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Review On Herbal Toothpaste

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Abstract: *Most individuals use toothpaste on a daily basis. Usually, the mouth and teeth are cleaned using toothpaste. Additionally, a number of dental disorders are treated using it. Among other things, many dentists recommend using toothpaste to treat sensitivity and persistent gingivitis. To manufacture herbal toothpaste, use herbal extracts of several unrefined drugs with antibacterial and antimicrobial qualities. Herbs like Ginger, Neem, Aloe vera, Clove, Green tea. The toothpastes that were produced were evaluated in compliance with the standards set by the Bureau of Indian Standards. It was determined that the evaluated toothpastes' antibacterial qualities were effective. Oral hygiene is among the most essential human requirements. The first thing a person does in their everyday life is to maintain good oral hygiene. Consequently, toothpaste is essential to this procedure. Numerous natural herbs can be utilized to offset some of the negative effects of synthetic cleaning products.*

Keywords: Herbal toothpaste, Ginger, Neem, Clove, Turmeric

I. INTRODUCTION

One of the most important aspects of oral health care is the use of herbs and herbal toothpastes, which date back thousands of years. Between 300 and 500 BC, toothpaste was first produced and developed in China and India. Crushed bones, powdered eggs, and clam shells were utilized as tooth-cleaning abrasives at this time. (1). Tooth stains were removed with a variety of abrasives, fragrance, and green lead until the mid-1800s. During the Middle Ages, Arabs mainly used fine sand and rock salt to clean their teeth. In 1950 AD, a dentist by the name of Dr. Washington Wentworth Sheffield created the toothpaste. (2). During the development and treatment of oral disorders, the release of active substances has become more prominent in the current period. Dentifrices, which can be either pastes or powders, are used to clean, maintain, and improve the health of teeth. The main purpose of toothpaste is to enhance oral cleanliness, but it also acts as an abrasive to help remove and conceal halitosis and releases active compounds like fluoride to help prevent tooth and gum disease (like gingivitis). To enhance oral hygiene, toothpaste is a semi-solid dosage form that is administered with a toothbrush and contains excipients. (3). Active chemical components such as polyphenols, gums, alkaloids, glycosides, and others have been proven to have a range of biological roles, which is why many herbal medications are quite successful. Examining new herbal toothpaste has taken on a wider scope. (4). The World Health Organization (WHO) reports that 80% of people utilize medicinal herbs for basic healthcare. The chemical ingredients used to create toothpaste can cause tooth stains, changes in flavour, and hypersensitivity responses. Consequently, using natural products free of artificial sweeteners, fragrances, or preservatives does not damage the buccal cavity. (5.6). Children under the age of six should not use fluoride-containing toothpaste since it increases the risk of dental cavities and fluorosis. All of these considerations are taken into consideration, and the usage of herbal supplements with fewer negative effects is gaining popularity. (7).

BENEFITS OF HERBAL TOOTHPASTE:

- Resist decay.
- Help strengthen the enamel that has been attacked by acids.
- Clean and polish teeth.
- Remove teeth stains.
- Freshen breath.
- Whitens teeth.
- Fights gum problems.
- Reduces plaque.

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• Strengthens enamel.
• Prevents cavities.
• Fights germs.
• Prevents tartar

ANATOMY AND PHYSIOLOGY OF TEETH:

The mouth has 16+16 = 32 teeth, which are encased in the alveolar ridges of the mandible (lower jaw) and maxilla (upper jaw). Incisors, canines, pre-molars, and molars are the teeth in order from front to back. Three main parts may be identified in a tooth:

1. Crown: Enamel, the body's toughest material, covers the area of the tooth above the gum line and shields it from acids and wear.
2. Neck: The narrow point where the crown and root converge is called the neck or cervix.
3. Root: The root is made up of one, two, or three projections that are inserted into a socket. Molars and other larger teeth will have many roots.

Three materials make up a tooth. They are as follows:

• Dentine: It makes up a large portion of the tooth and resembles bone.
• Enamel: Harder than bone, enamel is the outermost layer covering the tooth's crown.
• The cementum: which is the neck, is as rigid as bone. Gums called gingivae extend slightly into each socket and cover the alveolar processes.

The pulp cavity, which is encircled by dentine and contains blood, lymph, and nerve vessels, is located in the middle of the tooth (8, 9).

ANATOMY AND PHYSIOLOGY OF TEETH

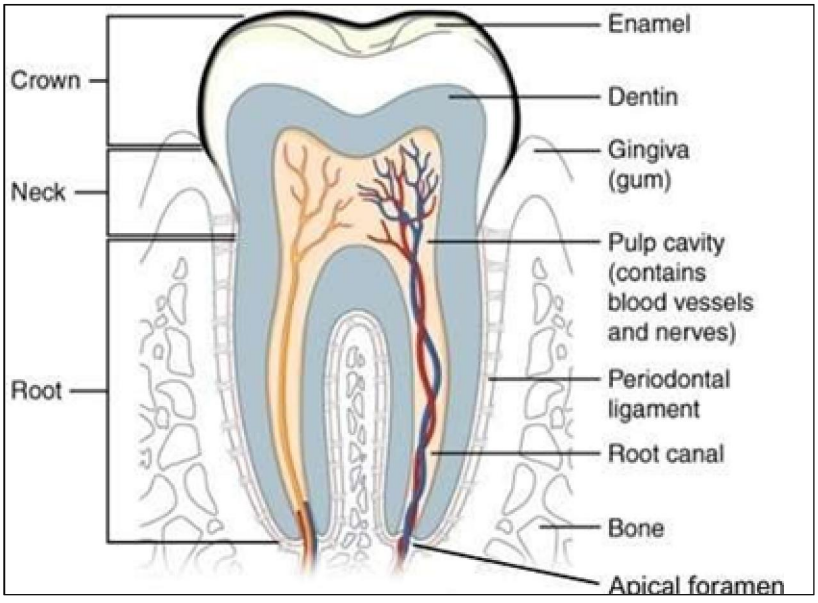

FIG1: ANATOMY AND PHYSIOLOGY OF TEETH

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PLANT PROFILE:

GINGER:

FIG2: GINGER

BIOLOGICAL NAME: Zingiber Officinale
COMMON NAME: Ginger
FAMILY: Zingiberaceae Roscose

CHEMICAL CONSTITUENT:
Ginger Contains 1-4% Of Volatile Oil, Ginger Oil Contains Monoterpene Hydrocarbons, Sesquiterpene Hydrocarbons, Oxygenated Mono and Sesquiterpenes, And Phenylpropanoids. Sesquiterpenes-Zingiberene, Beta Bisabolene, Alpha-Farnesene, Beta- Sesquiphellandrene, And Alpha- Curcumene.
The Main Characters of Ginger Are Aroma and Flavour. Its Aroma Is Because Of The Fragrant Principles of Volatile Oils, Whereas the Flavour, Pungency and Pharmacological Actions Are Produced by The Phenolic Ketones of Oleo-Resin. Asafoetida Contains Resin (40-65%), Gum (20-25%), And Volatile Oil (4-20%).

USE:
• Eliminates Germs.
• Your Body Uses Some Of The Chemical Ingredients In Fresh Ginger To Fight Off Infections.
• Is Good For Your Mouth.
• Relieves Nausea.
• Reduces Muscle Soreness.
• Arthritis Symptoms Are Lessened.
• Limits The Growth Of Cancer.
• It Lowers Blood Sugar.
• Relieves Menstrual Pain. [10.11.12]

NEEM:

FIG3: NEEM

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BIOLOGICAL NAME : Azadirachta indica
COMMON NAME: Neem
FAMILY: Meliaceae
CHEMICAL CONSTITUENT:
The active ingredients are Azadirachtin, Salannin and Meliantriol Neem leaves contain Nimbosterol and Quercetin Seeds contain Azadirachtin, Salanin, Meliantrol and Meliacin. The trunk bark contains Nimbin, Nimbinin, Nimbidin, Nimbosterol and a bitter principle called Margosine. Neem oil contains chiefly glycerides of Oleic (50%) and Stearic (20%) acids.
USES:
• Toothache reliever
• Treats Acne.
• Neem has an anti-inflammatory property which helps reduce acne.
• Nourishes Skin.
• Treats Fungal Infections.
• Useful in Detoxification.
• Increases Immunity.
• Insect & Mosquito Repellent.
• Prevents Gastrointestinal Diseases.
• Treats Wounds.[13.14.15]

ALOE VERA:

FIG 4: ALOE VERA

BIOLOGICAL NAME: Aloe barbadensis miller
COMMON NAME: Neem
CHEMICAL CONSTITUENT: Aloin, flavonoids, sterols, amino acids, aloeride.

USES:
• Antiviral.
• Antifungal.
• treatment of mouth
• ulcer.
• denture
• adhesive.
• osteitis.
• plaque and gingivitis. [16.17]

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CLOVE:

FIG5: CLOVE

BIOLOGICAL NAME: syzygium aromaticum
FIMALY: Myrtaceae
CHEMICAL CONSTITUENT:
Nutmeg consists of 5 to 15% volatile oil, lignin, stearin, starch, gum, colouring matter, and 0.08% of an acid substance. The volatile oil contains clemicine, myristicin, geraniol, borneol, pinene, camphene, and dipentene. Myristicin is a poisonous compound. It mainly contains myristic, palmitic, oleic lauric and other acids. It also contains eugenol, safrol, p-cymene and is-oeugenol in small quantity.

USES:
• Toothaches
• Labor pain.
• Dental analgesic.
• Antiseptic.
• Control of gingivitis,
• Halitosis.
• plaque.
• High cholesterol
• Ulcer[3]

GREEN TEA:

FIG6: GRREN TEA

BIOLOGICAL NAME: Camellia sinensis
COMMON NAME: Green tea
FAMILY: Theaceae
CHEMICAL CONSTITUENT: epicatechin, epigallocatechin 3 gallate

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USES:
• Suppresses gum inflammation
• gingival oxidative stress.

MATERIALS USE FOR HERABL TOOTHPAST:
• Neem oil
• Ginger oil
• Aloe Vera gel
• Clove Oil
• Green Tea oil
• Baking soda
• Stevia
• Water EQUIPMENT:
• Mixing bowl
• Spoon or spatula
• Measuring scale
• Storage container (preferably a squeezable tube or a jar)

FORMULATION TABLE AND USES

Materials	Quantity	Uses
Neem oil	5 gram	Toothache reliever
Ginger oil	5 gram	Eliminates Germs
Aloe Vera gel	40 gram	Anti-plaque and gingivitis.
Green tea oil	2 gram	Suppresses gum inflammation
Clove oil	2 gram	Labor pain.
Baking soda	30 gram	a mild abrasive and for pH balance
Stevia	5 gram	Sweetener
Dis. Water	Q.S	to adjust consistency

PROCEDURE
1. Prepare Ingredients: Measure out all the ingredients using a precise scale.
2. Mix Aloe Vera Gel: In a mixing bowl, start by adding the Aloe Vera gel. This will be the base of your toothpaste.
3. Incorporate Oils: Gradually add the ginger oil, neem oil, clove oil, and green tea oil to the Aloe Vera gel. Mix thoroughly until well combined.
4. Add Baking Soda: Slowly incorporate the baking soda into the mixture. This will act as an abrasive and help with the texture. Stir until there are no lumps.
5. Sweetening Agent: If using, add xylitol or stevia and mix well to ensure it is evenly distributed.
6. Adjust Consistency: If the mixture is too thick, add small amounts of water gradually until the desired consistency is reached.
7. Final Mixing: Continue to mix the ingredients until you achieve a smooth and homogenous paste.
8. Transfer to Container: Carefully transfer the toothpaste into a clean storage container. If using a tube, a funnel may be helpful.
9. Label and Store: Label the container with the date and ingredients. Store in a cool, dry place.

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