

Review literature on Mouthwash

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Abstract:

The objective of this study was to develop Mouthwash formulations. Mouthwash, mouth rinse, oral rinse, or mouth bath is a liquid which is held in the mouth passively or swilled around the mouth by contraction of the perioral muscles and/or movement of the head, and may be gargled, where the head is tilted back and the liquid bubbled at the back of the mouth. If you have cavities or are at a high risk of contracting gum diseases, your dentist may recommend an antibacterial mouthwash. Mouth rinses with fluoride can also help ward off tooth decay. 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. Mouthwashes containing fluoride can even help remineralize your teeth. While it's not a replacement for brushing and flossing, mouthwash can play an important role in your oral hygiene routine. 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, Plaque, Bad breath.

Introduction:

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⁽¹⁾. It is certainly fine to rinse with mouthwash in the morning, but you will also want to rinse right before bed. This practice helps prevent harmful oral bacteria action while you sleep. Plus, you will awaken with a fresher feeling in your mouth. Over-brushing, over-flossing, or even using too much teeth whitener can be problematic for your tooth enamel. 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⁽²⁾.



Fig- Mouthwash

Peridex is a brand of medicated mouthwash known generically as chlorhexidine gluconate oral rinse. Saltwater is acidic, and gargling it every day can soften the teeth enamel and gums. Therefore, you can't gargle salty water daily. Also, people with special medical conditions such as those with high blood pressure should take extra precaution or simply look for other alternatives they can use. Rinse, gargle, spit out the mouthwash and that should be enough. But don't use water^(2,3). Wait at least half an hour after brushing your teeth to drink water or consume beverages. Some mouth rinses contain high levels of alcohol — ranging from 18 to 26 percent. This may produce a burning sensation in the cheeks, teeth, and gums. Burning can also come from consistent mouthwash use, which causes irritated mouth tissue and can lead to mouth sores⁽⁴⁾.

Advantage:

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^(3,6,7).
7. It can prevent the buildup of plaque, strengthen the enamel, and demineralize your teeth, allowing you to prevent tooth decay⁽⁵⁾.

History:

The first known references to mouth rinsing is in Ayurveda for treatment of gingivitis. Later, in the Greek and Roman periods, mouth rinsing following mechanical cleansing became common among the upper classes, and Hippocrates recommended a mixture of salt, alum, and vinegar. The Jewish Talmud, dating back about 1,800 years, suggests a cure for gum ailments containing "dough water" and olive oil. There are references to mouthwash in Chinese, Greek, Egyptian and Roman literature, but the most well recorded early instances of humanity using mouthwash comes from ancient Rome, in A.^(7,8) The Romans used to buy bottles of Portuguese urine and use that as a rinse. Mouthwash was developed in the late 1800s. Oral care products as we know them first appeared on the scene when toothpaste was developed in the 1800s. Mouthwash was first mass-produced commercially in the late 1800s. Dr. Joseph Lawrence, the creator of LISTERINE mouthwash, wanted to name his work after scientist who paved the way. Lister, an English doctor and surgeon, became the first surgeon to perform an operation in a chamber sterilized with pulverized antiseptic^(6,9).

Material & Method:

Material

Propylene glycol (PG), poly ethylene glycol 400, glycerin, and ethanol were purchased from Merck (Germany). Dried oak husk of *Quercus brantii* and *Zataria multiflora* were bought from a local store in Shiraz, Fars province, Iran. The plant samples were authenticated by an expert botanist and voucher specimens were preserved with the code PM 712 and PM 713 at the herbarium of the faculty of pharmacy, Shiraz University of Medical Sciences⁽¹⁰⁾.

Selection of Mouthwash Base

Different mixture of solvents shown in were made as the base for formulations of mouthwash, according to previous studies. To select a suitable base for the mouthwash, different bases with different percentages were examined. The formulations were tested for different parameters, such as transmittance percentage, turbidity state, and phase state^(11,12).

Essentials oils

Mouthwashes based on essential oils contain thymol, eucalyptol and menthol in an alcohol solvent. They are broad spectrum antimicrobial agents which decrease bacterial multiplication, aggregation and pathogenicity. They act by destruction of bacterial cell and inhibition of bacterial enzymes. They also have anti-inflammatory activity, prostaglandin inhibitory activity and antioxidants activity. Sharma et al. stated that mouthwashes containing essential oils are effective in reducing oral malodour and gingivitis⁽¹³⁾.

CHLORHEXIDINE:

Chlorhexidine is a symmetrical bisbiguanide synthetic antiseptic consisting of four chlorophenyl rings and two biguanide groups connected by a hexamethylene bridge. The dicationic nature of Chlorhexidine makes it extremely interactive with anions, which is relevant to its efficacy, safety and side effects. It is available in three forms, digluconate, acetate and hydrochloride salts⁽¹⁴⁾.

HEXITIDINE:

Diluted alcohol solutions of hexitidine (0.1% and 0.14%) and an aqueous solution of chlorhexidine gluconate (0.2%) were used as mouthwashes in a group of 27 young adults for a period of 21 days. The effect on plaque formation and gingival condition were studied. After 5 and 21 days rinsing with the various mouthwashes the hexitidine 0.1% group had significantly higher plaque index values than the chlorhexidine 0.2% group. At the end of study the gingival index scores had increased significantly in the hexitidine groups (0.1% and 0.14%) but not in the chlorhexidine 0.2% group. Discolouration of teeth was observed in all subjects. Sore mouth and irritation of tongue and oral mucosa were frequently observed in the hexitidine groups^(16,17).

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^(15,18).

- **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⁽¹⁹⁾.

- **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^(19,20).

- **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⁽²¹⁾.

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.

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