

# FORMULATION OF CLOVE TOOTH PASTE

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## ABSTRACT

In India, there are 45000 old medicinal plant species in the Japanese chain, Eastern Himalayas, Western Ghats, and Andaman and Nicobar Islands. Although there are only 3000 officially recorded plants having medicinal properties, ancient practitioners used around 6000. India is the world's largest producer of medicinal herbs, earning it the moniker "Botanical Garden of the World." There are currently 2,50,000 Ayurvedic medical practitioners registered in the United States. The goal of this study was to develop and test a polyherbal dentifrice that used commonly available healthy herbs in Lucknow to treat dental disorders. Cloves are the fragrant flower buds of the *Syzygium aromaticum* tree, which belongs to the Myrtaceae family. Clove are the greatest medicinal value which is used in Ayurveda. Oils, dried flower buds, leaves, and stems are used to produce medication. Clove is most typically used directly to the gums for toothaches, pain relief during dental work, and other dental concerns. Clove oil contains a chemical called eugenol that may help to decrease pain and fight infections.

## KEYWORD

Clove, Chemical Constituents, Applications & Efficacy, Formulation Of Clove Tooth Paste

## INTRODUCTION OF CLOVE

Cloves are the fragrant flower buds of the *Syzygium aromaticum* tree, which belongs to the Myrtaceae family. They are widely used as a spice.<sup>[3]</sup> Clove is a flowering plant native to Asia and South America. Due to varying harvest seasons in different nations, cloves are accessible all year.<sup>[4]</sup> Oils, dried flower buds, leaves, and stems are used to produce medication. Clove is most typically used directly to the gums for toothaches, pain relief during dental work, and other dental concerns. However, there is a scarcity of scientific evidence to back up these and other claims. Clove is used as a flavour in foods and beverages. Clove is used in toothpaste, soaps, cosmetics, fragrances, and cigarettes manufacture. Clove cigarettes (also known as kreteks) typically include 60 to 80 percent tobacco and 20 to 40 percent ground clove.<sup>[1]</sup>



Fig, Clove bud

Clove oil contains a chemical called eugenol that may help to decrease pain and fight infections.<sup>[1]</sup>

## CHEMICAL CONSITITUENT

Eugenol makes up 72–90% of the essential oil derived from cloves and is the chemical that gives cloves their distinctive perfume.<sup>[5][6]</sup> A In pressured water at 125 °C (257 °F), complete extraction takes 80 minutes.<sup>[7]</sup> Ultrasound-assisted and microwave-assisted extraction technologies give faster extraction rates while using less energy.<sup>[8]</sup>

Acetyl eugenol, beta-caryophyllene, vanillin, crategolic acid, tannins like bicornin, gallotannic acid, methyl salicylate (painkiller), flavonoids such eugenin, kaempferol, rhamnetin, and eugenitin, triterpenoids such oleanolic acid, stigmasterol, and campesterol, and sesquiterpen Eugenol's potential toxicity has not been classified.<sup>[8]</sup>

## APPLICATIONS & EFFICACY

- The anus lining has a few little tears in it (anal fissures). Using a clove oil cream on anal tears for 6 weeks increases healing compared to using stool softeners and applying lidocaine cream, according to preliminary studies.
- Plaque on the teeth. According to preliminary study, using a toothpaste or mouth rinse containing clove and other components reduces plaque on the teeth.
- There's a hangover. According to preliminary study, consuming a clove flower bud extract before drinking alcohol reduces hangover symptoms in some people.
- Sweating excessively (hyperhidrosis). According to preliminary studies, applying clove oil to the palms for two weeks reduces excessive palm perspiration.
- Mosquito repellent is a product that is used to keep mosquitos at bay. According to preliminary study, directly applying clove oil or clove oil gel to the skin will repel mosquitos for up to 5 hours.
- Embarrassment. According to preliminary studies, putting a ground cloves gel for 5 minutes before being stuck with a needle can minimise needle stick discomfort.
- Prediabetes is a type of diabetes in which the blood sugar levels are Taking an extract from clove flower buds before and after a meal appears help lower blood sugar levels in adults with prediabetes, according to preliminary studies. However, because there was no control group in this trial, the exact effects of clove on blood sugar are unknown.
- It's itchiness. Early study suggests that applying a clove oil gel solution to the skin can aid with acute itching.
- Toothache is a painful condition. Clove oil and eugenol, one of the compounds it contains, have long been used to treat toothaches on the teeth and gums, but the FDA recently reclassified eugenol, lowering its effectiveness rating. The FDA currently considers there is insufficient data to recommend eugenol for dental pain relief.
- Gingivitis is a mild form of gum disease (gingivitis).
- Bad breath is a problem.
- Coughing.
- Diarrhea is a common ailment.
- Socket that is completely dry (alveolar osteitis).
- Natural gas (flatulence).
- Men's early orgasm (premature ejaculation).
- Irritability (dyspepsia).
- Nausea and vomiting are common side effects.
- Inside the mouth, there is swelling (inflammation) and sores (oral mucositis).
- Other circumstances.

More evidence is needed to assess clove's efficacy in these applications.<sup>[1]</sup>

## FORMULATION OF CLOVE TOOTH PASTE

Using a home mixer, all herbal materials were dried and pulverised. The required quantity of Ingredients were weighed and taken in mortar. Calcium is a mineral that is found in Sodium lauryl sulphate, carbonate, methyl In water, cellulose, honey, and glycerine were combined. The aforesaid mixture was supplemented with acacia. This is the answer was added drop wise into mortar containing herbal ingredients and triturated well until a paste consistency is formed. Table 1 shows plant extracts and composition.<sup>[2]</sup>

**Table 1: Chemical Composition of Formulation**

S.No.	Ingredients	Quantity in (gm)		
		F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>
1	Clove	2	2	2
2	Calcium Carbonate	20	20	20
3	Glycerine	5	5	5
4	Sodium lauryl Sulphate	1	1	1
5	Acacia gum	0.5	0.5	0.5
6	Sodium Chloride	0.5	0.5	0.5
7	Sodium Saccharin	0.5	0.5	0.5
8	Para hydroxide benzoic acid	1	1	1
9	Distilled water	60-80ml	60-80ml	60-80ml

## PROCEDURE

- In a Mortar-pestle, 2 gm of clove extract were triturated with 1 gm of para hydroxyl benzoic acid and 0.5 gm of sodium chloride (as a preservative).
- As a foaming agent, 1 gm sodium lauryl sulphate is used, and sodium saccharin is used as a sweetener.
- Glycerine was added as a humectant, and acacia gum was employed as a binder. The mixture was triturated well, and 80 ml of distilled water was added to bring the total weight to 100gm.
- A solution of sodium hydroxide is used to alter the pH. Clove oil is used to mask the bitterness of the taste.<sup>[2]</sup>

## CONCLUSION

Clove (*Syzygium aromaticum*) was found to have the ability to suppress bacteria. The antibacterial pharmacological action of the developed Polyherbal dentifrice was found to be essential against all of the pathogens examined. This finding suggests that the activity is due to the presence of several phytoconstituents in the extract. As a result, the dentifrice's antibacterial drug activity was determined due to the existence of active ingredients in the extract, and therefore activity was well maintained once it was reintroduced to dentifrice.

Herbal toothpaste is more emphasising and accepted in dental research, and they are safer with less adverse effects than synthetic preparations, according to the study. The antibacterial activity of the designed toothpaste against pathogens can be seen in the toothpaste and oral hygiene. When comparing the formulation to market preparation, As a result, it demonstrates the same patronising and absorbing passion for the promoted formulations (Colgate, Dabour Red, and Dantkanti). The designed herbal toothpaste has a bright future in natural remedy research and public dental health.

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## REFERENCES

1. <https://www.webmd.com/vitamins/ai/ingredientmono-251/clove>
2. <https://www.jpsr.pharmainfo.in/Documents/Volumes/vol12issue01/jpsr12012020.pdf>
3. "Syzygium aromaticum (L.) Merr. and L.M. Perry". Kew Science, Plants of the World Online. 2021. Retrieved 28 February 2021
4. Yun, Wonjung (13 August 2018). "[Tridge Market Update] Tight Stocks of Quality Cloves Lead to a Price Surge". Tridge. Archived from the original on 14 August 2018. Retrieved 13 August 2018.
5. Kamatou, G. P.; Vermaak, I.; Viljoen, A. M. (2012). "Eugenol--from the remote Maluku Islands to the international market place: a review of a remarkable and versatile molecule". *Molecules*. **17** (6): 6953–81. doi:10.3390/molecules17066953. PMC 6268661. PMID 2272836
6. "Eugenol". PubChem, US National Library of Medicine. 2 November 2019. Retrieved 10 November 2019.
7. Rovio, S.; Hartonen, K.; Holm, Y.; Hiltunen, R.; Riekkola, M.-L. (7 February 2000). "Extraction of clove using pressurized hot water". *Flavour and Fragrance Journal*. **14** (6): 399–404. doi:10.1002/(SICI)1099-1026(199911/12)14:6<399::AID-FFJ851>3.0.CO;2-A.
8. <https://en.wikipedia.org/wiki/Clove>

