

## Formulation of Herbal Dentifrices Powder containing Triphala (AMLA, HIRADA, BEHDA)

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### ABSTRACT:-

Ayurveda had mentioned various procedures for maintaining oral hygiene. These include procedures like gandusha, kavala, dantadhavana, and jivhalekhana (cleaning tongue). Various plants have been mentioned in Ayurveda for dantakashta. Various Ayurvedic dental formulations are available in market in the form of powders, paste, etc. This study is thus aimed to provide an alternative to the consumer and formulate herbal tooth powder using Triphala, Clove, Cardamon, Black catechu, Trikatu powder, Black salt, Cinnamon powder respectively. Present study was conducted for evaluating the effect of one of such herbal tooth powder which is controlling plaque and reducing gum inflammation in patients of moderate gingivitis. Dental formulations are available in market in the form of powders, paste, etc. Present study was conducted for evaluating the effect of one of such Ayurvedic tooth powder, in controlling plaque and reducing gum inflammation in patients of moderate gingivitis. Oral hygiene instructions were given that included brushing twice/day with assigned tooth powder for tooth brushing and also massage over gum tissue with the use of finger.

**KEYWORDS:-** Dentifrices, Oral Hygiene.

### I. INTRODUCTION :-

Definition:-

A dentifrice is defined as a powder, paste or other material for cleansing the teeth.

The effective removal of dental plaque is important for maintaining periodontal and oral health. Although mechanical control of microbial plaque by self-care efforts is important to prevent the plaque accumulation, this alone will not suffice. Chemical control of dental plaque is an adjunct therapy which may facilitate the removal and prevent the accumulation of microbial plaque, potentially reducing the dependence on mechanical oral care behaviours. Consequently, the use of both chemical and mechanical plaque control is recommended for optimal oral hygiene.

Oral hygiene is an important key to maintain good appearances, impression of an individual and gives confidence. It can be prepared by synthetic and herbal ingredients now a days herbal formulations are high in demand due to its efficiency to avoid the side effects when compared with synthetic formulation. The tooth powder was prepared by using various herbal ingredients which possess the antibacterial, antiseptic and cooling properties. Amla powder, Neem powder, cinnamon powder, clove powder, baking soda, pink Himalaya are the herbal ingredients were used in this work to formulate ideal tooth powder which can satisfy all the required properties to keep the mouth fresh and to prevent tooth decay. Tooth powder are based on its abrasive property, the powder applied on the tooth rub against the tooth which helps to remove the deposited food junk and minerals from tooth. Oral hygiene is very important for the health. Due to variant of Phytoconstituents, substituting and adulterants in crude drugs their formulation for purity and quality. One of the most commonly used herb in most of herbal tooth powder available in market, due to its bitterness, smell antimicrobial activity. It is found that 10 billion of microbes are present in oral cavity. Some of them are dangerous to hygiene of buccal cavity. Classical herbal tooth powder are used as tooth cleaning agents, and also used in various oral diseases like gum diseases, Tooth erosion, Tooth sensitivity, toothache. The main aim of work is to prepare evaluate and compare lab herbal preparation and market herbal preparation by different method organoleptic, Physicochemical, physical and phytochemical Analysis.

### Tooth Powder Prevent Various Dental Problems

#### Like:-

- **Gingivitis**

Gingivitis is the mildest form of periodontal disease and is elicited by the accumulation of plaque on the tooth and the soft-tissue adjoining the tooth. Accumulation of dental plaque has been identified as the primary cause of

this disease .It is a reversible condition but when left untreated, gingivitis can progress to periodontitis, leading to loss of bone and connective tissue which is the most accepted cause of tooth loss in all walks of life globally.

• **Plaque**

Plaque – a small, abnormal patch of tissue on a body part or an organ. Plaques may also be a build-up of substances from a fluid, such as cholesterol in the blood vessels.

**TYPES OF DENTIFRICES**

**1.Toothpaste**

Toothpaste is a paste or gel dentifrice used with a toothbrush to clean and maintain the aesthetics and health of teeth.

**2.Toothpowder**

Tooth powder is a mixture of a variety of ingredients that acts as an alternative to toothpaste as a cleaning agent. The main ingredients include baking soda, herbs like cloves, mint or cinnamon, and artificial sweetener for taste.

**3.Mouthwash**

A mouthwash is usually antiseptic liquid preparation for cleaning the mouth and teeth or freshening the breath.

Difference between tooth-powders and Toothpaste :-



**Tooth-powders Pro’s &Con’s :-**

**Pros :-**

Research Trusted Source indicates that powder is more effective at removing stains and plaque than toothpaste .can be easily made at home, providing control over ingredients.

**Con’s:-**

Doesn’t typically contain a cavity .fighting ingredient, such as fluoride .no powders have been awarded the ADA seal of acceptance-may be too abrasive for teeth-sloppy or difficult to use may leave an aftertaste in the mouth-may come from manufacturers that aren’t transparent in their practices or who don’t accurately list Ingrida

**Ingredients :-**

- ❖ Triphalapowder(Amla+Hirada+Behada)
- ❖ Clove powder
- ❖ Rock salt
- ❖ Cardamom powder
- ❖ Black catechu
- ❖ Peppermint
- ❖ Trikatu powder
- ❖ Cinnamon

➤ **TRIPHALA POWDER :-**

It is the combination of three mixture of herbal drugs :-



- ❖ Amla (Indian gooseberry )
- ❖ Hirada(Myrobalan)
- ❖ Beheda(Terminaliabellicrica)

**Properties:-**

- Antioxidant ,Antimicrobial, Anti Inflammatory.
- It is use as root canal irritant for dental, along with anti collagenase activity.
- It is useful as mouth resin. Used inAyurvedic,Unani,Homeopathic.
- It is useful for controlling periodontal disease.
- It is present as S –Mutans (Preventing form decay of teeth).

➤ **ROCK SALT (BLACK SALT):-**



**Synonym:-**Himaliyan black salts ,Sulemaninamak

**Properties:-**

- It is useful for strain remove over teeth.
- It is natural source of enrich in Fluoride.
- It protect gums on teeth.
- The rock salt is applying on teeth for making Gums stronger .It prevent bad breath with protecting tooth enamel .

➤ **PEPPER-MINT :-**



**Synonym:-**Mentha piperita L.

**Properties:-**

- it shows Anaerobic Bacterial kill which prevent gums disease. ▪ It provide naturally fresher breath.
- It is better than mouth wash chemicals for the preparation of herbal dentifrices.

➤ **CLOVE POWDER :-**



**Synonym:-**Caryophyllum ,Clove Bud.

Clove powder is use for herbal dentifrices are as follows:

- Antiinflammatory, Antimicrobial, Antioxidant .
- Antinociceptive(To activate calcium and chloride channel Which increase Analgesic effect of clove for teeth) .
- Contain Anaesthetic strong Known Eugenol.
- It shows germicidal property over teeth, mouthulcer, bad smell prevention.

➤ **CINNAMON POWDER :-**



**Synonym:-**Dalchini, Ceyulon Cinnamon.

In traditional medicine, cinnamon is often applied directly to the affectedAreas in the mouth.

Some may chew on cinnamon sticks, rinse with Cinnamon water, or mix ground cinnamon with honey and apply it to the Area in pain. Cinnamon oil is antiseptic, antifungal, and antibacterial that make it a Perfect natural ingredient for many healthcare medicines

Properties:-

- The Antimicrobial property of Cinnamon oil is great in protecting our teeth and
- Gums against oral bacteria that are responsible for tooth decay.
- cinnamon extracts, and pure compounds show significant antimicrobial .
- Activities against oral pathogens and could be beneficial in caries and Periodontal disease prevention, endodontics, and candidiasis treatment.
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➤ **CARDAMON POWDER (ELAICHI) :-**



**Synonym:-** Small Cardamon, Elaichi, Ailum.

**Properties:-**

Cardamom possesses antimicrobial properties and is used in traditional Medicines for centuries in dealing with dental issues and bad breath. The spice is the ideal choice to inhibit only infectious microbes, but not the Probiotic bacteria.

- Cardamom (eliches) is an aromatic seed pod that lends a distinct aroma and Imparts rich flavour, making dishes delicious.
- Known as the queen of spices, cardamom originated in India and is prized for Its health benefits and healing properties. The spice is rich in phytochemicals cineole, and is used to

treat tooth and gum Infections, throat problems, digestive disorders, and is an antidote for poisons and venoms.

➤ **BLACK CATECHU :-**



**Synonym:-**Cutch,Blackcatechu,Kattha.

- Catechu is included in mouthwashes and gargles used for gum
- Disease (gingivitis), pain and swelling inside the mouth (stomatitis), Sore throat, and mouth ulcers.
- In foods and beverages, catechu is used as a flavouring agent. ▪ It is also used orally for pain from osteoarthritis and topically to treat Pain, bleeding, and swelling (inflammation). But there is limited scientific evidence to support any of these Uses.

- 1) Extraction of Herbal Plants and Fruits, in which the Sample was collected from the botanical garden of Rajesh Bhaiyya Tope college . The Sample used For the formulation was selected from various plants and stem given as regarding formulation. Approximately 5 gm/Ingredient was dried and powdered. Furthermore the powder was mixed and sieved with the help of different sieves.
- 2) The preparation of dentifrices powder , the ingredient were collected, dried by a sun dry method, Griend by Mortal Paste separately till the smooth powder forms . All ingredient are then the mixed by a mixer ensuring the proper mixing without formation of agglomeration. The powder is sieved by the sieve with nominal mesh apparatus. Transfer the mix powder to the wide mouth container and labelled it.

❖ **AQUOUS EXTRACT OF INGREDIENT:-**



❖ **All Ingredient and their Powder Forms:-**



**FORMULATION CHART:-**

INGRIDENT	QUANTITY(in gram)
Triphala (Amla+Hirada+Behada)	5 Gram
Black Catechu (Powder)	2 Gram
Cinnamon	2 Gram
Cardamon Powder	1.5 Gram
Clove Powder	1 Gram
Trikatu Powder	2 Gram
Black Salt	1 Gram
Peppermint	0.5 Gram

**II. RESULT AND DISCUSSION:-**

**TABEL NO 1.1 :-CONFIRMATORY TEST FOR TANNIS**

TEST	PROCEDURE	OBSERVATION	INFERENCE
Test for Clove	Aq.extract of Clove+few drop of lead acetate	<u>White Ppt.</u>	Positive
Test For Cinnamon	1)Aq extract of Cinnasmon+FerricChloride(FeCl3)	<u>Dark Colour</u>	Positive
	2)Aq.extract+lead Acetate	<u>White Ppt</u>	Positive
Test for Amla	Aq. Extract of Amla +Ferric Chloride	<u>Blue colour</u>	Positive
Test For Black Catechu	Dilute Solution of Black Catechu+Ferric Ammonium sulphate (10%)	<u>Green Colour</u> <u>Stand for Few minute</u> <u>Red Colour</u>	Positive
Test for Myrobalan(Hirada)	1)Aq.Extract of Hirada+10% Ferric Chloride	<u>Dark Blue Colour</u>	Positive
	2)Aq extract of Hirada+10% ferric Chloride solution	<u>White Ppt</u>	Positive



**TABLE NO 1.2:-EVALUATION TEST:**

SR.NO.	PARAMETERS	OBSERVATION
1.	Bulk Untapped Density	31.15
2.	Tapped density	24.56
3.	Car's index	18.68
4.	Hausner Ratio	1.26
5.	pH	4.50-7.00
6.	Ash Value	1.20%
	Acid Insoluble:-	3.02%
	Water Soluble:-	5.46%
	Total Ash:-	

**TABLE NO 1.3:-FINAL PRODUCT:-**

Sr.No.	Parameter	Observation
1	Colour	Brick Brown
2	Odour	Characteristics, Pungent
3	Taste	Astringent
4	pH	4.50-7.00
5	Stability	Stable



### III. CONCLUSION:-

The ingredients used in the present work, was screened and selected to possess antibacterial effect and to maintain oral hygiene. It is reliable, safe and inexpensive. Tooth powder is a good toused a very mild abrasive that gently scrubs and beautifully polishes our teeth. With the effective work on all its parameters, this tooth powder can be explored for all its application and other hidden aspects. The research concluded that herbal tooth powder an emphasizing and more acceptable in dental research and they are safer with minimum 2 side effect than synthetic preparation. The formulated tooth powder capable to the tooth and oral hygiene and show the anti-microbial activity against pathogens. The formulated herbal tooth powder has been scope in future in nature of public.

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### REFERENCES:-

- [1]. Dapanjeetkaur, Kaushal K. Chandel. Syzygies aromatic (Clove) avital herbal Drug used in potential disease, IJPBR 2017; 5 (2) :45-59
- [2]. Veeral Panchal, Lakshmi thangavelu. Comparison of antibacterial efficacy of cinnamon extract & calcium hydroxide as intercanal medicament, Pharmacognosy Journal Aug 2018:10.6 1165-1168.(10.5530 PJ 2018.6.199)
- [3]. Meghna Ajay Deshpande, Sudhindra Baliga, Nilamathosar. Evaluation of antibacterial efficacy of Triphala Toothpowder on Oral Streptococcus mutans, Special Care In Dentistry 41(5), 619-625;2021.
- [4]. M. Bharsthi, D. Rajalingam, S. Vinothkumar. Formulation and evaluation of herbal tooth powder of oral care, (IJPRS) 8(1), 1-5;2020
- [5]. Nisha Devi, Dr. Bharat Parashar, Mohit Kaushal. Preparation Evaluation & Comparison Study of Herbal Tooth Powder, World Journal Of Pharmaceuticals Research Volume 8, Issue 7, 2225-2238.
- [6]. Miss. Pratiksha Uchale, Dr. Subhash Kumbhar. Formulation And Evaluation Of Herbal Toothpowder, (IJARSTC) Volume 2, Issue 6, June 2022.
- [7]. Fatima Grace, Darsika C, Sowmya K.V. Preparation And Evaluation Of Herbal Dentifrice. International Journal of Pharmacy. 6(8):509-511 Aug 2015.
- [8]. Arun Kumar, KS Rajesh, Shashikant Hegde. The Efficacy of Herbal Based Toothpaste in the control of Plaque and Gingivitis. Indian Journal of Dental Research, Volume 20, Issue 4;2009; 480-482.



- [9]. Deepan Jeet Kaur, Kaushal K. Chandrul. Avital Herbal Drug used in Periodontal Disease, Indian Journal Of Pharmaceutical and Biological Research 5(02);10.3750,5.2.9.
- [10]. SobhaPraksh, Anup U. Shelke, Role of Triphala in Dentistry, journal of Indian Science Of Periodontal ; March /April 2014,18(2),132-135.
- [11]. Suraj Maurya, Shashikant Maurya, Piyush Yadav. Formation of Clove Tooth Paste ,Journal of Emerging Technology and Innovation Research;May2021,Volume8,Issue5.
- [12]. Pramod Kumar, Shahid K. Ansari, Javed Ali. Review of Herbal Remedies for the treatment of Periodontal Disease; Bretan Science Publisher Ltd.;20093,221-225.
- [13]. Harpreet Singh Grover, Yogender Singh, Himanshu Deswai. Review of Therapeutic effect of Amla in Medicine and Dentistry, Journal of Oral Research and Review; Aug 2021(IP 242;79.88,73).
- [14]. Dr . Mamatha A, Swati Vajaya P, Vinutha L. Formation and Evaluation of Herbal Tooth Powder using Indian Nettle, Tulsi and Other; IJPRA Jan/Feb 2022,Volume 7, Issue 1;416-422.
- [15]. X. Fatima Grace, Dar sika C. Sowmya K.V. ,AzarAfker; Preparation and evaluation of Herbal Dentifrice ;International Research Journal of Pharmacy Review on 07/09/15.
- [16]. Samantha Simani Santi, Maisa Casarin, Leandra Chambrane, Effect of Herbal Mouth rinses on Dental Plaque Formation of Gingival Inflammation; Wiley Online Library 14Dec 2019;Oral Disease Volume 27, Issue 2 127-141.