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Formulation and Evaluation of Herbal Mouthwash Research Paper

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Abstract: *Oral hygiene play a crucial role in human health, there are many market Products available for oral hygiene,in which one is herbal mouthwash.*
The present study focuses on the formulation and evaluation of a herbal mouthwash aimed at improve oral hygiene.The mouthwash contains natural ingredients such a neem extract ,tulsi extract ,eucalyptus extract, peppermint oil, tea tree oil which all show antiseptic activity, anti-bacterial, anti- inflammatory properties.
The formulation was prepared using suitable excipients such as methyl paraben, glycerine , honey, sodium bicarbonate,to ensure efficacy, palatability, and safety. The prepared mouthwash was evaluated for various physical parameters such as pH, viscosity, appearance, and uniformity, and showed acceptable results.
The study concludes that the developed herbal mouthwash can serve as a safe, natural, and cost-effective supportive for treatment of oral diseases, dental plaque to show antiseptic activity..

Keywords: Herbal mouthwash, Antibacterial, Oral hygiene, Dental care, Anti-inflammatory

I. INTRODUCTION

Mouthwashes are liquids with pain-relieving, antibacterial, and mitigating properties. Mouthwash is a solution that is most commonly used for its antiperspirant, revitalizing, and cleaning qualities, or to manage plaque.1 Due to their ability to target oral infections, provide immediate pain relief, and have fewer adverse effects, herbal mouthwashes are in high demand.2 One serious mouth illness that can impact the teeth is peridontitis. Gum edema, bleeding gums, enamel eruption, cavity development, and the creation of a hollow, black eruption on the tooth surface are all included in dental caries.

Due to poor oral hygiene, childhood and teenage dental caries rates are high in the beginning. Through the jaw bones and the gaps between the fascial planes of the surrounding soft tissue, oral infections propagate from the root of the contaminated tooth.3,4 Common spices like clove oil, neem, triphala, tulsi, and many more are used either alone or in combination and have been deductively showed to be a safe and effective remedy for oral medical conditions like mouth ulcers, gum disease, and tooth decay prevention without side effects.

The Oral hygiene is a play crucial role in human health for maintain oral health there are many dental products as well as other herbal and chemical products prepared in the market. Oral cavity mainly affects the digestive and respiratory systems. Also a mouth plays a crucial role not only in food intake and communication but also in serving as a barriers against pathogens. The mouth is said to be home of various bacterial microorganisms.But in these some microbes cause various oral disease like dental cavity, dental plaque, gingivitis and bad breath etc. So now in these case most recently study and research include the mouthwash is best for the maintain oral hygiene. Mouthwash is a liquid rinse for the mouth that helps maintain oral hygiene, reduces bacteria, maintain freshness breath and fights conditions like plaque and gingivitis. It is a complementary part of an oral hygiene routine but does not replace brushing and flossing. There are some herbal ingredients useful for the preparation of herbal mouthwash for mouthwash for treatment of mouth

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diseases. In which Tulsi extracts, Eucalyptus extracts, Neem extracts, peppermint oils ,tea tree oil most commonly used for provide freshness of our mouth.

Herbal Mouthwash:

Mouthwash is a liquid rinse used to clean the mouth ,freshen breath and improve oral hygiene by reaching areas a toothbrush cannot.

Herbs Used in Herbal Mouthwash:

1. Neem

Helps:

Oral ulcers: soothing effect helps heal minor mouthwash.
Reduce gum inflammation
Fights bacteria

2. Tulsi

It contains high amount of eugenol.

Helps:

Fights bacteria
Reduce gum inflammation
Provide soothing effect helps heal minor mouth sores

3. Eucalyptus Helps:

Kills germs
Calms irritated gums.
Decongestant bones
Minor mouth tissue inflammation

4. Peppermint Oil Helps:

Freshens breath instantly
Pain relief
Show anti- fungal activity
Show anti- fungal activity

5. Tea tree oil

Show strong antibacterial activity
Targets and fights sulfur producing bacteria that cause halitosis
Reduces gingivitis: anti- inflammatory properties calm swollen bleeding gums.

6. Sodium Bicarbonate

Neutralizes acids
Remove teeth surface stains
Soothens ulcers

7. Honey

Heals mouth ulcers
Controls bad breath
Less irritation

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Creates a protective barriers reduces pain

8. Glycerol
Moisturizing effects
Preservative

9. Methyl Paraben
Prevents microbial growth
Increase self life of Mouthwash

MATERIAL AND METHODOLOGY

Material

Neem: Gives anti-bacterial activity due to it's contain chemicals such as limonoids polyphonic flavonoids help to prevents cavities.
Tulsi : Gives anti-inflammatory activity due to it's contain chemicals such as eugenol urosonic acid, rosemaric acid.
Eucalyptus: Gives expectorant activity due to it's contain chemicals such as Eucalyptol 1,8cineole.
Tea tree oil: Gives anti-bacterial, anti- inflammatory combat bacteria and soothen the gums. Peppermint oil: Gives mild antiseptic activity due to it's contain chemicals such as menthol and menthone.
Glycerine: Solvent, increases viscosity, improves taste.
Honey: Natural sweetener, improves palatability, mild antibacterial action, Purified water: Vehicle for the formulation.

Methodology

Step 1: Preparation of Herbal Decoction
Take dried tulsi, neem, eucalyptus leaves and boil for 10-20 minutes to prepare a decoction
Allow it to cool to room temperature.
Filter using muslin cloth or filter paper to obtain a clear herbal extract


Fig.No.1 Dried Eucalyptus Leaves.


Fig.No.2 Dried Neem Leaves.

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Fig.No.3 Dried Tulsi Leaves

Step 2: Preparation Of Preservative Solution
Dissolve methyl paraben 0.1-0.2% in it with gentle heating if needed
Stir until a clear solution is obtained
Allow to cool before addition to main formulation

Step 3: Addition Of Excipients
In a clean beaker,take the filtered herbal decoction
Add in it glycerine, honey, sodium bicarbonate.
Mix thoroughly until uniform solution is formed

Step 4: Addition Of Essential Oils
Take small quantity of glycerine or suitable solubilizer
Add Peppermint Oil and Tea tree oil

Step 5: Final Volume Adjustment
Add purified water to adjust the final volume to the required quantity (100mL)
Stir thoroughly to ensure uniform distribution of all ingredients

Step 6: Filtration and Packaging
Filter the final solution using fine filter paper or muslin cloth to remove any suspended particles.
Transfer the clear mouthwash into sterile amber-coloured bottles.
Seal tightly to prevent contamination and evaporation and evaporation of volatile oils
Label with name, composition and storage conditions

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Fig.No.4 Filter Final Product

Fig.No.5 Herbal Mouthwash

FORMULATION TABLE

Sr. No.	Ingredients	F1 (mild)	F2 (moderate)	F3 (high)	Role
1.	Tulsi extract	10 mL	12 mL	14 mL	Active Ingredients
2.	Neem extract	10 mL	12 mL	14 mL	Active Ingredients
3.	Eucalyptus extract	10 mL	12 mL	12 mL	Active Ingredients
4.	Peppermint oil	2-3 drop	2-3 drop	2-3 drop	Flavor
5.	Tea tree oil	5 mL	5 mL	5 mL	Flavor
6.	Methyl paraben	10 mL	10 mL	10 mL	Preservative
7.	Sodium bicarbonate	10 mL	10 mL	10 mL	Whitening agents
8.	Honey	10 mL.	10 mL	10 mL	Sweeting agents
9	Glycerine	5mL	5mL	5mL	Moisturizing gents
10.	Purified water	q.s. to 100 mL	q.s. to 100 mL	q.s. to 100 mL	Vehicle

Table no. 1: Formulation Table

EVALUATION PARAMETERS

1. Physical Evaluation:

Sr. No.	Parameter	Observation
1.	Colour	Light brown
2.	Odour	Slightly medicinal, fresh
3.	Taste	Slightly bitter but fresh
4.	Appearance	Turbid
5.	Consistency	Slightly thicker
6.	Homogeneity	Uniform

Table no. 2: Evaluation Table

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2. pH: The pH of the formulated herbal mouthwash was measured using calibrated pH meter and found to be in range of 5.11 – 6.5.

Fig.No.6 pH Of Herbal Mouthwash

3. Viscosity: Determine flow property of herbal mouth wash. It should be smooth and easily pourable.

Fig No.7 Viscosity Test

4. Uniformity: Ensure proper mixing of all ingredients. Mouthwash should be homogeneous throughout.

Fig.No. 8 Uniformity Test

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RESULT AND DISCUSSION

The formulated herbal mouthwash was evaluated for various physiochemical and organoleptic parameter. The observation are summarised below:

Sr. No.	Parameter	Result
1	Colour	Light brown
2	Odour	Slightly medicinal and fresh.
3	State	Liquid
4	Taste	slightly bitter but refreshing
5	pH	5.11-6.5

Table no. 3: Result and Discussion

SUMMARY AND CONCLUSION

Summary

The present study focuses on the formulation and evaluation of the herbal mouthwash designed To improve oral hygiene and treat maximum oral health related disease. This herbal mouthwash formulated by using neem, tulsi, eucalyptus, peppermint oil, tea tree oil All this know for their antiseptic activity and therapeutic efficacy. Suitable excipients such as honey, sodium bicarbonate, methyl paraben, glycerine are incorporate To ensure.

• Good taste and palatability
• Enhance patient compliance
• Economic,safe and effective formulation

The prepared herbal mouthwash is evaluated for physical characteristics,pH, Stability Uniformity Ensuring it meets pharmaceutical quality standard

II. CONCLUSION

The herbal mouthwash has been successfully formulated and evaluated using suitable herbalExtracts and excipients the formulation demonstrate good stability, acceptable physicochemical Properties and uniform consistency.The presence of antiseptic rich herbal components contribute to:

• Reducing of oral infection .
• Treat oral disease like dental plaque, gingivitis, and cover bad breath.
• It help for whitening teeth.
• Also responsible for stop the growth of bacteria in mouth.

Thus the developed herbal mouthwash can be considered a promising supportive treatment for Patients Oral hygiene, offering a natural,safe and effective treatment for oral hygiene.

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