky breath.

Cosmetic mouthwash: A mouthwash that doesn't really do anything to your overall oral care but is just how to freshen your breath or to mask bad breath.



Natural mouthwash: Natural mouthwash could also be a mouthwash that does what other sorts of mouthwash do except the ingredients are natural. It is also a popular option as an alcohol-free mouthwash. Their ingredients are safer to use as compared to other sorts of mouthwash^[10]

Natural Plants Used as herbal Mouthwash:

Peppermint: Peppermint incorporates a high menthol content, and is usually used as tea and for flavoring dessert, confectionery, chewing gum, and toothpaste. The oil also contains menthone and menthyl esters, particularly menthyl acetate.^[11] It is the oldest and preferred flavor of mint-flavored confectionery. Peppermint could also be used in shampoos and soaps, which give the hair a minty scent and gives a cooling sensation on the skin^[12].

Clove: Cloves are used as a carminative to increase acid within the stomach and to spice up peristalsis. Cloves are said to be a natural anthelmintic^[13], The essential oil is used in aromatherapy when stimulation and warming are needed, especially for gastrointestinal systems problems. Topical application over the stomach or abdomen are said to warm the canal. Clove oil, applied to a cavity during a decayed tooth, also relieves toothache^[14].

Ajwain: Ajwain is used as an antiseptic. It's used for cleaning wounds and treating skin infections. Oil of Ajwain is additionally utilized in toothpaste and perfumery. Ajwain leaves is crushed and applied on infections. Ajwain seeds are utilized in prevention of bad breath. Thymol from Ajwain seeds is additionally utilized in various mouthwashes. Regularly chewing of Ajwain seeds alongside fennel seeds prevents bad breath.^[15]

Tulsi: Tulsi might be a little plant, sub-shrub which has multiple uses. Ayurveda mentions the importance of medicinal uses of it. The leaves are quite effective for the ulcer and infections within the mouth. Some leaves chewed will cure these conditions. The herb is useful in teeth disorders. Its leaves, dried within the sun and powdered, are going to be used for brushing teeth. It's going to be mixed with mustard oil to make a paste and used as toothpaste.^[16]

Green Tea: It'll be used as a gargle or mouthwash to treat dental decay, halitosis, laryngitis, mouth sores, plaque formation, pharyngitis, thrush, and tonsillitis. It be prepared as a soak to treat fungal infections like tinea pedis, ringworm, and parasites like crabs, lice, and scabies or as a douche to discourage Candida study, the formulation



and evaluation of tea-leaf mouthwash as a replacement, safe Nontoxic product for kids and pregnant women was evaluated. Tea-leaf mouthwash has been shown effectively reduce plaque accumulation, and is free from side effects as of chemical mouthwashes^[17].

Chemicals Used as Mouthwash:

Chlorhexidine: Chlorhexidine could also be a symmetrical bisbiguanide synthetic antiseptic consisting of 4 chlorophenyl rings and two biguanide groups connected by a hexamethylene bridge. The dicationic nature of Chlorhexidine makes it extremely interactive with anions, which has relevancy to its efficacy, safety and side effects. It's available in three forms, digluconate, acetate and hydrochloride salts. (Chlorhexidine has broad spectrum antimicrobial activity. It's effective against both Gram-positive and Gram-negative bacteria including aerobes and anaerobes, yeasts, fungi and lipid enveloped viruses^[18-19] It increases the permeability of cytomembrane followed by coagulation of cellular macromolecules^[20] it is also shown to chop back the adherence of Porphyromonas gingivalis to epithelial cells^[21] It doesn't interact with any microbial enzymes or receptors and hence doesn't cause resistance from organisms^[22].

Side effects:

Mouth irritation; Tooth staining, Dry mouth Unusual or unpleasant taste in your mouth; or Decreased taste.

Benzydamine Hydrochloride: Benzydamine hydrochloride is assumed for its analgesic, anaesthetic, anti-inflammatory and antimicrobial properties. The precise mechanism of action isn't fully understood but it probably affects the prostaglandin and thromboxane production and reduces pro-inflammatory cytokine production. Therefore, it's recommended for radiation- induced mucositis and ulcerative lesions like recurrent aphthous stomatitis.

Side effects:

This may cause burning, stinging or numbness within the mouth or throat. Throat irritation, cough, waterlessness with thirst, and headache have also been reported.

[23]



Oxygenating Agents: Oxygenating agents like oxide, Sodium peroxyborate and peroxy carbonate act by liberating nascent oxygen to loosen debris, remove stains and kill anaerobic micro-organisms. They're whitener having strong oxidizing properties. They're also broad-spectrum antimicrobial agents.^[24] Oxygenating agents containing mouthwashes are advised for acute ulcerative conditions.^[25]

Uses of Mouthwash:

Mouthwashes should only be used for brief periods of sometime and can never be the sole means of oral hygiene. It's employed within the subsequent cases

Halitosis

Mucositis

Periodontal Diseases

Gum disease

Xerostomia

To clean septic sockets

Reduce inflammation

Vincent's angina to control plaque

To relieve pain

To effectively deliver fluoride so on prevent dental cavity

Evaluation:

Color and Odour:

Physical parameters like odour and color were examined by visual examination.



pH:

pH of prepared herbal mouthwash was measured by using digital pH meter. The pH meter was calibrated using standard buffer solution about 1 ml of mouthwash was weighed and dissolved in 50ml of distilled water and its pH was measured ^(26,27).

• Test for microbial growth in formulated mouthwash:

The formulated mouthwash was inoculated in the plates of agar media by streak plate method and a control was prepared. The plates were placed in the incubator and are incubated at 37°C for 24 hours. After the incubation period plates were taken out and checked for microbial growth by comparing it with the control ⁽²⁸⁾

Quality Control Tests for Selected Formulations:

Quality control tests, including mouthwash pH, tannin content percentage, and essential oil yield were done on days 0 and 45, after preparation of formulations ^(28,29).

• Stability Studies:

The formulation and preparation of any pharmaceutical product is incomplete without proper stability studies of the prepared product. This is done in order to determine the physical and chemical stability of the prepared product and thus determine the safety of the product ⁽³⁰⁾.

Conclusion:

Mouthwashes can be used for various conditions, depending on the lesions present in the oral cavity. Mouthwash is designed to help improve your oral hygiene and protect your gums from disease. An attempt has been made to stipulate variety of the commonly available herbs and plants, and certain fruits, which are readily available, and could be used as effective mouthwashes by all. If people can use and promote such cost-effective measures of maintaining the oral health which are innocent of any untoward side effects, it should help in overcoming some common dental problems.

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