

Design and Evaluation of Betal Leaf Extract Loaded Herbal Mouth Breath Freshener

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Abstract: Keeping a decent oral cleanliness supports keeping our general wellbeing in a great shape. The mouth is a fundamental piece of the stomach, and consequently any oral sickness will straightforwardly or by implication influence the GI plot as well. Betal leaf was used as traditional medicine for several disease including cleaning of oral cavities. Curcumin in turmeric can prevent gingivitis, or gum disease. It helped remove plaque, bacteria, and inflammation comparably well with traditional mouthwashes, when used properly. Clove have antibacterial and antifungal properties it is widely used in toothpaste preparations. Cinnamon bark and nutmeg seeds have anti-inflammatory property. The objective of study is find out the efficacy of these plant extract against caries inducing microorganisms. further formulating mouthwash which has efficiency to inhibit the growth of the microorganism.

Keywords: Extract, Spray, freshener and batel leaf.

I. INTRODUCTION

A foul smell from the mouth is a major issue for today's daily life. It is also a major indicator of poor oral health. People are not maintaining oral hygiene due to many reasons—lack of time being the chief one. Poor oral hygiene is directly connected with poor oral health and ultimately leads to a foul smell. Many instant-refreshing products such as chewing gums, mouthwashes, gargles, fast-dissolving films, etc., are available for suppressing the foul smell. However, none of them are fixing the root cause, that is, microorganisms.

Definition: Breath spray is a product sprayed into the mouth for the purpose of temporarily eliminating or at least covering up bad breath

Breath fresheners are great tasting and made with natural ingredients designed to combat the bacteria in the mouth that causes bad breath.(1-2)



Application:(3)

1. Kills germs at places that are hard to reach – When you are flossing or using a toothbrush, you can fight germs only on those areas that can reach. But, it can be really difficult to attack the germs which are stuck in hard places. This is when a mouth freshener spray comes into the picture, to help cleanse your full mouth.

2. Freshen your breath – With a mouth freshener spray, you can leave your mouth with clean and fresh breath. The best thing about these mouth fresheners is that they are available In a variety of flavours and will also leave a splendid taste in your mouth that you will most likely love. A mouth freshener is not only advantageous to you but it is also very good for those people who are around you, because a fresh breath is always ideal for your surroundings, be it at the home, office, or even when you are alone .
3. Helps loosen the food that is caught between your teeth – By spraying mouth freshener around in your mouth, it can help loosen the food which is caught in between the teeth. This way a mouth freshener serves as an excellent alternative to flossing as well.
4. Fights against cavities – Besides freshening your breath, removing food and killing germs, a mouth freshener helps in warding off cavities. With a mouth freshener at your rescue, you can also remove plaque which in most cases forms inside your mouth and develops into cavities. Hence, it is very much recommended to use a mouth freshener spray once a day to help maintain oral hygiene.

Advantages:(4)

The following are some of its advantages

- As the spray moisturizes your mouth, it prevents the occurrence of painful sores in your mouth
- It prevents cavities, plaque build-up, and other possible microbial invasions.
- It is portable (i.e.) and easy to carry so you can take it to places wherever you visit.
- Unlike mouth rinses, you don't have to spit out the fluid. You can spray your mouth in a few seconds whenever you needed

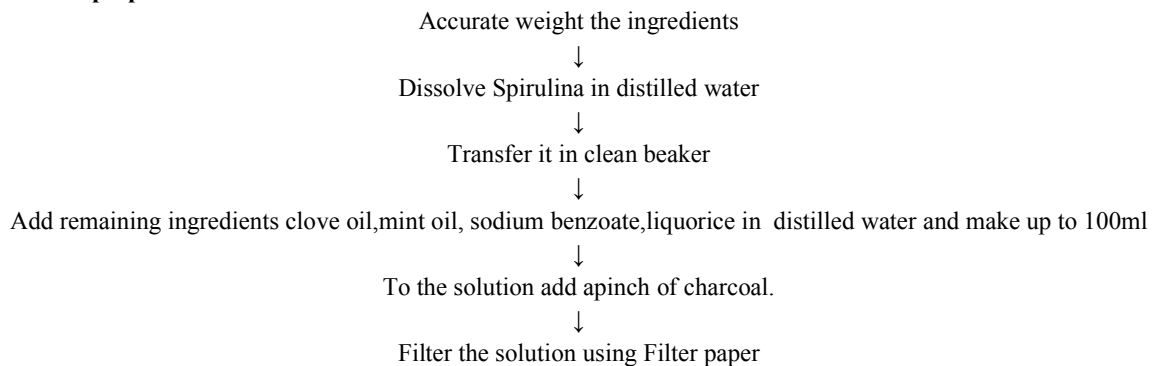
II. METHOD AND MATERIAL

Betel leaves were collected from herbal garden of Siddhi College Of Pharmacy. Air dried leaves were grinded.To a fine powder in a suitable grinder mixture. Shade Dried powder was extracted
Clove oil was collected from the medical store and other ingredients was collected from the lab of Siddhi College of Pharmacy itself and water used for this formulation was distilled water

Method:

Formulation containing ingredients such as clove oil, peppermint oil, sodium benzoate, salt water.

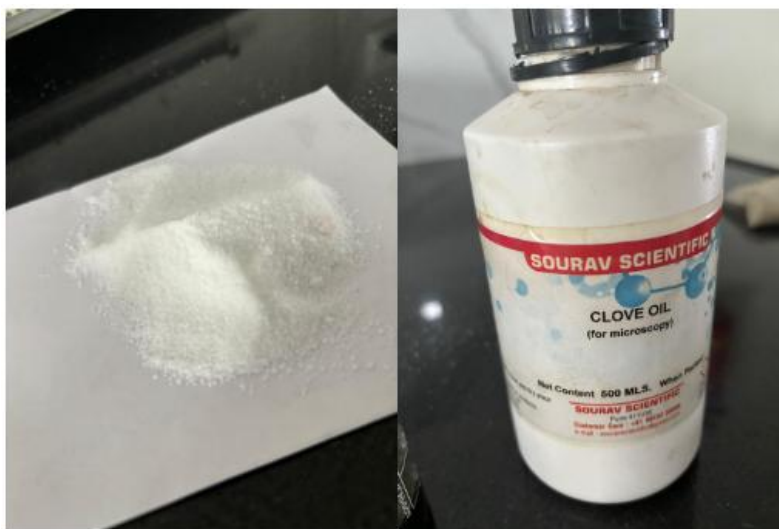
Method of preparation



Formulation table

Sr No	Name of ingredients	F1 (mg)	F2(mg)	F3 (mg)	Uses
1	Spirulina	50	75	100	Antibacterial
2	Clove oil	25	20	10	Antimflammatory
3	Peppermint oil	50	50	50	Mouth freshner

4	Fennel	225	205	190	Sweetner
5	Sodium Benzoate	150	150	150	Preservative
6	Salt	250	250	250	Osmolytic Preservative
7	Water	Upto(50ml)	Upto(50ml)	Upto(50ml)	Solvent



Evaluation of mouthwash:(5)

1. Physical evaluation: Physical parameter such as colour, odour and consistency were examined by visual examination.
2. pH: The pH of prepared herbal mouthwash was measured by using digital pH meter. Initially the pH meter was calibrated using standard buffer solutions. Then the mouthwash was tested for pH.

Sr.no	Parameters	Observation
1.	Colour	Yellowish brown
2	Odour	Pungent
3	Taste	strong, warm, somewhat spicy taste.
4	Ph	4.2
5	Accelerated Stability test a) 0-14°C b) room temperature c) above 37°C	Stable at room temperature no change in colour and consistency.

3. Microbial Assay: The antibacterial activities were evaluated by Agar diffusion method by measuring the zones of inhibition (in mm). Agar media was prepared then the formulated mouthwash was inoculated on the plate's agar media by streak plate method and controlled is prepared by mouthwash. The plates were placed in the incubator and are incubated 37°C for 24 hours. After the incubation period the plates were taken out and the Microbial growth were checked and compared with the control.

4. Stability studies: Physical parameters like colour, odour, consistency and pH was determined at room temperature. The result of stability studies was shown in table.

5. Flavour: The flavour of the herbal mouthwash was tested after a week whether it is same or lost at ambient temperature.

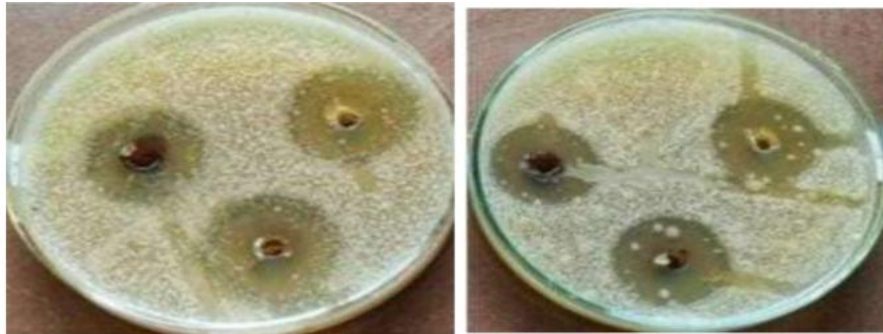
6. Spray pattern

The spray pattern was evaluated by spraying coloured formulation on a plain white paper surface. Uniformity of the spray pattern was categorized as +, ++ and +++ for uneven, slightly uneven and good spray patterns, respectively.



7. Spray Angle

The spray angle was determined by spraying the formulation from the height of 5 cm above plain white paper. The angle between the outermost border and central rod tip (at a 5 cm height) was measured at four different points. The average was considered as the spray angle.



III. CONCLUSION

The Observation of the study clear suggest the suitability clove 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 cause 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.

REFERENCES

- [1]. <https://www.mdpi.com/2673-9992/21/1/25>
- [2]. <https://www.mdpi.com/2673-9992/21/1/25#:~:text=Method%20for%20Preparing%20Mouth%2DRefreshing,stimring%20up%20to%2030%20min>
- [3]. https://www.google.com/url?q=https://www.smyle.co.in/top-5-reasons-why-you-should-use-mouth-freshener-spray/&sa=U&ved=2ahUKEwi-v5io1_CFAxWnSfUHHU8OBisQFnoECDoQAQ&usg=AOvVaw0ib8ehiCjSOneKi08y9Ypk
- [4]. <https://www.sendhildental.com/role-of-mouth-sprays-in-oral-care/>
- [5]. <https://ijrpr.com/uploads/V5ISSUE3/IJRPR23474.pdf>