



A Review on HERBAL TOOTHPASTE

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ABSTRACT :

Herbal products for both general and oral health care have gained global prominence. Individuals inclined towards herbal products often perceive them as safer alternatives to those containing synthetic ingredients. In light of the rising utilization of herbal cosmetics, we endeavored to conduct a comprehensive review of herbal toothpaste that aids in maintaining proper oral hygiene and preventing periodontal disorders, as well as reducing stains, gingivitis, calculus, and caries. This review provides fundamental information.

Concerning the antibacterial efficacy of diverse herbs and formulation excipients applicable in toothpaste manufacturing.

Keywords: Herbal toothpaste, Anti-microbial screening, Periodontal disorder, Gingivitis, calculus, Dental caries.

INTRODUCTION

Herbal and herbal-based toothpaste has been utilized for many years in ancient times. is a fundamental component of oral health care. The production and The formulation of toothpaste originated in China and India around 300-500 BC. In that time, crushed bone, ground egg, and clam shells were employed as abrasives as part of Dental hygiene. Contemporary toothpaste compositions were established in the 19th century.

Following advancements in medicine, chalk and soap were integrated into the field. ormulations. Immediately upon independence, numerous formulation advancements occurred across various domains. Detergents commenced with the utilization of sodium lauryl sulfate as an emulsifying agent. Within the . In the contemporary period, emphasis has transitioned to the liberation of active constituents during formulation.

Advancements to avert and/or address oral diseases. Toothpaste is a dentifrice utilized to cleanse, preserve, and enhance dental health. Toothpaste constitutes mostly utilized to enhance oral hygiene and moreover functions as an abrasive that aids in the prevention of tooth plaque and food debris from the teeth assist in the elimination and/or concealment of halitosis.

It dispenses active compounds such as fluoride to assist in the prevention of dental and periodontal diseases (e.g. Gingivitis.)The predominant cleaning is executed through the mechanical action of the toothbrush. The role of excipients utilized in toothpaste. The utilization of several herbal compositions is quite effective. as they comprise active chemical constituents including polyphenols, gums, alkaloids, glycosides, etc. These formulations have also been examined for various biological activities.

Classification of Toothpaste

1) For the prevention and treatment of dental caries

- Fluoride levels up to 1000 ppm
- Fluoride concentration: 1000-1500 ppm
- Fluoride concentration: 2500-5000 ppm

2) For the prevention and treatment of periodontal disease

- Comprising natural plant extracts, essential oils, enzymes, or vitamins

- Utilizing synthetic antiseptic or antibacterial agents

3) For the management of hypersensitive dentition

4) Whitening & Bleaching

5) With a definite purpose

Optimal Characteristics of Toothpaste

1. Effective abrasive performance

Two. Non-irritating and non-toxic

Three. Impart no discoloration to the tooth

Four. Maintain oral freshness and cleanliness

5. Extended impact

6. Inexpensive and readily accessible.

LITERATURE REVIEW:

1. Fabina Ozaki et al. (2006):

Effectiveness of a herbal toothpaste in patients with diagnosed gingivitis: a randomized controlled trial

Two. Aravind Tatikonda et al. (2014):

A clinical comparison investigation on the effects of herbal versus non-herbal toothpastes on plaque and gingivitis.

Three. Kuldeep Singh et al. (2016):

Comparative analyses of herbal toothpaste (Dantkanti) with non-herbal toothpaste.

Four. T. Mangilal et al. (2016):

Formulation and assessment of herbal toothpaste in comparison to commercial herbal toothpastes

A laboratory investigation conducted outside a living organism.

Five. Pavan Deshmukh et al. (2017):

Formulation and Assessment of Herbal Toothpaste: A Comparison with Commercial Products

6. Chandrashekhar Jankiram et al. (2020):

Effectiveness of herbal oral care products in mitigating tooth plaque and gingivitis – a comprehensive review

systematic review and meta-analysis

Seven. Mina Biria et al. (2022):

Antibacterial efficacy of a herbal toothpaste with Bamboo salt: a randomized double-blind study

regulated clinical trial.

PLAN OF WORK:-

One. Research Topic Selection: Formulation of Herbal Toothpaste.

Two. Initial inquiry into the availability of necessary chemicals and natural substances.

merchandise from our suppliers.

Three. Formulating hypotheses: Illustrate the good and negative causes and effects of prior herbal practices.

Toothpaste product.

Four. Identify resources: Applications of all equipment, apparatus, chemicals, and herbal items from GMCP.

Laboratories and the utilization of materials and books obtained from the library.

5. Data Analysis: Consult with the guide to interpret the obtained data.

6. Hypothesis testing: Determine the veracity of all formulated hypotheses.

Seven. Generalization and Interpretation: Ensure that the formulated hypothesis is viable for further examination.

Product Preparation.

8. The product formulation presentation will be delivered as a report of 25 to 30 pages.

This summarizes all the details of the formulated herbal toothpaste.

MATERIALS & METHOD

Assemblage of flora:

Plant materials are sourced from adjacent regions and some are acquired from the local market.

Aurangabad.

Plant identification:

Tulsi leaf comprises fresh and dried leaves of *Ocimum* species, such as *Ocimum sanctum*.

Taxonomic classification

It serves as an exceptional mouth freshener and oral disinfectant, with its freshness enduring for an extended duration.

duration. It eliminates over 99% of the germs and bacteria in the oral cavity, and this effect can endure.



Bay leaf

Dried desiccated foliage of *Cinnamomum tamala*.

Bay leaves include chemicals that facilitate natural teeth whitening. They also promote gum health and prevent cavity formation.

**Guava leaf**

It comprises desiccated foliage of *Psidium guajava*.

Guava bark and leaf extracts exhibit *in vitro* toxic effects against several microorganisms. Guava leaves are abundant in flavonoids. The flavonoids exhibit antimicrobial properties. The antibacterial properties of guava leaves contribute to the health of teeth and gums.



EXPERIMENTAL WORK**Procedure:-**

Initially, I gathered bay leaves, tulsi leaves, mango leaves, and guava leaves from the trees on my college campus. The leaves from all four plants were meticulously cleansed and rinsed under running tap water to eliminate any filth. Subsequently, the mango leaves, tulsi leaves, bay leaves, and guava leaves were let to dry in the pharmaceuticals laboratory. After 4 to 5 days, the leaves are desiccated. All the leaves are processed using a grinder, resulting in a powdered version of the leaves. Weigh the quantity of each chemical using a weighing scale.

Combine the bay leaves, mango leaves, tulsi leaves, and guava leaves in accordance with the specified quantities. Subsequently, combine all the ingredients sequentially, excluding Methyl paraben, which serves as a preservative in the toothpaste. **EVALUATION TEST:**

pH level:

The net quantity of the sample was 5 grams.

precisely measured and positioned in a 150 ml add about 45 ml of newly boiled water to the beaker

Active Ingredients:

Sr. No	Ingredients	Quantity	Uses
1	Tragacanth	1.2gm	Binding agent
2	Tulsi leaf powder	1gm	Antioxidant
3	Bay leaf powder	0.5gm	Antidiabetic
4	Mango leaf powder	1gm	Anti Inflammatory
5	Guava leaf powder	1gm	Antibacterial

Chemicals:

Sr. No	Chemicals	Quantity	Uses
1	Calcium carbonate	46.5 gm	Abrasive
2	Sodium saccharin	0.05 gm	Sweetening agent
3	Methyl paraben	0.15 gm	Preservative
4	Sodium lauryl sulphate	1.3 gm	Detergents and foaming agent
5	Sorbitol	30 gm	Humectant
6	Water	q.s	Solvent
7	Peppermint oil	1ml	Flavoring agent

Cooled water was added at 27°C and mixed.

To create the suspension, the pH was ascertained within 5 minutes with a pH meter.

Foaming power:

A sample of 100 ml was collected. glass beaker To this, 10 ml. A quantity of water was introduced. The beaker was agitated with a glass rod and permitted to rest for 30 minutes. The contents of the beaker were mixed and transferred to a 250 ml container. graduated cylinder. The residue remaining in the beaker was transferred with an additional 5-6 ml quantity. Water to the cylinder. The cylinder's volume has been calibrated to 50 ml. by adequate water. Agitated the contents of the cylinder with a glass rod. Once the temperature of the container reached 30 minutes, stirring of the cylinder was halted, and it was subjected to 12 complete shakes. The cylinder was then permitted to stand for 5 minutes, after which the foaming power was assessed. Organoleptic characteristics:

The formulation was evaluated based on organoleptic properties such as appearance, color, and texture following testing and extrudability. Volatile matter and moisture content: A specified quantity of the sample should be placed in a dish and dried until a constant weight is achieved. Weight reduction will signify the percentage loss of moisture and volatile substances.

Granule dimensions:

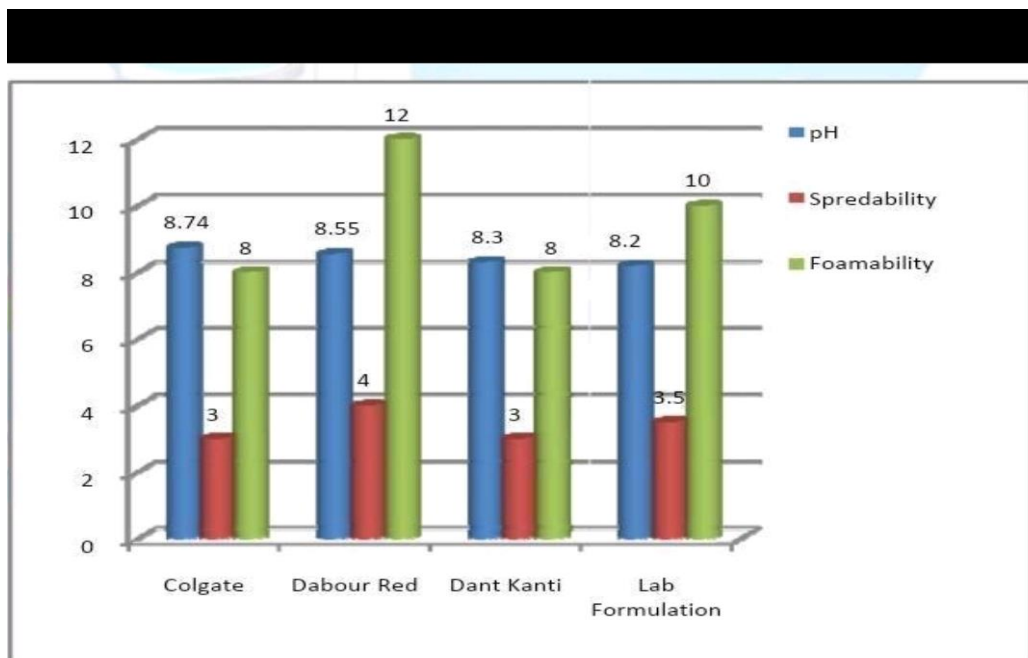
2 grams of sample are disseminated in 25 milliliters. Water was subsequently passed through a 150 and 50 mesh sieve. No more than 0.5% of particles should pass through sieve No. 150, and no more than 2% of particles should pass through sieve No. 50

EVALUATION OF HERBAL TOOTHPASTE:

Sr.No	Parameter	Result
01	pH	8.2
02	Colour	Greenish Brown
03	Volatile Mattee	3gm
04	Foaming Power	100%
05	Microbial Assay	zone of inhibition(diameter inmm.): toothpaste13 mm.,standard drug (ofloxacin)-24mm.,control-0mm.
06	Spreadability	3.5mm
07	Practicle Size	% of particles passing sieve no. 150- 0.41% % ofparticles passing sieve no. 50- 1.6%
08	Abrasiveness	Good abrasiveness

RESULTS& DISCUSSION :-

The herbal toothpaste formulation was prepared using natural ingredients such as mango leaves, guava leaves, bay leaves, and tulsi leaves, along with a small quantity of synthetic components. During the trial phase, three batches were produced; however, two batches were permanently discarded due to issues with homogeneity, spreadability, and foamability. Consequently, only one batch was selected for subsequent steps. The developed herbal toothpaste is greenish-brown in color, exhibiting excellent homogeneity without lumps and demonstrating significant antimicrobial action. .



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8. <http://www.diyhealthremedy.com/15-superbhealthbenefits-of-bay-leaf/>
9. <http://www.fruitvts.com/en/scientificclassificationofguava/model-19-5>