

PSIDIUM GUAJAVA: A MULTIUSEFUL LEAVES REVIEW

Pisal Akanksha*¹, Mr. Pathan Vasim*², Dr. Sanjay Garje*³, Dr. Sayyad Gaffar*⁴

*^{1,2,3,4}Shri amolak jain vidya prasarak mandal college of pharmaceutical science and research centre kada, India.

DOI : <https://www.doi.org/10.56726/IRJMETS51759>

ABSTRACT

Guava leaves, scientifically known as *Psidium guajava*, have been a subject of interest due to their diverse applications and potential health benefits. This paper aims to provide an overview of guava leaves, covering their classification, synonyms, properties, and various uses. The focus is on the potential medicinal properties and traditional uses of guava leaves in different cultures. Scientific investigations have revealed antioxidant, anti-inflammatory, and antimicrobial properties in guava leaves, prompting their use in traditional medicine and herbal remedies. Additionally, the leaves exhibit potential hypoglycemic effects, suggesting a role in managing blood sugar levels. This abstract provides a comprehensive overview of guava leaves, highlighting their significance in the realms of both traditional practices and emerging scientific research.

Keyword: Guava leaves, *Psidium guava*, medicinal uses, Guava leaves Herbal medicine, Medicinal properties, Antioxidant, Anti-inflammatory, Antimicrobial.

I. INTRODUCTION

Guava, a tropical fruit, is widely recognized for its nutritional value. While the fruit itself is commonly consumed, the leaves of the guava plant have gained attention for their medicinal properties. Guava leaves have been traditionally used in different cultures to treat various health conditions.



Beyond its popularity as a dietary staple, the leaves of the guava plant have been the subject of increasing interest due to their potential medicinal properties. Traditional cultures have long utilized guava leaves for various health purposes, ranging from the treatment of gastrointestinal ailments to wound healing. Recent scientific investigations have focused on unraveling the bioactive compounds present in guava leaves and understanding their therapeutic potential.

The guava plant belongs to the Myrtaceae family, and *Psidium guajava* is the most cultivated and studied species within this genus. Its leaves contain a plethora of phytochemicals, including antioxidants and anti-inflammatory agents, antiulcer agents which have sparked research into their potential applications for human health.

By bridging traditional knowledge with contemporary scientific findings, this study contributes to a deeper understanding of the multifaceted nature of guava leaves and their implications for human well-being.

Classification:

The plant classification details are :

Kingdom :-Plantae

Sub kingdom :- Tracheophyta

Division :- Magnoliophyta

Class :- Magnoliopsida

Subclass :- Rosidae

Order :- Myrtaceae

Genus :- Psidium

Species :- Biological species / Guava leaves

Synonyms:

Hindi :-Amrud ke patte

Sanskrit :- Aagralam

English :- Psidium guajava

Marathi :- Peru

Tamil :- Yellow Cattely Guava

Properties:

Guava leaves possess a range of properties that contribute to their medicinal significance. Some notable properties include:

- Antioxidant properties: Guava leaves contain compounds with antioxidant effects that help combat oxidative stress.
- Anti-inflammatory properties: The leaves may exhibit anti-inflammatory effects, making them useful in managing inflammatory conditions.
- Antimicrobial properties: Guava leaves have shown antimicrobial activity against certain bacteria and fungi.
- Hypoglycemic effects: Research suggests that guava leaves may have a role in managing blood sugar levels.
- Antiulcer properties : guava leaves show antiulcer property in condition of mouth ulcer .

Morphological properties

The leaf blade is elliptic to oblong in shape, 5-15 cm long x 3-7 cm broad, finely pubescent and veined on the lower face, glabrous on the upper face. The flowers are white in colour, about 3 cm in diameter, solitary or in 2-3 flower clusters borne at the axils of newly emerging lateral shots.

Microscopical properties

4 Microscopy of Psidium guajava leaf showing- Paracytic type of stomata on abaxial surface ; Prismatic crystal of calcium oxalate in ground tissue ; Secretory cells among ground tissue of midrib portion and Xylem, phloem elements along with fibres .

Uses Of Psidium Guajava

Psidium guajava, commonly known as guava, is a tropical fruit that is not only delicious but also offers various health benefits. Different parts of the guava plant, including the fruit, leaves, and bark, have been utilized for various purposes. Here are some common uses of Psidium guajava:

1. Edible Fruit:

- Guava fruits are consumed fresh, and they are rich in essential nutrients, including vitamin C, fiber, and antioxidants.
- They are used to make juices, jams, jellies, and various culinary products.

2. Medicinal Uses:

- **Digestive Health:** Guava is known for its digestive benefits. It contains dietary fiber that aids in digestion and helps prevent constipation.
- **Antioxidant Properties:** The fruit is rich in antioxidants, including vitamin C and flavonoids, which may help combat oxidative stress and inflammation in the body.
- **Immune System Support:** The high vitamin C content in guava contributes to immune system health.

- **Antimicrobial Properties:** Guava leaves have been traditionally used for their antimicrobial properties and may have applications in treating various infections.
- 3. Traditional Medicine:**
 - In traditional medicine, different parts of the guava plant are used for treating ailments such as diarrhea, dysentery, and gastroenteritis.
 - Guava leaves are often used in herbal teas and decoctions for their potential medicinal properties.
- 4. Skincare:**
 - Guava extracts are sometimes used in skincare products due to their antioxidant content, which may help protect the skin from damage caused by free radicals.
- 5. Ornamental Use:**
 - Guava plants are cultivated for ornamental purposes in gardens and landscapes due to their attractive appearance, fragrant flowers, and lush foliage.
- 6. Culinary Applications:**

Apart from being consumed fresh, guava is used in the preparation of desserts, salads, and various culinary dishes.
- 7. Animal Feed:**
 - Guava leaves can be used as fodder for livestock, providing additional nutrients to animals.
- 8. Wood and Bark Uses:**
 - The wood from guava trees is sometimes used for small-scale construction and as fuel.
 - The bark has been used in traditional medicine for its potential therapeutic properties. It's important to note that while guava offers various potential health benefits, its usage should be in moderation, and individuals with specific health conditions should consult with healthcare professionals before incorporating it into their diet or health regimen.

II. FORMULATIONS OF DOSAGE FORMS

Formulating pharmaceutical dosage forms from *Psidium guajava* (guava) involves extracting and incorporating its bioactive compounds into various formulations. It's important to note that while guava is often consumed as a fresh fruit, its extracts, particularly from leaves, have been studied for potential medicinal uses. Here are some potential formulations based on *Psidium guajava*:

1. Guava Leaf Extract Capsules:

- **Active Ingredient:** Guava leaf extract rich in flavonoids, polyphenols, and other bioactive compounds.
- **Excipients:** Filler, binder, disintegrant, and lubricant.
- **Process:** Extracting guava leaves, drying the extract, and formulating it into capsules for oral administration.

2. Guava Leaf Tea Bags:

- **Active Ingredient:** Dried guava leaves.
- **Excipients:** None or optional flavorings.
- **Process:** Drying and grinding guava leaves, packaging them into tea bags for infusion.

3. Guava Leaf Syrup:

- **Active Ingredient:** Guava leaf extract.
- **Excipients:** Sweeteners, preservatives, and flavorings.
- **Process:** Extracting guava leaves, concentrating the extract, and formulating it into a syrup for oral consumption.

4. Guava Leaf Cream or Ointment:

- **Active Ingredient:** Guava leaf extract or oil.
- **Excipients:** Emollients, stabilizers, and preservatives.

- **Process:** Extracting guava leaves or obtaining guava leaf oil and incorporating it into a cream or ointment for topical application.
5. **Guava Juice or Beverage:**
- **Active Ingredient:** Guava fruit juice.
 - **Excipients:** Water, sweeteners (if needed), and preservatives.
 - **Process:** Extracting juice from guava fruits, filtering, and formulating it into a beverage.
6. **Guava Leaf Extract Mouthwash:**
- **Active Ingredient:** Guava leaf extract with potential antimicrobial properties.
 - **Excipients:** Water, flavorings, and preservatives.
 - **Process:** Preparing an aqueous extract of guava leaves and formulating it into a mouthwash.
7. **Guava Leaf Powder Capsules:**
- **Active Ingredient:** Guava leaf powder.
 - **Excipients:** Filler, binder, and lubricant.
 - **Process:** Drying and grinding guava leaves to obtain a powder, then encapsulating it for oral administration.
 - **Extraction-** The concentration of active compounds, stability, bioavailability, and safety considerations need to be thoroughly evaluated during the formulation process. Additionally, consulting with a qualified herbalist, pharmacist, or healthcare professional is recommended before using guava-based formulations for medicinal purposes.

III. CONCLUSIONS

Psidium guajava leaf which having nobel pharmacological activities . Especially anti ulcer property action of psidium guajava are quite significant as in the present era .The work done until date on various pharmacological activities such as mouth ulcer malaria , cough ,bacterial infection ,diarrhoea,antidiabetic ,anticancer ,antioxidant,anti-inflammatory.The studies on leaves psidium guajava also desired development of novel therapeutic agents from the various type of compound with diverse pharmacologic activites of plant leaves to elucidate the mechanism of action of same in future.

IV. REFERENCE

- [1] Thakur, M.; Singh, K.; Khedkar, R. Phytochemicals. In Functional and Preservative Properties of Phytochemicals; Elsevier: Amsterdam, The Netherlands, 2020; pp. 341–361. 3
- [2] Thakur, M.; Singh, K.; Khedkar, R. Phytochemicals. In Functional and Preservative Properties of Phytochemicals; Elsevier: Amsterdam, The Netherlands, 2020; pp. 341–361. [Google Scholar]
- [3] Purba, R.A.P.; Paengkoum, P. Farang (Psidium Guajava L.) Dried Leaf Extracts: Phytochemical Profiles, Antioxidant, Anti-Diabetic, and Anti-Hemolytic Properties for Ruminant Health and Production. *Molecules* 2022, 27, 8987. [Google Scholar] [CrossRef]
- [4] Rosales, T.K.O.; Fabi, J.P. Valorization of Polyphenolic Compounds from Food Industry By-Products for Application in Polysaccharide-Based Nanoparticles. *Front. Nutr.* 2023, 10, 1144677. [Google Scholar] [CrossRef]
- [5] 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]
- [6] Ziech D., Franco R., Georgakilas A. G., et al. The role of reactive oxygen species and oxidative stress in environmental carcinogenesis and biomarker development.
- [7] Chemico-Biological Interactions. 2010;188(2):334–339. doi: 10.1016/j.cbi.2010.07.010. - DOI – pubmed
- [8] Thaipong K., Boonprakob U., Crosby K., et al. Comparison of ABTS, DPPH, FRAP, and ORAC assays for estimating antioxidant activity from guava fruit extracts. *Journal of Food Composition and Analysis.* 2006;19(6-7):669–675. doi: 10.1016/j.jfca.2006.01.003. - DOI

- [9] Fidrianny I., Choirunnisa A. R., Ruslan K. Comparison of five antioxidant assays for estimating antioxidant capacity from three solanum sp. extracts. *Asian Journal of Pharmaceutical and Clinical Research*. 2016;9(2):123–127. doi: 10.22159/ajpcr.2016.v9s2.13155. - DOI
- [10] Muller L., Goupy P., Frohlich K., et al. Comparative study on antioxidant activity of lycopene (z)-isomers in different assays. *Journal of Agriculture and Food Chemistry*. 2011;59(9):4504–4511. doi: 10.1021/jf1045969. - DOI - PubMed
- [11] Ziech D., Franco R., Georgakilas A. G., et al. The role of reactive oxygen species and oxidative stress in environmental carcinogenesis and biomarker development. *Chemico-Biological Interactions*. 2010;188(2):334–339. doi: 10.1016/j.cbi.2010.07.010. - DOI - PubMed
- [12] Halliwell B., Gutteridge J. M. C. *Free Radicals in Biology and Medicine*. New York City, NY, USA: Oxford University Press; 2007.
- [13] Thaipong K., Boonprakob U., Crosby K., et al. Comparison of ABTS, DPPH, FRAP, and ORAC assays for estimating antioxidant activity from guava fruit extracts. *Journal of Food Composition and Analysis*. 2006;19(6-7):669–675. doi: 10.1016/j.jfca.2006.01.003. - DOI
- [14] Fidrianny I., Choirunnisa A. R., Ruslan K. Comparison of five antioxidant assays for estimating antioxidant capacity from three solanum sp. extracts. *Asian Journal of Pharmaceutical and Clinical Research*. 2016;9(2):123–127. doi: 10.22159/ajpcr.2016.v9s2.13155. - DOI
- [15] Muller L., Goupy P., Frohlich K., et al. Comparative study on antioxidant activity of lycopene (z)-isomers in different assays. *Journal of Agriculture and Food Chemistry*. 2011;59(9):4504–4511. doi: 10.1021/jf1045969. - DOI - PubMed
- [16] Newman D.J., Cragg G.M., Snader K.M. Natural products as sources of new drugs over the period 1981–2002. *J. Nat. Prod*. 2003;66:1022–1037. doi: 10.1021/np030096l. - DOI - PubMed
- [17] Kumar M., Saurabh V., Tomar M., Hasan M., Changan S., Sasi M., Maheshwari C., Prajapati U., Singh S., Prajapat R.K., et al. Mango (*Mangifera indica* L.) leaves: Nutritional composition, phytochemical profile, and health-promoting bioactivities. *18.Antioxidants*. 2021;10:299. doi: 10.3390/antiox10020299. - DOI - PMC - PubMed
- [18] Sharma A., del Carmen Flores-Vallejo R., Cardoso-Taketa A., Villarreal M.L. Antibacterial activities of medicinal plants used in Mexican traditional medicine. *J. Ethnopharmacol*. 2017;208:264–329. doi: 10.1016/j.jep.2016.04.045. - DOI - PubMed
- [19] Amat-ur-Rasool H., Symes F., Tooth D., Schaffert L.N., Elmorsy E., Ahmed M., Hasnain S., Carter W.G. Potential nutraceutical properties of leaves from several commonly cultivated plants. *Biomolecules*. 2020;10:1556. doi: 10.3390/biom10111556. - DOI - PMC - PubMed
- [20] Mannino G., Gentile C., Porcu A., Agliassa C., Caradonna F., Berteà C.M. Chemical profile and biological activity of cherimoya (*Annona cherimola* Mill.) and atemoya (*Annona atemoya*) leaves. *Molecules*. 2020;25:2612. doi: 10.3390/molecules25112612. - DOI - PMC - PubMed