World Journal of Pharmaceutical and Life Sciences

www.wjpls.org

Impact Factor: 8.21 Coden USA: WJPLA7

REVIEW ON HERBAL CHEWING GUM BY USING PSIDIUM GUAJAVA FOR TREATING GINGIVITIS

T. Gayathri[1]*, B. Lavanya[2], B. Kavya[3], B. Soujanya[4]

*[1]Assist. Professor, University College of Pharmaceutical Sciences, Satavahana University.
[2,3,4]M. Pharmacy Ist Year Students, University College of Pharmaceutical Sciences, Satavahana University, Karimnagar.

***Corresponding Author: T. Gayathri**

Assist. Professor, University College of Pharmaceutical Sciences, Satavahana University.

DOI: https://doi.org/10.5281/zenodo.20180116

How to cite this Article: T. Gayathri[1]*, B. Lavanya[2], B. Kavya[3], B. Soujanya[4] (2026). Review On Herbal Chewing Gum By Using Psidium Guajava For Treating Gingivitis. World Journal of Pharmaceutical and Life Science, 12(5), 381-385.

Article Received on 05/04/2026 **Article Revised on 25/04/2026** **Article Published on 01/05/2026**

ABSTRACT

The main aim of the research work is to prepare herbal gummies that can be used for Toothache. Herbal gummies for toothache are a type of herbal remedy that is designed to help alleviate pain and discomfort associated with toothaches. The gummies typically contain Natural ingredients such as herbs, essential oils and other plant- based compounds that ate Known for their anti- inflammatory and analgesic properties. The herbal gummies were produced by using Psidium guajava (common name-guava) is well known tropic tree which is abundantly grown for fruit. Herbal gummies for toothache are typically taken orally and are chewed like regular gummies. They are believed to work by reducing inflammation and pain in the affected area, as well as by promoting overall oral health.

KEYWORDS: Herbal gummies for toothache are typically taken orally and are chewed like regular gummies.

INTRODUCTION OF GINGIVITIS

Gingivitis is an inflammatory condition of the gingival tissue, most commonly caused by bacterial infection. Unlike periodontitis, there is no attachment loss and therefore no migration of the junctional epithelium. The condition is restricted to the soft-tissue area of the gingival epithelium and connective tissue.[1]

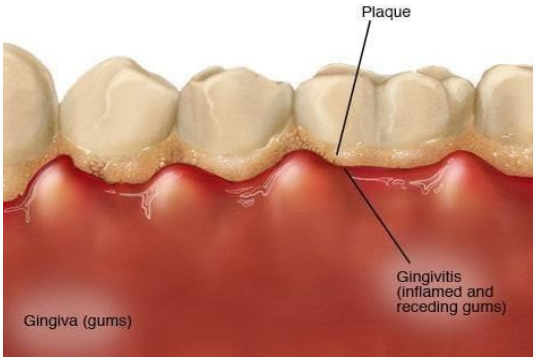

Fig. 1: Gingivitis.

Among all the periodontal diseases, gingivitis is considered to be the most common. There are various forms of gingivitis based on clinical appearance, duration of infection, severity, and etiology. However, the chronic form of gingivitis that is caused by plaque is considered to be the most frequent variant. Clinically, the gingival tissues are characterized by swelling, redness, tenderness, a shiny surface, and bleeding upon gentle probing. Gingivitis seldom generates spontaneous bleeding and is commonly painless; therefore, many patients do not recognize the disease and fail to seek attention.[2]

INTRODUCTION OF HERBAL CHEWING GUMS

Chewing gum is a chewable and masticable confection composed of a gum base, sweeteners, flavourings, and various additives. Chewing gum is a common treatment for oral conditions such as fungal infections, mouth ulcers, bad breath, and dental plaque. Administration of the drug either locally or systematically via oral cavity is the main characteristics of chewing gum.

Fig. 2: Chewing gum.

Herbal chewing gums are unique and innovative products which combines the age-old tradition of chewing gum with the natural benefits of herbs. In this particular formulation, Psidium guajava leaf extract, derived from the leaves of the guava plant (Psidium guajava), is included as a natural ingredient.

Chewing gum contains one or more active ingredients that are released by chewing; it is a solid, single dose preparation that must be chewed and not swallowed". Since humans discovered the enjoyment of chewing a variety of substances in ancient times; chewing gum has been utilized worldwide. The Mayan Indians used to clean their teeth and refresh their breath by chewing tree resin from the sapodilla tree a thousand years ago. The World War II shortage of natural gum bases aided in the creation of the synthetic gum bases that are still in use today.[3] Herbal chewing gum is a unique medication delivery product that is designed to be either systemically absorbed through the oral mucosa or used locally to treat oral ailments. It contains a gum base with pharmacological active component. Herbal chewing gum is thought to be a medicine delivery mechanism or a vehicle for delivering active ingredients that enhance nutrition and overall health. The majority of people find chewing gum to be enjoyable.

Chewing gums are portable medication administration devices. The gum core of a chewing gum typically has one coating or none at all. Chewing gum has relatively little water content and doesn't need any preservatives. Chewing gum is typically made up of a gum base—a water insoluble phase— as well as other components. Gum that is meant to be chewed but not swallowed is a cohesive, soft substance. Gum base, sweeteners, softeners/plasticizers, flavours, colours, and, usually, a hard or powdery polyol coating make up modern chewing gum.[4] These include different softeners, food colouring, preservatives, flavourings, and powdered sugar, the amount and grain size of which determine how brittle the resulting gum will be; corn syrup and/or glucose, which act as humectants and coat the sugar particles to stabilize their suspension and keep the gum flexible; etc.[5] To get the active ingredient into the systemic circulation and produce a systemic impact, there are two alternative absorption mechanisms. When a drug is immediately absorbed through the buccal membrane, it skips the G.I. tract's metabolism and the liver's first-pass action; as a result, chewing gum may require a lower dosage than other oral delivery methods.[6]

Advantages of Chewing Gum

1. High bioavailability because avoids first pass metabolism and thus increases the bioavailability of drugs.
2. Quick onset of effect due to rapid release of active ingredients in buccal cavity and subsequent absorption in systemic circulation.
3. High level of kid acceptance.
4. The bioavailability of medications is enhanced by circumventing hepatic first-pass metabolism.
5. Simple administration in the absence of water encourages better patient compliance, less adverse effects.
6. Systemic impact and Local impact.
7. Chewing gum causes the mouth to bite frequently, which improves facial blood flow and trains the muscles used for biting and chewing.
8. Chewing gum may lessen foul breath and protect your teeth.[10]
9. Excellent for acute medication.
10. Counteracts dry mouth, prevents candidiasis and caries.
11. Gum does not reach the stomach. Hence G.I.T. suffers less from the effects of excipients. 11. Stomach does not suffer from direct contact with high concentrations of active principles, thus reducing the risk of intolerance of gastric mucosa.
12. Fraction of product reaching the stomach is conveyed by saliva delivered continuously and regularly. Duration of action is increased.
13. Aspirin, Dimenhydrinate and Caffeine show faster absorption through MCG than tablets.
14. Stimulates flow of saliva in the mouth.
15. Neutralizes plaque acids that form in the mouth after eating fermentable carbohydrates, Helps whiten teeth by reducing and preventing stains.

PSIDIUM GUAJAVA

Fig. 3: Guava leaves.

The guava (*Psidium guajava* L.) tree, belonging to the Myrtaceous family, is a very unique and traditional plant which is grown due to its diverse medicinal and nutritive properties. Guava has been grown and utilized as an important fruit in tropical areas like India, Indonesia,

Pakistan, Bangladesh, and South America. Different parts of the guava tree, i.e., roots, leaves, bark, stem, and fruits, have been employed for treating stomach-ache, diabetes, diarrhoea, and other health ailments in many countries. Guava leaves (*Pisidia guajava folium*; GL) are dark green, elliptical, oval, and characterized by their obtuse-type apex. Guava leaves, along with the pulp and seeds, are used to treat certain respiratory and gastrointestinal disorders, and to increase platelets in patients suffering from dengue fever [.GLs are also widely used for their antispasmodic, cough sedative, anti-inflammatory, antidiarrheic, antihypertension, antiobesity, and antidiabetic properties. Studies on animal models have also established the role of GL isolates as potent antitumor, anticancer, and cytotoxic agents. Guava leaf polysaccharides (GLPs) can be utilized as an antioxidant additive in food and for diabetes treatment.

The presence of a unique variety of bioactive polyphenolic compounds, like quercetin and other flavonoids, and ferulic, caffeic, and gallic acids, present in guava leaves primarily determine their bioactive and therapeutic properties. These phenolic compounds are known as secondary metabolites which exhibit strong antioxidant and immunostimulant activities. This review aims to discuss the various nutritional and bioactive compounds present in guava leaves and decipher the molecular basis of their pharmacological and medicinal properties concerning human health, nutrition, and as complementary medicine.

PLANT ANATOMY

- **Kingdom :** plantae
- **Subkingdom :** Tracheophyte vascular plants
- **Super division :** Spermatophyta
- **Division :** Magnoliophyta
- **Class :** Magnoliopsida Dicotyledonae
- **Subclass :** Rosidae
- **Order :** Myrtales
- **Family :** Mytraceae
- **Sub family :** Myrtoideae
- **Genus :** Psidium
- **Species :** Psidium guajava

PHYTOCHEMICAL CONSTITUENTS

S. NO	CATEGORY	MAJOR CONSTITUENTS
1	Flavonoids/phenolics	Quercetin, Guaijaverin, Avicularin, Apigenin, Kaempferol, Myricetin, Rutin.
2	Essential oils	Limonene, Caryophyllene oxide, 1,8-cineole.
3	Tannins	Gallic acid, catechin, Epicatechin, Condensed tannins.
4	Other compounds	Saponins, Terpenoids, Glycosides, Steroids.
5	Minerals	Calcium, potassium, Magnesium, sodium, Iron, Boron.

OTHER INGREDIENTS

CLOVE OIL

Fig. 4: clove oil.

TAXONOMICAL CLASSIFICATION

- **Domain :** Eukaryote
- **Phylum :** Tracheophyte
- **Class :** Magnoliopsida
- **Order :** Myrtales
- **Family :** Myrtaceae
- **Genus :** Syzgium
- **Species :** aromaticum ❖**Parts used:** Bud and Stalk

USES

- ✓ As an Antimicrobial, to help kill bacteria
- ✓ As a pain reliever for conditions such as tooth ache and muscle pain
- ✓ For digestive upset
- ✓ To relieve respiratory conditions like cough and asthma

GELATIN

Fig. 5: Gelatin.

SYNONYMS: Hydrolysed collagen, gelatine hydrolysate, hydrolysed gelatine.
CATEGORY: Gelling and non-gelling.
DISCRIPTION: A Whitish powder, odourless.
CHEMICAL CONSTITUENTS: Amino acids, peptides, minerals, water, lipids.
USES: Gelatine is a common ingredient in soups, broths, sauces, gummy, candies and medications.

HONEY

Fig. 6: Honey.

SYNONYMS: Pure Honey, Madhu.
CLASS: Utilized as an organic sweetener.
DESCRIPTION: Honey is a sticky liquid that ranges in colour from pale yellow to reddish.
They have a distinctive and enjoyable Odor, as well as a somewhat acrid and sweet flavour**.**
CHEMICAL COMPOSITION: Approximately 2% sucrose, 35% glucose, and 45% fructose.
APPLICATIONS: Honey is used as an anti-inflammatory, antioxidant, and antibacterial agent.

GINGER

Fig. 7: Ginger.

SYNONYM: Zingiber officinale
KINGDOM: plantae
ORDER: zingiberales
FAMILY: zingiberaceae
GENUS: zingiber
SPECIES: zingiber officinale

CHEMICAL CONSTITUENTS: Many bioactive compounds in ginger have been identified, such as phenolic and terpene compounds. The phenolic compounds are mainly gingerols, shogaols, and paradols, which account for the various bioactivities of ginger.

USES: In recent years, ginger has been found to possess biological activities, such as antioxidant, anti-inflammatory, antimicrobial, and anticancer activities. In addition, accumulating studies have demonstrated that ginger possesses the potential to prevent and manage several diseases, such as neurodegenerative diseases, cardiovascular diseases, obesity, diabetes mellitus, chemotherapy-induced nausea and emesis, and respiratory disorders.

REFERENCES

1. Marchesan JT, Girnary MS, Moss K, Monaghan ET, Egnatz GJ, Jiao Y, Zhang S, Beck J, Swanson KV. Role of inflammasomes in the pathogenesis of periodontal disease and therapeutics. Periodontal 2000, 2020 Feb; 82(1): 93-114. [PMC free article: PMC6927484] [PubMed: 31850638]
2. Trombelli L, Farina R, Silva CO, Tatakis DN. Plaque-induced gingivitis: Case definition and diagnostic considerations. J Periodontol., 2018 Jun; 89 Suppl 1: S46-S73. [PubMed: 29926936**]**
3. Medicated Chewing Gum – A Novel Approach to improve Patient Compliance International. Journal of Research in Pharmaceutical and Biomedical Science.

1. Sabera K, Kumar B, Sutradhar (2012) Medicated chewing gum: An unconventional drug delivery system International Current Pharmaceutical Journal, 1(4): 86- 91.
2. Mohan AU, Suraj R, Abhishek DD, Rahul M, Kshitij B (2012) Medicated Chewing Gum: Modern Approach to Mucosal Drug Delivery. AJPSci., 2(4): 150-159.
3. Swamy NGN, Zaheer A, Shilpa P (2012) Formulation and Characterization of Medicated Chewing Gums of Dextromethorphan Hydrobromide. Indian Drugs, 49(12): 29-35.
4. Pagare PK, Satpute CS, Jadhav VM, Kadam V (2012) Medicated chewing gum: A novel drug delivery system. Journal of applied pharmaceutical science, 2(7): 40-54.
5. Shah KR, Mehta TA (2014) Medicated chewing gum-A mobile oral drug delivery system. Int J Pharm Tech Res., 6(1): 35-48.
6. Vasudha LS, Hemant KSY, Mahesh KP, Abhay R, Navya M, et al. (2014) Medicated Chewing Gum: An Overview. Research & Reviews Journal of Dental Sciences, 8(5): 132-140.
7. Prerna K, Deepak K (2010) Medicated chewing gums updated review. In J Pharm Res Dev., 13(3): 184-101.
8. 11. Laily, N.; Kusumaningtyas, R.W.; Sukarti, I.; Rini, M.R.D.K. The potency of guava *Psidium guajava* (L.) leaves as a functional immunostimulatory ingredient. *Procedia Chem.*, 2015; *14:* 301–307. [Google Scholar] [CrossRef]
9. Chen, H.Y.; Yen, G.C. Antioxidant activity and free radical-scavenging capacity of extracts from guava (*Psidium guajava* L.) leaves. *Food Chem.*, **2007;** *101:* 686–694. [**Google Scholar**] [**CrossRef**]
10. Ashraf, A.; Sarfraz, R.A.; Rashid, M.A.; Mahmood, A.; Shahid, M.; Noor, N. Chemical composition, antioxidant, antitumor, anticancer and cytotoxic effects of *Psidium guajava* leaf extracts. *Pharm. Biol.*, **2016;** *54:* 1971–1981. [**Google Scholar**] [**CrossRef**] [**PubMed**]

11. Jiang, L.; Lu, J.; Qin, Y.; Jiang, W.; Wang, Y. Antitumor effect of guava leaves on lung cancer: A network pharmacology study. *Arab. J. Chem.*, **2020;** *13:* 7773–7797. [**Google Scholar**] [**CrossRef**]
16. Dewi, P.S.; Sutjiatmo, A.B.; Nurdiansyah, A. Antidiarrheal activity of water extracts of guava leaves (*Psidium guajava* L.) and water extracts of green tea leaves (*Camellia sinensis* L.) combination in Swiss Webster mice. *Acta Pharm. Indones,* **2013;** *38:* 67–70. [**Google Scholar**]
12. Mazumdar, S.; Akter, R.; Talukder, D. Antidiabetic and antidiarrheal effects on ethanolic extract of *Psidium guajava* (L.) Bat. leaves in Wister rats. *Asian Pac. J. Trop. Biomed.,* 2015; *5:* 10–14. [Google Scholar] [CrossRef]
17. Farag, R.S.; Abdel-Latif, M.S.; Abd El Baky, H.H.; Tawfeek, L.S. Phytochemical screening and antioxidant activity of some medicinal plants' crude juices. *Biotechnol. Rep.*, **2020**; *28:* e00536. [**Google Scholar**] [**CrossRef**]
18. International Journal of Research Publication and Reviews, June 2025; 6(6): 11923-11931.
19. https://en.wikipedia.org/wiki/Ginger
20. https://pmc.ncbi.nlm.nih.gov/articles/PMC6616534/