

# REVIEW ON A FORMULATION, EVALUATION PARAMETERS OF HERBAL PARAMETERS OF HERBAL TOOTH POWDER BY USING HERBAL DRUGS.

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## Abstract:

Tooth powders consisting of various ingredients that are available in the market in a wide range. Hence modern methods focusing on these aspects are useful for the standardization of herbs and their formulations. Consumers believed by using herbal-based toothpastes are safe, effective, and less toxic. This study is thus aimed to provide an alternative to the consumer and formulate herbal tooth powder using Clove, Neem Stem, Acacia Stem, Stevia Leaf, Mustard Oil, Salt, Ginger and Amla. The oral cavity infections are the most common types of infections. Dental caries is an infectious disease, causes damage and infection of enamel and dentine. If it is not treated, the infection continues and will lead to tooth loss. The mouth contains normal flora of opportunistic bacteria that are normally non-pathogenic. The imbalance of this situation causes infection and tooth decay. Streptococcus mutants are considered as the main species involved in the development of dental caries. S. mutants, acid-producing bacteria, causes fermentation of carbohydrates which results in tooth decay. Therefore, in the present work, the following aspects of Herbal tooth powders were planned for the formulation, standardization of herbal tooth powder, and anti-bacterial screening of the extracts of herbal tooth powder.

**Keyword:** Triphala powder 1, Arjuna Bark Powder2, Triphala Powder3, Trituration4.

## INTRODUCTION:

Ayurveda recommends using fresh plant twigs for cleaning the teeth. However, it is not possible for everyone to collect fresh twigs of recommended plants on a daily basis. So, ayurveda also provide a solution for it. In this article, we will discuss how to make herbal tooth powder at home for children and adults. Then learn how to use this ayurvedic herbal tooth powder and what are its benefits. This tooth powder is the most effective remedy for prevention and treatment of health problems related to gums and teeth.

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.

Dental powders are made with all-natural and often organic ingredients, and they are free from potentially harmful chemicals, including artificial flavors and colors. When it comes to overall effectiveness, studies that have shown that tooth powder may actually be better at reducing plaque than regular toothpaste.

Tooth powder is an alternative to toothpaste. It comes in both a fluoride and non-fluoride version. Tooth powder was generally used among the Romans, who used a variety of substances, such as the bones, hoofs, and horns of certain animals; crabs, egg-shells, and the shells of the oyster and the murex.

The formation of small dental cavities can be reversed by a process called remineralization, when the deposition of minerals is applied to damaged areas of a tooth. Fluoride works by helping to remineralize your teeth in two ways, internally and externally.

Herbal tooth powder is infused with potent Ayurvedic herbs that possess healing and curative powers. It effectively contributes to a healthy smile and fresh breath, besides doing wonders for your gums and teeth. Wild clove extracts are a key component in our tooth powder and help in reducing sensitivity.

Tooth powder is thought to have originated many thousands of years ago. Ancient people may have used ingredients such as myrrh, burnt eggshells, crushed animal bone ash, and oyster shells to create powders able to remove mouth odor, plus clean and polish teeth.

### 1. **Triphala Powder Biological Name: EMBLICA OFFICINALIS (AMALAK) TERMINALIA BELLERICA (BIBHITAK) TERMINALIA CHEBULA (HARITAKI)**

Triphala (Sanskrit; tri=three and phala = fruits) is a well-recognized and revered Polyherbal medicine consisting of dried fruits of the three plant species *Emblca officinalis* (Family Euphorbiaceae), *Terminalia bellerica* (Family Combretaceae). And *Terminalia chebula* (Family Combretaceae) that are native to the Indian subcontinent[1]



**Fig-1: Triphala Powder**

The aim of this article is to review the current literature on the therapeutic uses and efficacy of triphala. Herbal remedies are among the most ancient medicines used in traditional systems of Healthcare such as Ayurveda. Triphala, a well-recognized and highly efficacious polyherbal Ayurvedic medicine consisting of fruits of the plant species *Emblica officinalis* chebula (Haritaki), is a cornerstone of Gastrointestinal and rejuvenative treatment.[2] A Sanskrit word meaning the knowledge of life or the science of perfect health, is the traditional System of personalized medicine from India, which emphasizes disease prevention and health Promotion.[3] Oral rinses made from these are used in periodontal therapy. Triphala is one of these with wide Spectrum of activity. According to the Sushruta Samhita, Triphala can be used as a gargling Agent in dental diseases[4]

## 2. KHADIRA (CATECHU) BARK POWDER Biological Name: ACACIA

Catechu is an extract of acacia trees used variously as a food additive, astringent, tannin, and dye. It is extracted from several species of Acacia, but especially *Senegalia catechu* (*Acacia catechu*), by boiling the wood in water and evaporating the resulting brew. It is also known as cutch, black cutch, cachou, cashoo, terra Japonica, or Japan earth, and also katha in Hindi, kaath in Marathi, khaira in Odia, khoyer in Assamese and Bengali, and kachu in Malay. Benefits & Features Khadira Powder promotes the production of new skin cells for healthy and natural skin glow and complexion. The bitter taste and astringent properties of this Ayurvedic supplement promote regular cleansing of the blood and body fluids and thereby boosting immunity. It helps in weight management when accompanied by regular physical exercise and a balanced diet. It stimulates the regular absorption of nutrients for digestive and cellular comfort. This Ayurvedic supplement also supports natural blood purification and skin rejuvenation by providing healthy toxin removal support.[5]



Fig 2: Khadira (Catechu) Powder.

## 3. ARJUNA BARK POWDER

**Biological Name: TERMINALIA ARJUNA**

*Terminalia arjuna* is a tree of the genus *Terminalia*. It is commonly known as arjuna or arjun tree in English. The arjuna is seen across the Indian Subcontinent, and usually found growing on river banks or near dry river beds in Uttar Pradesh, Bihar, Maharashtra, Madhya Pradesh, West Bengal, Odisha and south and central India, along with Sri Lanka and Bangladesh.[6] It has also been planted in Malaysia, Indonesia and Kenya. Arjuna bark powder protects the heart due to its cardioprotective property. It helps in the proper functioning of the heart by strengthening the heart muscles.[7] It also has anti-hypertensive property that helps reduce the levels of high blood pressure. Arjuna is a well-known herb that helps manage heart functions.[8]





**Fig-3: Arjuna Bark powder**

#### 4. DALCHINI (CINNAMON)

**Biological Name: TRUE CINNAMON TREE**

Cinnamon is a spice obtained from the inner bark of several tree species from the genus *Cinnamomum*. Cinnamon is used mainly as an aromatic condiment and flavouring additive in a wide variety of cuisines, sweet and savoury dishes,

Cinnamon is a spice that is made from the inner bark of trees scientifically known as *Cinnamomum*. It helps your body fight infections and repair tissue damage. However inflammation can become a problem when it's chronic and directed against your body's own tissues. Cinnamon may be useful in this regard. Studies show that this spice and its antioxidants have potent anti-inflammatory properties.[9]

Cinnamon is well known for its blood-sugar-lowering properties. Apart from the beneficial effects on insulin resistance, cinnamon can lower blood sugar by several other mechanisms. Cinnamon has been widely studied for its potential use in cancer prevention and treatment. Overall, the evidence is limited to test-tube and animal studies, which suggest that cinnamon extracts may protect against cancer.[10]



**Fig-4: Dalchini Cinnamon**

## 5. GREEN CARDAMOM POWDER

### Biological Name: TRUE CARDAMOM

Cardamom or cardamum| is a spice made from the seeds of several plants in the genera *Elettaria* and *Amomum* in the family *Zingiberaceae*. Both genera are native to the Indian subcontinent and Indonesia. They are recognized by their small seed pods: triangular in cross section and spindle-shaped, with a thin, papery outer shell and small, black seeds; *Elettaria* pods are light green and smaller, while *Amomum* pods are larger and dark brown.[11]

The word “cardamom” is derived from the Latin *cardamōmum*, which is the Latinisation

The Greek *Καρδάμουρον* (*kardamomam* compound of *κάρδαμον* (*kárdamon*, “cress”) and *αουον* (*ámōmon*), which was probably the name for a kind of Indian space plant. It may lower blood pressure, improve breathing and aid weight loss. What’s more, animal and Test-tube studies show that cardamom may help fight tumors, improve anxiety, fight bacteria and protect your liver, though the evidence in these cases is less strong.

The green pods, *elettaria cardamomum*, also known as “true cardamom,” have the characteristics most recognized as cardamom flavor: an herbal warmth like a fragrant cross between eucalyptus, mint, and pepper—more citrusy than fennel and sweeter than cumin.[12]

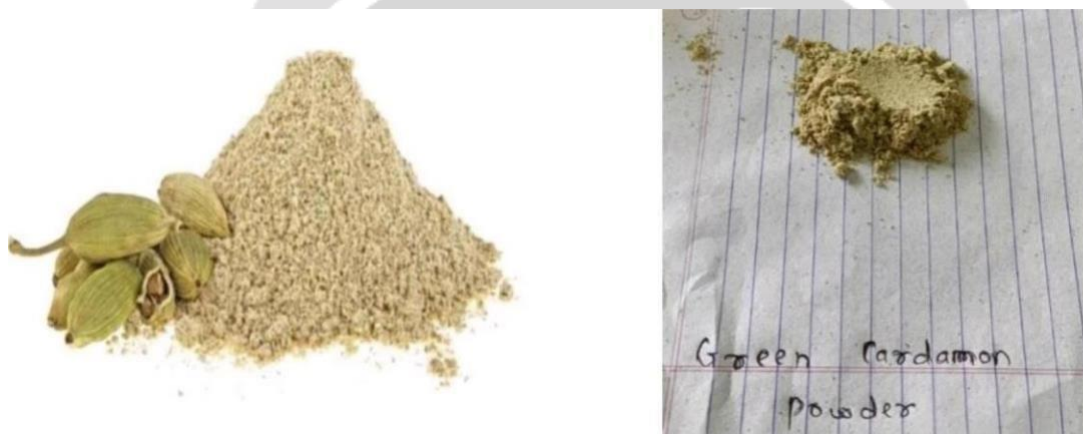


Fig-5: Green Cardamom

### Benefits

1. Antioxidant and Diuretic Properties May Lower Blood Pressure
2. May Help with Digestive Problems, Including Ulcers
3. May Treat Bad Breath and Prevent Cavities
4. May Have Antibacterial Effects and Treat Infections
5. May Improve Breathing and Oxygen Use
6. May Lower Blood Sugar Levels

## 6. CLOVE POWDER

Biological Name : *SYZYGIUM AROMATICUM*

Clove, (*Syzygium aromaticum*). Tropical evergreen tree of the family Myrtaceae and its Small reddish brown flower buds used as a spice. Cloves were important in the earliest spice trade and are believed to be indigenous to the Moluccas, or Spice Islands, of Indonesia.

Cloves are the aromatic flower buds of a tree in the family Myrtaceae, *Syzygium aromaticum*. They are native to the Maluku Islands (or Moluccas) in Indonesia, and are commonly used as a spice, flavoring or fragrance in consumer products, such as toothpaste, soaps, or Cosmetics. Cloves are available throughout the year owing to different harvest seasons across various countries.[13]

Clove develops on the sloping plots of the Nilgiris, Kanyakumari, Nagercoil, Tirunelveli locale of Tamilnadu, South Kanara region of Karnataka, and Kollam, Kottayam, Kozhikode, and Thiruvananthapuram regions of Kerala.

Clove oil contains the active ingredient eugenol, which is a natural anesthetic. It helps numb and reduce pain to ease a toothache. Eugenol also has natural anti-inflammatory properties. It May reduce swelling and irritation in the affected area.[14]



**Fig-6: Clove Powder**

#### **Benefits**

Contain important nutrients.

High in antioxidants.

May help protect against cancer.

May improve liver health.

May help regulate blood sugar.

May promote bone health. ..

#### **7. Trikatu Powder**

**Biological Name: PIPER LONGUM LINN ZINGIBER OFFICINALE PIPER NIGRUM LINN**

#### **Composition Of**

Trikatu Ingredients:

I part Gaja Pippali/ Long pepper – Piper longum

1 part Kali Marich/ Black pepper – Piper Nigrum

1 part Shunthi/ Adrak/ Ginger -Zingiber officinalis

### Therapeutic Benefits Of Trikatu Churna

Trikatu offers an absolute remedy for Improving the immune system, fighting microbes and shielding the body against various microbial invasions. It also portrays the presence of strong anti-viral, anti-bacterial, and Antifungal properties, which is extremely effective in preventing infections like fever, common

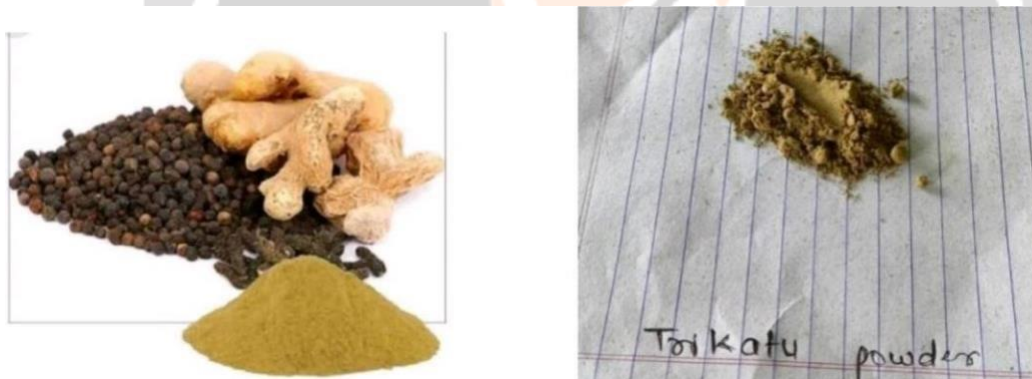
Cold, sore throat, and other respiratory anomalies.[15]

Renowned as a powerful digestive stimulant, all the three herbs in Trikatu help in breaking down of food particles in the stomach and intestine, while facilitating the secretion of the digestive juices and thereby increasing the absorption of essential nutrients through the Intestines. It helps to eliminate abdominal gas and in turn reduces abdominal distension, Bloating and gaseous cramps. It is also extremely pivotal in treating a wide range of gastrointestinal disorders like constipation, gastritis, heartburn, diarrhoea, flatulence, peptic Ulcer and gastroesophageal reflux disease relieves Pain And Inflammation.[16]

The abundance of anti-inflammatory and anti-arthritis properties of the bioactive components. In this magical herbal blend makes it the ultimate choice for providing relief from pain and

Inflammation due to arthritis. It is also extremely effective against Rheumatoid arthritis which is known as Amavata in ayurveda. Amavata is mainly caused due to the vitiation of Vata doshas and accumulation of Ama or toxins in the joints. Remedies Respiratory Anomalies[17] Trikatu churna offers a one-shot herbal remedy for all sorts of Kapha aggravating disorders.

The abundance of alkaloids and flavonoids in the power trinity increases heat helps the body shed excess weight faster by improving metabolic transformation and preventing further accumulation of fats. Owing to its property to vitiate AMA doshas from the body, it effectively removes unwanted toxins from the body.[18]



**Fig-7: Trikatu Powder**

## 8. SENDHA NAMAK (ROCK SALT)

**Biological Name: SODIUM CHLORIDE**

Sendha namak, a type of salt, is formed when salt water from a sea or lake evaporates and leaves behind colorful crystals of sodium chloride. It's also called halite, saindhava lavana, or rock salt. Himalayan pink salt is one of the best known types of rock salt, but several other varieties exist rock salt is an effective digestive agent that can soothe gastritis and prevent bloating. A Popular remedy for issues related to the stomach, it is a natural solution for acidity and Heartburn.[19]

Rock salt has major cosmetic value as a teeth whitener. In order to give this a shot, brush your teeth with the Ayush Whitening Rock Salt Toothpaste. Crafted in association with the Arya Vaidya Pharmacy (AVP). This toothpaste combines rock salt and Arimedas Tailam, an Ayurvedic oil blend of 40 herbs, which work together to make your teeth stronger, whiter and rid them of stubborn coffee stains.[20]



### Benefits

1. May provide trace minerals: It's a common misconception that salt and sodium are the same thing. Although all salts contain sodium, sodium is only one part of a salt crystal.
2. May improve muscle cramps: Salt and electrolyte imbalances have long been linked to muscle cramps.
3. May aid digestion: In traditional Ayurvedic practices, rock salt is used as a home remedy for various digestive ailments, including heartburn, bloating, constipation, stomach pain, and vomiting.
4. May treat sore throat: Gargling with salt water is a common home remedy for sore throats.

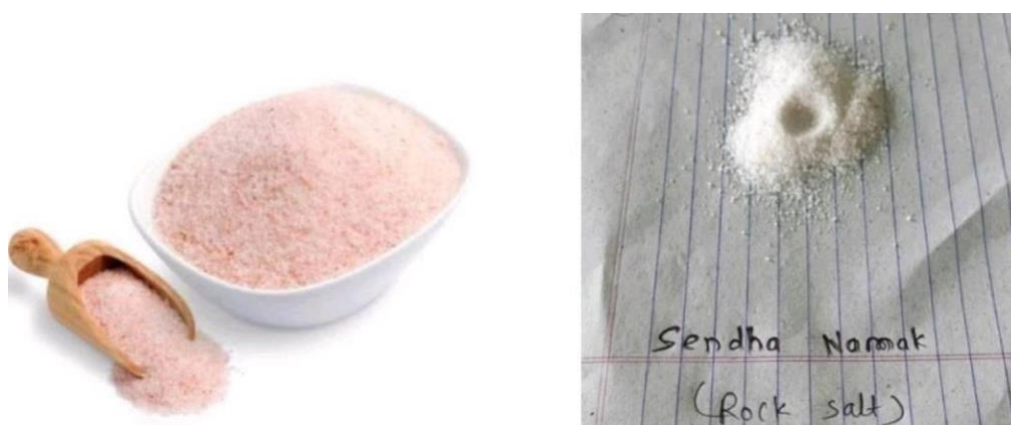


Fig-8: Sendha Namak

### FORMULATION TABLE

SR. NO	INGREDIENTS	CATEGORY	QUANTITY
1	TRIPHALA POWDER	ANTIBACTERIAL	12.5 Gm
2	KHADIRA (CATECHU) BARK POWDER	ANTIBACTERIAL	12.5 Gm
3	ARJUNA BARK POWDER	ANTISEPTIC	7.5 GM
4	DALCHINI (CINNAMON)	ANTISEPTIC	7.5 GM
5	GREENCARDAMOM POWDER	PREVENT BAD BREATH	7.5 GM
6	CLOVE POWDER	ANTIBACTERIAL	2.5 Gm



7	TRIKATU POWDER			2.5 Gm
8	SENDHA	NAMAK (ROCK SALT)	ANTISEPTIC	2.5 Gm

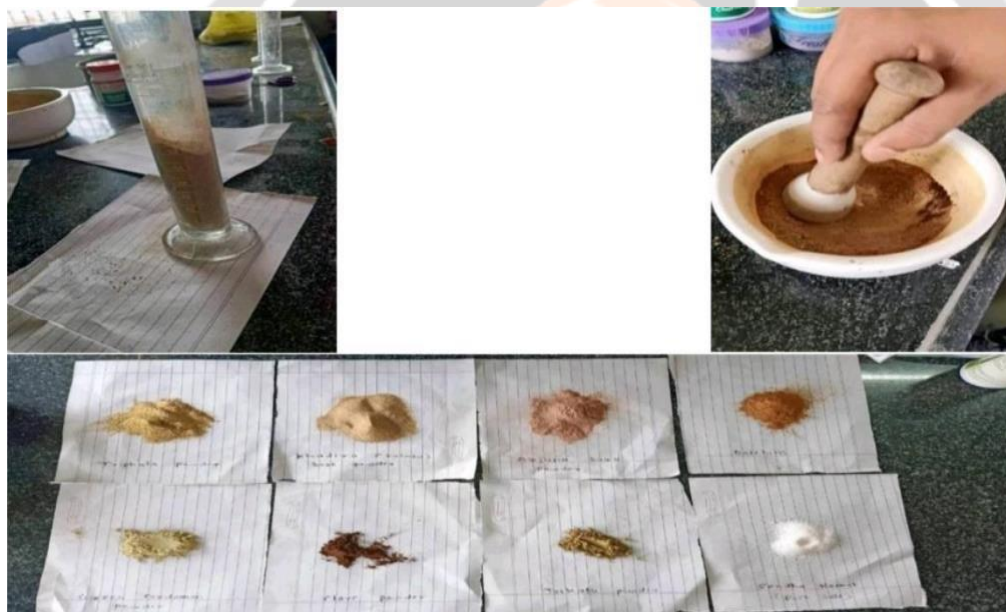
### METHOD OF PREPARATIONS

All these ingredients can be easily found at home or you can buy from the herbal store. Trikatu Powder includes common kitchen spices black pepper, long pepper and ginger powder in equal quantity.

Take Triphala fruits (Amla, Behera, Harad), Khadira bark and Arjuna bark and wash them Properly. Dry them in sunlight.

You should not wash cardamom, dalchini, clove and trikatu ingredients. Because these Ingredients contain aromatic compounds, which will evaporate during drying. You can use a blower to remove dust from them if any. Otherwise, they are clean and pure Grind each ingredient separately to make its fine powder measure each ingredient and mix all ingredients together in the quantity mentioned in the above table.

Then keep it in an airtight glass or food grade plastic container.



### EVAULATION:

#### Trituration Method

(Pharmaceutical: Processes) A trituration is a mixture of one or more finely ground powdered drugs. The trituration is a mix of a finely ground drug and lactose. A trituration was formed by mixing ground sodium chlorite and potassium chloride salts.



### HOW TO USE HERBAL TOOTH POWDER:

- Take a small amount of tooth powder in your palm.
- Add some water or honey in it to make a paste. In the case of children, you should add honey to make a paste.
- Now. Apply this paste to teeth and gums. Do massage with your index finger for 3 to 5 minutes.
- Alternatively, you can also apply this powder to your toothbrush and do brush as your do with your regular toothpaste. But for gums, you should use your index finger for a gentle massage.
- Then gargle and clean your mouth.
- Then take warm water and gargle 5 times and clean your mouth.[21]

#### Note:

If you suffer from pyorrhea or any gum or dental problems, then mix this powder in mustard oil instead of water or honey. Using this herbal tooth powder in this way, you will get rid of pyorrhea, bleeding gums, tooth pain, and other dental and gum problems

### BENEFITS OF HERBAL TOOTH POWDER :

In this modern era, why are we giving importance to tooth powder instead of toothpaste and Tooth gels

There is a reason for giving importance to tooth powder over toothpaste.

Toothpaste is convenient to use as compared to tooth powder, but studies proved that tooth powder works more effectively in removing stains and plaque.

Studies from 2014 and 2017 prove that tooth powder eliminates extrinsic stains and maintains proper oral hygiene and also prevents tooth decay.

Mostly, tooth powders are made of natural ingredients. Tooth powders don't contain fluoride, So it is non-toxic and safer than toothpaste for children.[22]

## DISADVANTAGES OF HERBAL TOOTH POWDER

Safest product of herbal tooth powder that which is certified as organic otherwise they may

### EVALUATION TEST:

**Weight of Powder = 50 GM**

**Bulk density = Weight of powder/volume of powder = 50/60**

**= 0.83**

**Tap Density = Weight of powder/min.volume occupied after tapping =50/43**

**=1.16**

**Angle of Repose(  $\theta$ ) = $\tan^{-1} h/r = 44$ .**

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