



Formulation and evaluation of natural mouth freshener spray

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Abstract

Fresh Mouth is a potent dental hygiene formula that nourishes gum tissue and provides a blast of natural antioxidants. This combination fights the organisms that cause unhealthy gums making. Mouth Spray is a unique mouth care product based on the 2 QR-complex. Mouth Spray prevents and treats dry mouth problems by stimulating the saliva production. The saliva that is produced together with the 2QR-complex, restores the natural balance of the oral micro flora. A healthy oral cavity prevents bleeding gums, reduces plaque formation and ensures a natural breath. In this research I formulate the natural mouth freshener spray and it evaluated for some parameters.

Keywords: oral hygiene oral diseases, natural mouth freshener

Introduction

Oral diseases have been a persistent public health problem globally, with almost every individual experiencing poor oral health at least once in their lifetime [1, 2]. Globally, poor oral hygiene occurring due to increasing plaque and calculus deposits with increasing age have been reported among children and adolescents. Oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores and disorders that affect the oral cavity [3, 4].

Halitosis or bad breath is the unpleasant odour majorly originating from the oral cavity. This foul odour originating from the mouth is also called intra-oral halitosis, oral malodour or oral halitosis. Halitosis is caused by a variety of reasons including, but not limited to, periodontal disease, bacterial coating of the tongue, systemic disorders and consumption of different types of food. The primary cause of halitosis is the release of volatile sulphur compounds (VSCs). This oral malodour is caused by bacteria like *Fusobacterium nucleatum*, *Prevotella intermedia*, *Tannerella forsythensis*, *Porphyromonas gingivalis* and *Treponema denticola* [5].

A primary treatment for halitosis includes proper oral hygiene, i.e. brushing, flossing, and gargling. Other treatments include the mechanical approach of scaling and root planning of the root pockets and tongue cleaning, the chemical approach of using a mouthwash to reinforce mouth cleaning after eating or drinking. Many people use deodorant-type mouth rinses and mints. Also, halitosis has important socio-economic consequences and is considered as a social stigma in an ever-growing sensitive society [5].

Oral health is essential for general health and quality of life. It is a state of being free from mouth and facial pain, oral and throat cancer, oral infections and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity to bite, chew, smile, and speak; it affects psychosocial well-being too. The objective of our study was to assess teeth cleaning techniques and oral hygiene

practices among medical students [6].

Mouthwashes are oral solutions or liquids used to rinse the mouth in order to remove bacteria, to act as an astringent, to deodorize oral cavity, and for their therapeutic effect by relieving infection or preventing dental caries so they are considered as one of the most effective and safe delivery systems to decrease oral microbes [7, 8]. Chlorhexidine is a golden chemical antiplaque, however, it may cause side effects in long usage [9]. To overcome the side effects of artificial chemical drugs, it is recommended to search for naturally occurring substances, such as plant extracts, which offer well-tolerated, delicate, and low-cost drugs with lower side effects [9, 10]. Various herbal extracts such as clove oil, green tea, Aloe vera, *Punica granatum*, and white oak bark have shown therapeutic effects in the oral cavity when used as mouthwashes [11, 10]. *Quercus brantii* from the Fagaceae family has many medical and traditional uses. It has shown antibacterial and anti-inflammatory activities. Tannin content of oak husk (Jaft) showed astringent properties and it is used traditionally for treatment of hemorrhoid, diarrhea, gastric ulcer, and inflammations [12, 13].

Material and Method

Material

- Clove oil—purchased from ayurvedic shop
- Oregano oil - purchased from ayurvedic shop
- Rose oil- purchased from ayurvedic shop
- Peppermint oil- purchased from ayurvedic shop
- Mannitol- SPI pharma
- Water –distilled water

Method

- Take a 25 ml Distilled water boil it
- Then add clove oil, oregano oil, peppermint oil, rose oil, mannitol
- Mix well

- Boil for 15 min.
- Cool it and filter it.
- Filled in suitable container.

Mouth freshner spray formula

Formula for 25 ml

Table 1

Serial no.	Ingredients	Quantity	Use
1	Clove oil	Q. S	Dental analgesic
2	Oregano oil	Q. S	antibacterial
3	Peppermint oil	Q. S	Cooling effect, calming effect
4	Rose oil	Q. S	Flavoring agent
5	mannitol	Q. S	preservative
6	water	Q. S	vehicle



Fig 1: Images of Natural Mouth Freshner Spray

Evaluation of formulation

1. Color, odor, taste
2. Visible absorption spectrum
3. pH Determination
4. Refractive Index
5. Stability

Color, odor, taste

We check this parameters by simple touch and visual assessment

Table 2

Sr no	Parameter	Result
1	Color	transparent
2	Odor	Pleasant
3	taste	sweet

Visible absorption spectrum

Record the spectrum of the undiluted sample (using a water blank). Record the absorbance of the peaks at 414 and 626 nm.

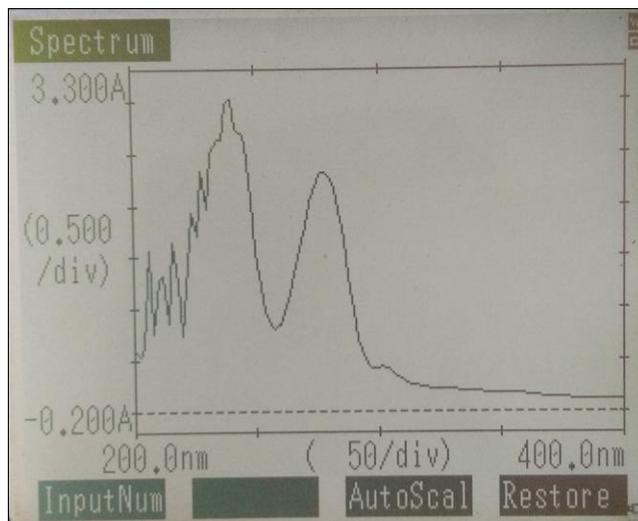


Fig 2: Original Mouth Spray (UV –Spectra)

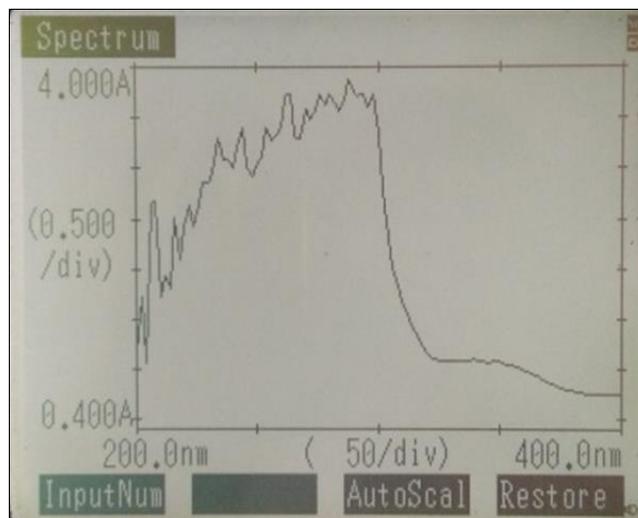


Fig 3: Clove Oil (UV-Spectrum)

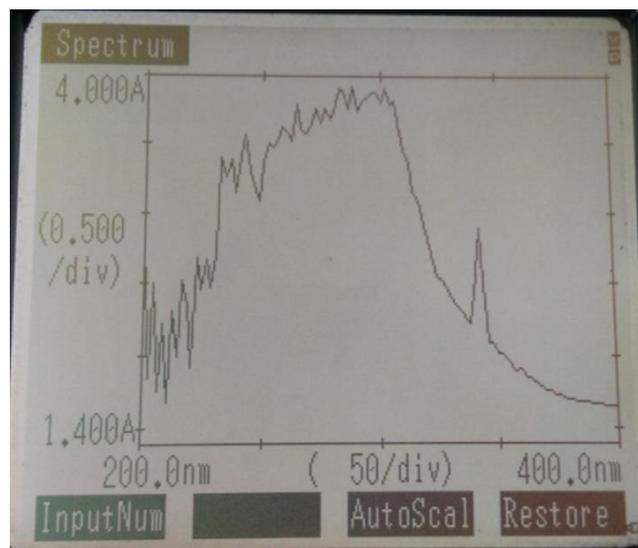


Fig 4: Organo oil Spectrum

Table 3

Sr. NO.	Oil	Absorbance	Chemical Constituents
1.	Clove	1.01	Eugenol
2.	Oregano	1	Carvacrol

PH Determination

We check the pH of the above mouth freshener spray by using simple pH meter. pH meter are most accurate type of measurement and are widely used. First we will calibrate this pH meter by using buffer solution. Then check the pH by dipping the electrode in undiluted sample solution. (Ideal range: 6-7)

Table 4

Sr no	parameter	Result
1	ph detection	6.2

Refractive index

1. Measure the RI of water.
2. Measure the RI of the undiluted sample.

Abbe, s Refractometer was used

Table 5

Oil	Refractive index	Standard
Clove oil	1.51	1.53
Oregano oil	1.53	1.50
Undiluted sample	1.52	1.33

Stability Testing

The checking of stability of formulation by following way,
Kept the mouth freshener spray with different temperature for different time and check the turbidity of formulation.

Table 6

Sr no	Time (In month)	Temperature(°c)	Result
1	1 month	4 ⁰ c	No turbidity
2	1 month	RT	No turbidity

Result

The natural mouth freshener spray formulation was prepared and evaluated for some parameters successfully It have good colour pleasant dour and test Good stability and PH within range it also have Good water Solubility.

Conclusion

The Observation of the study clear suggest the suitability clove oil and oregano oil as herbal remedy for maintain oral hygiene, since it possesses potent antimicrobial activity and desensitizing agent against bacterial and yeast strains which are major causes of dental infection besides this formulation also possesses anti-inflammatory activity in some amount especially those caused by the microorganisms the quality control parameters stability, PH make this formulation suitable for human use

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