



FORMULATION AND EVALUATION OF HERBAL GARGLES

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ABSTRACT

Herbal gargles have gained attention as natural alternatives to conventional mouthwashes for promoting oral health and managing throat infections. This study explores the efficacy and safety of a herbal gargle formulation composed of traditional medicinal plants known for their antimicrobial, anti-inflammatory, and soothing properties. Key ingredients such as *Glycyrrhiza glabra* (Liquorice), *Ocimum sanctum* (holy basil), *Curcuma longa* (turmeric), and *Salvia officinalis* (sage) were selected based on ethnopharmacological evidence. The herbal gargle was evaluated for its antimicrobial activity against common oral pathogens, its effect on sore throat symptoms, and user acceptability. Results demonstrated significant inhibition of microbial growth and symptomatic relief, with no reported adverse effects.

INTRODUCTION

In today's era, use of herbal medicines become popular worldwide. Herbal formulations always have considerable attention because of their good activity and competitively lesser or nil side effects. A gargle is a concentrated clear solution used in the mouth to prevent the throat infection. It gives the instant relief from the pain and discomfort in the throat.

Gargles are used for the treatment of sore throat and viral respiratory infections like cold, or sinus infections allergies or other mild diseases.



The gargling is also effective in acute and chronic recovery of upper respiratory tract infection. Respiratory infections are one of the leading causes of death in the world. Severe acute respiratory syndrome coronavirus -2 {SARS-coV-2} had infected millions of peoples and caused millions of deaths worldwide.

Gargles are mainly used for respiratory infections caused by bacteria and viruses.

By the use of herbal gargles we can prevent several of lives with nil side effect.

OBJECTIVES

- To access the information about the herbal gargles.
- Give the advantages of herbal gargles.
- To study the herbs which can be used for gargling.
- The possible side effects of the herbal gargle can be studied.

1. Herbs which can be used for gargle preparation

Tulsi:- Tulsi have antimicrobial, anti-inflammatory and antioxidant properties for better oral health. By using tulsi extract as gargle decreases harmful bacteria in the mouth.



Tulsi is known for its medicinal values, antimicrobial and anti-viral properties which helps in purifying the air.

Clove:- Evergreen tree native to Indonesia. Cloves (Myrtaceae) contain a strong anesthetic known as eugenol.

Protect your teeth and gums from bacterial attacks and ensure strong teeth and gums. Cloves are flower buds that come from a type of tropical evergreen tree native to Indonesia.



Cardamom:- Cardamom is widely used as mouth freshener in India since it is effective in fighting bad breath.

Helps keep your mouth moist and protects you against dental health issues like cavities. cardamom is a pungent in odour.

It can help support digestive health, circulation, and the respiratory system.



Honey:- Honey (Apidae) can help treat gum diseases. Honey is antibacterial and antiseptic Properties can prevent the Tooth decay. Honey possesses antibacterial effects that work to neutralize nearly 60 species of bacteria while also working.



Dry Ginger

Dry ginger (Zingiberaceae) can even reduce your risk of gum disease, and oral Cancer.

Ginger can help to strengthen your teeth and gum line. The antibacterial properties of ginger can slow down the bacteria growth. Dried Ginger, when powdered, is an effective cure for indigestion, sore throat, cold and cough.



Dry ginger, obtained from the dried rhizome of *Zingiber officinale*, is a widely used medicinal and culinary herb known for its potent therapeutic properties. In Ayurveda, it is referred to as Shunthi or Sonth and is described as having a pungent (katu) taste, hot potency (ushna virya), and a sweet post-digestive effect (madhura vipaka). The major bioactive compounds include gingerols, shogaols, volatile oils such as zingiberene and borneol, and resins, which are responsible for its pharmacological activities.

Dry ginger is valued as a digestive stimulant and carminative, effectively relieving indigestion, flatulence, nausea, and loss of appetite. It is also recognized as an expectorant and is traditionally used in the management of cough, cold, asthma, and bronchitis. Due to its strong anti-inflammatory and analgesic effects, it is beneficial in musculoskeletal conditions such as arthritis, rheumatism, and muscle stiffness.

Formula

Sr.no	Ingredients	Botanical name	Role	Quantity
1.	Tulsi	Ocimum sanctum	Dental care	10ml
2.	Clove	Syzygium Aromaticum	Anesthetic	6ml
3.	Cardamom	Elettaria Cardamomum	Antimicrobial	8 ml
4.	Dry Ginger	Zingiber Officinale Roscoe	Antibacterial	2ml
5.	Honey	Apis Mellifera	Sweetening agent	2 ml
6.	Distilled water	-	Vehicle	Q.S

List of ingredients with their function

Sr.no	Ingredients	Scientific name	Chemical constituents	Functions
1.	<i>Tulsi</i> Family: <i>labiatae</i> Plant part :fresh leaves	Ocimum sanctum	Eugenol, Estragole, Camphene	Antibacterial, insecticidal and stimulant
2.	Clove Family:myrtaceae Plant part: dried flower bud	Eugenia caryophyllus	Eugenol, caryophyllene, methyl eugenol	Dental analgesic, carminative, antiseptic
3.	Ginger Family:zingiberaceae Plant part;rhizomes	Zingiber officinale	Gingerol, shogaol	Aromatic, carminative
4.	Cardamom FamilyZingiberaceae Plant part: dried ripe fruits	Elettaria cardamomum	Terpineol, Eucalyptol	Stimulant and flavouring agent
5.	Honey Family: <i>Apidae</i>	<i>Madhu, Mel</i>	Maltose, gum, acetic acid	Sweetening agent, demulcent

Method of preparation

Take 6 ml of clove extract
+
8 ml of cardamom extract
+
2 ml of dry ginger in 10 ml of tulsi extract
+
2 ml of honey as a sweetener
+
Methyl paraben as a preservative
+
Make up with distilled water until the 50 ml

RESULT

- This gargles is a purely herbal prepared without the addition of any kind of alcohol and any other additive as other products found in the market.
- The formulation was found to be free from heavy metals.
- The formulation was undertaken stability studies for physical and chemical change.
- The formulation was free from microbes as they have not produced any microbial growth.

- Volatile sulphur compounds are the major contributing factor to bad oral colour.
- These results showed that the herbal gargles has significant antibacterial activity.
- The present preparation is able to inhibit bacterial growth in oral activity.
- The association of oral microbial load on oral microbial disease well established.

CONCLUSION

Herbal gargles are the simplest, cheapest and preventive technique for various viral and bacterial infection that enter the body through mouth and nose. The natural herbs used in present formulation have been medicinally proven to prevent the problem of oral hygiene and bad breath.

Person can easily rinse his mouth using this herbal gargles and stay clear of wide variety of oral health.

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