Indonesian Journal of Health Pharmacy
Vol.1, No.2, November 2025, Page. 83-94

Review Article

Psidium Guajava : A review of pharmacology

Anggun Widya[1], Putri Tri Hartini[1], Restu Anisa Putri,[1] Debby Indriani[1], Intan Nur Aisyah[1], Kirana Azzahra[1], Piodona Rosalinda[1]

[1]Department of Pharmacy, Faculty of Science & Health, University Muhammadiyah Riau, Riau, Indonesia

Article Info

Received: 2-10-2025
Direvisi: 20-11-2025
Accepted: 30-11-2025

*** Corresponding author:**
Putri Tri Hartini
email:
putritrihartini@umri.ac.id

ABSTRACT

Guava leaves are one of the plants that have antioxidant properties. Ethanol extract of guava leaves is obtained by maceration using 96% ethanol which is then delipidated with the non-polar solvent n-hexane. This study aims to make guava leaf extraction for use as a traditional medicine for several diseases. This method is carried out by reviewing literature by looking at 25 articles that have been searched on Google Scholar. The results of this literature prove that guava leaves (*Psidium guajava*) have long been used in traditional medicine to treat various diseases, including diarrhea, bacterial infections, and digestive disorders. This review article aims to explore the pharmacological potential of guava leaves, with a focus on antidiarrheal, antibacterial, antioxidant, and anti-inflammatory activities. Based on the literature review, guava leaf extract contains bioactive compounds such as tannins, flavonoids, and polyphenols that play a role in providing therapeutic effects. Several studies have shown that guava leaves are effective in reducing the frequency and duration of diarrhea, and have significant antibacterial activity against pathogens such as Escherichia coli and Shigella. Furthermore, the antioxidant and anti-inflammatory effects of guava leaves may also protect the digestive tract from free radical damage and inflammation. Further research through clinical trials is needed to confirm the effectiveness and safety of guava leaf use as an herbal therapy. This article hopes to provide deeper insight into the benefits of guava leaves in modern medicine and the development of plant-based medicines.

Keywords:

Guava leaves, Psidium guajava, bioactive compounds, traditional medicine, pharmacology.

INTRODUCTION

Guava leaves (*Psidium guajava*) are part of the guava plant, a member of the Myrtaceae family, and have various therapeutic benefits. This plant originates from tropical Central and South America, but is now distributed worldwide, particularly in tropical and subtropical regions. Morphologically, guava leaves are elliptical or oval with a pointed tip, approximately 10–20 cm long and 5–10 cm wide. The upper surface of the leaves is smooth and glossy, while the underside is lighter and slightly hairy. The petioles are short, and the leaves grow opposite each other. (Magfiroh et al., 2024)

Guava leaves contain a wide variety of bioactive compounds that offer a variety of health

benefits. Key components include flavonoids such as quercetin and kaempferol, which have antioxidant and anti-inflammatory properties; tannins, which have an astringent effect and are useful for treating digestive disorders like diarrhea; and saponins, which have antimicrobial and anti-inflammatory potential. Furthermore, guava leaves contain polyphenols, vitamin C, and essential minerals such as calcium, phosphorus, and potassium, all of which contribute to overall health.

Guava leaves (Psidium guajava L.) have long been used in traditional medicine due to their diverse bioactive compounds. Compounds such as flavonoids, tannins, and terpenoids exert various pharmacological activities, including antioxidant, anti-inflammatory, and antimicrobial effects. Studies have demonstrated the potential of guava leaves in managing various health conditions, such as diarrhea, diabetes mellitus, and inflammation. The mechanisms of action of these bioactive compounds involve various molecular pathways, including enzyme inhibition, immune system modulation, and protection against oxidative damage. However, further research is needed to optimize the use of guava leaves as a phytopharmaceutical ingredient and to understand their interactions with conventional medicines. (Mardikasari et al., 2017)

Research on guava leaves (Psidium guajava) in the pharmaceutical field as an antidiarrheal agent has shown promising results, thanks to their tannin and other bioactive compounds that have astringent and antibacterial effects (Dian Vita Sari et al., 2019). Several scientific studies have proven that guava leaf extract is effective in treating diarrhea, especially those caused by bacterial infections and digestive disorders (Kurnia et al., 2020). The tannins in guava leaves work by reducing fluid secretion in the digestive tract and improving stool consistency, while the antibacterial properties of compounds such as flavonoids and polyphenols can kill diarrhea-causing bacteria such as Escherichia coli and Shigella. (Andriani et al., 2020)

For example, research published in the Journal of Ethnopharmacology in 2010 showed that guava leaf extract has the potential to reduce the frequency and duration of diarrhea in mice infected with E. coli (Meliala et al., 2020). Other research also confirmed the effectiveness of guava leaf tea in reducing diarrhea symptoms in humans, thanks to its ability to soothe the digestive tract (Masyorofah et al., 2020). Thus, guava leaves are an effective natural alternative treatment for diarrhea, but further research is needed to determine the optimal dosage and method of use in clinical therapy

A literature review of the guava plant (Psidium guajava) is a crucial step in exploring its pharmacological potential. This tropical plant has long been recognized in traditional medicine in various communities around the world. Its diverse bioactive compounds, such as flavonoids, tannins, terpenoids, and vitamin C, contribute significantly to its various pharmacological activities. Flavonoids, for example, act as powerful antioxidants, capable of counteracting free radicals that cause cell damage. Properties

METHODS

The method used for writing this article is based on data collection from online journals published over the past 15 years, namely 2009-2024. Sources were obtained from international journals and national journals. A systematic search was conducted using the Google Scholar database, which yielded a total of 8,290 articles and other databases 7,720 articles published between 2019 and 2024. To ensure comprehensive coverage, a combination of keywords was used: "guava leaves (Psidium guajava)", "pharmacological effects of guava leaves (Psidium guajava)", "experiments of guava plants (Psidium guajava)". In addition, the search was limited to articles within the focus area of health and experiments on their pharmacological effects. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework was adopted to guide the article selection process. This process involves three main stages: identification, screening, eligibility, and inclusion.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Year	Published in between 2009 - 2024	<2009
Language	Indonesian and English	Languages other than Indonesian and English
Article Type	Scientific articles (journals,	Literature review, textbooks, case reports, abstracts

Criteria	Inclusion	Exclusion
	conference proceedings)	
Field in database	Health, biology, chemistry, medical science	Agriculture, psychology, energy, social sciences, farming

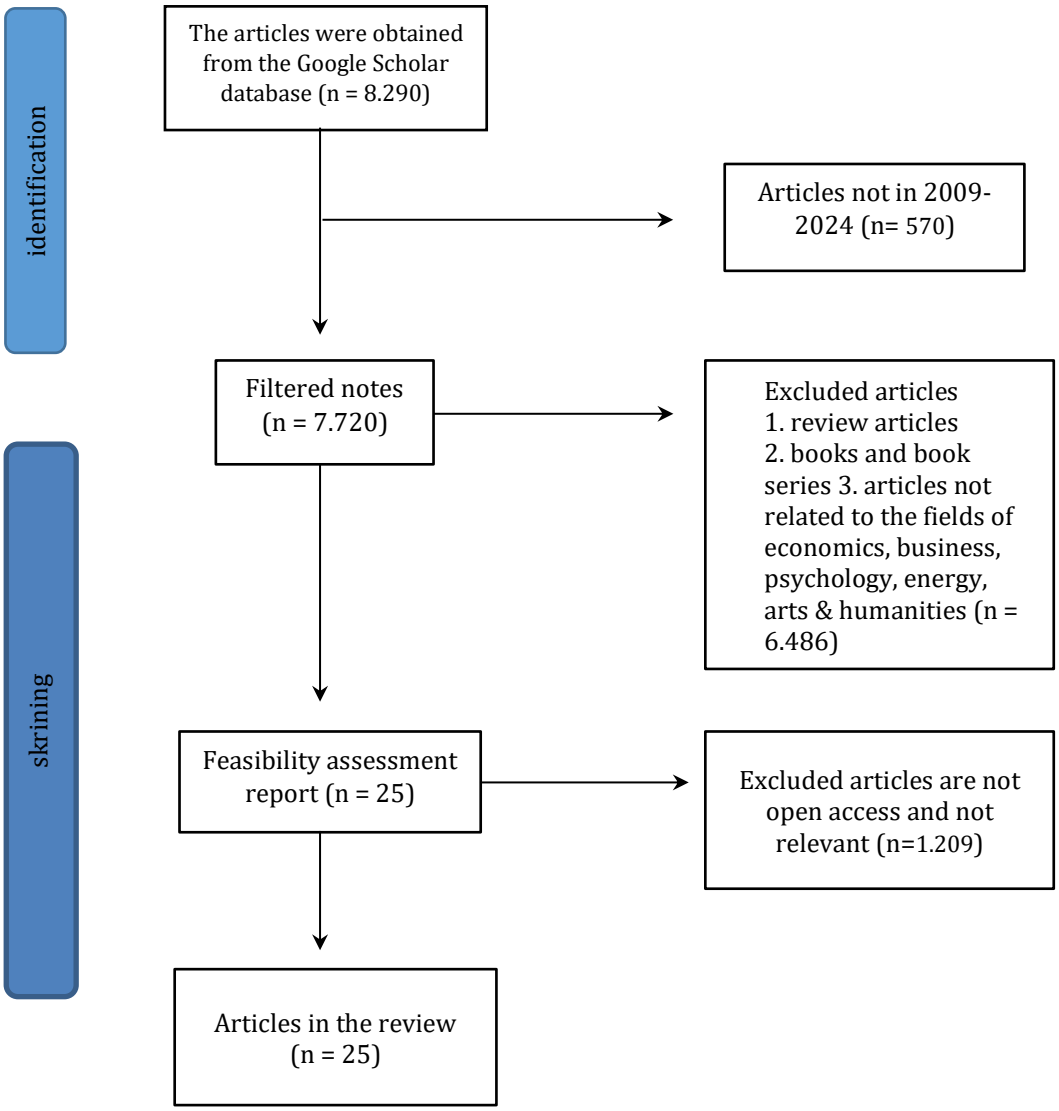

Figure 1. Data selection and extraction

RESULTS AND DISCUSSION

This section presents the analysis of the 30 selected articles, with grouping results such as solvents, sample parts, test animals, extraction methods, and pharmacological effects (summarized in Tables and Diagrams).

Table 2. Selected Study Analyses

No	Author	Solvent	Sample Part	Test Animal / Microorganism	Extraction Method	Pharmacological Effect
1	Aprillia & Safitri, 2020	96% Ethanol	Leaf	Mice	Maceration	Antidiabetic, Antibacterial
2	Dewi et al., 2021	Copper acetate 5%	Leaf	None	Maceration	Antibacterial
3	Kusuma et al., 2017	Aquadest	Leaf	*Streptococcus agalactiae*	Percolation	Antibacterial
4	Deru et al., 2019	Water	Leaf	*Mangrove crab (Scylla serrata)*	Maceration	Antibacterial
5	Selfyana & Musdalipah, 2018	Water	Leaf	*Candida albicans*	Maceration	Antifungal
6	Zulfikri & Dianti, 2022	70% Ethanol	Leaf	*Staphylococcus aureus/escherichia coli*	Maceration	Antiseptic
7	Jeffrey & Sugiaman, 2023	Ethanol, methanol, water	Leaf	*Streptococcus mutans*	Maceration	Antibacterial, Antiinflammatory, Antidiuretic, Antiseptic, Antioxidant, Antimicrobial, Digestive
8	Sukatin et al., 2022	Distilled water, Ethanol 96%, and Water	Leaf	None	Maceration	Not specific
9	Hayyudiah et al., 2024	Methanol, ethyl acetate, ethanol, water, n hexane	Leaf	*Salmonella typhimurium, Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa*	Extraction	Antibacterial
10	Emilia Putri et al., 2023	70% Ethanol	Leaf	*Pathogenic bacteria, fungi*	Maceration, Percolation	Antiseptic
11	Sadiah et al., 2022	Water and Ethanol	Leaf	*Taphylococcus aureus, Escherichia coli, Bacillus subtilis, Salmonella typhi, Pseudomonas aeruginosa, Klebsiella pneumoniae*	maceration, infusion, reflux, extraction with different solvents	Antibacterial, Antiinflammatory, Antifungal, Antioxidant, Antidiabetic.
12	Daswito et al., 2019	Ethanol	Leaf extract	*housefly (musca domestica)*	Maceration	Unspecific

No	Author	Solvent	Sample Part	Test Animal / Microorganism	Extraction Method	Pharmacological Effect
13	Arina et al., 2023	96% ethanol	Leaf	*Staphylococcus aureus*	Maceration	Antibacterial, Antiinflammatory, Antiseptic, Immunomodulator
14	Rasmiati et al., 2022	Glycerin, peppermint oil	Leaf	*Streptococcus mutans, Escherichia coli, staphylococcus aureus*	None	Antiseptic and Antibacterial, Antibacterial, Antifungal, Antioxidant
15	Ni Luh Putu Taksayani Putri & Ni Luh Putu Vidya Paramita, 2023	Methanol, ethanol, aquadest	Leaf extract	*Bacillus subtilis, staphylococcus aureus, Escherichia coli*	Diffusion, microdilution methods	Antibacterial, Antiinflammatory, Antioxidant, Antiseptic
16	Haryanti et al., 2020	70% Ethanol	Leaf	Not specific	Maceration	Antibacterial
17	Dewi et al., 2019	Methanol	Leaf	*Propionibacterium acnes, Malassezia furfur yeast*	Maceration	Antimicrobial, Antiinflammatory, Antioxidant
18	Zahara & Pamekas, 2023	Sterile distilled water and NaOCl 2 solution 10%	Leaf	*Pyricularia oryzae*	Maceration	Antifungal, Antimicrobial, Antidiuretic
19	Hafid et al., 2019	Ethyl acetate	Leaf	*Staphylococcus aureus, escherichia coli, mosquito larvae*	Maceration	Antimicrobial
20	Buana Januarti et al., 2023	Methanol	Leaf	*Male rabbit Staphylococcus aureus, Escherichia coli*	Maceration	Antimicrobial, Antioxidant
21	Christiani et al., 2023	Ethanol, methanol, distilled water	Leaf	None	Distillation water-vapor	Antioxidant
22	Lestari et al., 2023	96% ethanol and dimethylsulfoxide (DMSO)	Leaf	Male white mice *(Mus musculus)*	Maceration	Analgesic, Antibacterial, Antidiuretic, Antiinflammatory, Antioxidant
23	Rasydy et al., 2019	96% Ethanol	Leaf	*Staphylococcus aureus*	Maceration	Antiseptic, Antimicrobial
24	Rahmawati, 2021	Water	Leaf	Green locust	Maceration	Antibacterial, Antiinflammatory, Antifungal
25	Oktavia et al., 2017	70% Ethanol	Leaf	Male white mice *(Mus musculus)*	Maceration	Antidiuretic, Antibacterial, Hepatoprotective, Antioxidant, Antiinflammatory

No	Author	Solvent	Sample Part	Test Animal / Microorganism	Extraction Method	Pharmacological Effect
26	Annisa et al., 2017	Methanol	Leaf	Rabbit	Maceration	Antiseptic
27	Fitriani et al., 2024	DMSO 10% and distilled water	Leaf	*Candida albicans*	Steam distillation	Antifungal
28	Talcha Pertiwi et al., 2021	Ethanol	Leaf	None	Maceration	Antiinflammatory
29	Ummah, 2019	Ethanol	Leaf	Stophylociccus	Maceration	Antibacterial
30	Sikumbang et al., 2022	Ethanol	Leaf	Mice	Maceration	Antiinflammatory

Solvent Profile

The following diagram summarizes the distribution and frequency of various solvents employed during the experimental procedures. This introductory section aims to contextualize the data, highlight the relevance of each solvent category, and support a more comprehensive interpretation of the subsequent analysis.

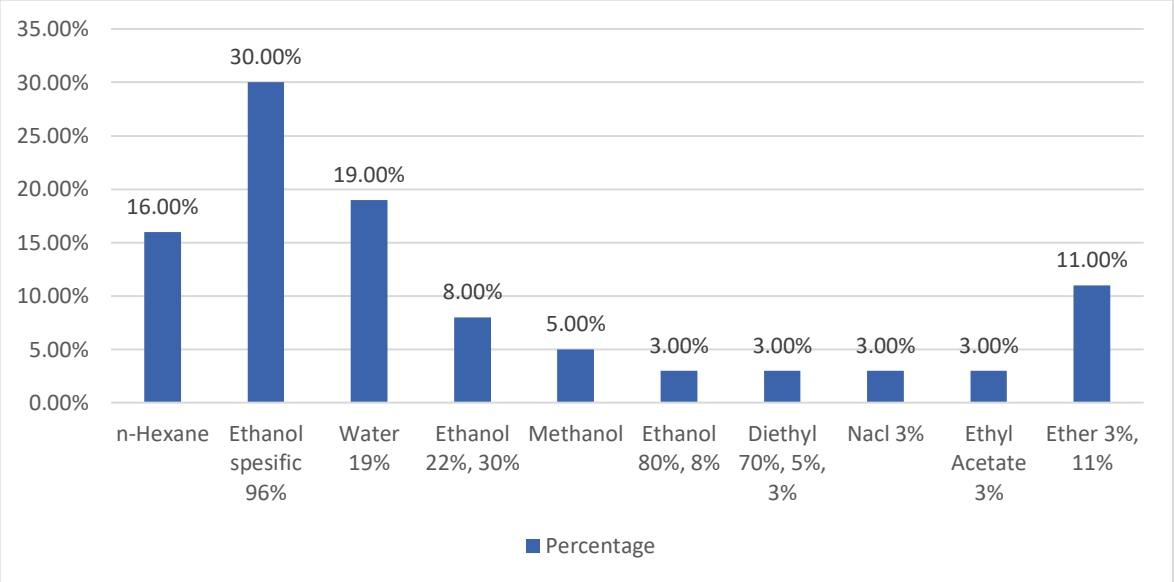

Figure 2. Diagram of the percentage of solvent used

The image above is a bar chart showing data on the use of various solvents. The Y-axis in this chart shows the percentage of use, while the X-axis shows the types of solvents used. Each bar in the chart represents the frequency of use of a particular solvent type.

From the diagram, we can see that ethanol is the most frequently used solvent, followed by water (19%) and hexane. Ethanol usage is very high, reaching over 30%. This indicates that ethanol is a popular choice in various solvent-based applications. Other solvents such as methanol, diethyl ether, and sodium chloride (NaCl) are also used, but in smaller percentages.

The presence of an "unspecified" category at 11% indicates that other solvents were used but not specifically identified in the data. This could be due to the relatively small amounts or the wide variety of solvents. Furthermore, a mixture of solvents may have been used, preventing them from being categorized as a single solvent.

Profile of the Plant Part Utilized

The following diagram illustrates the proportion of different plant parts used in the research. This section aims to offer an overview of the selection rationale, highlighting the relevance of each plant component and its potential contribution to the biological and pharmacological findings obtained in the subsequent analysis.

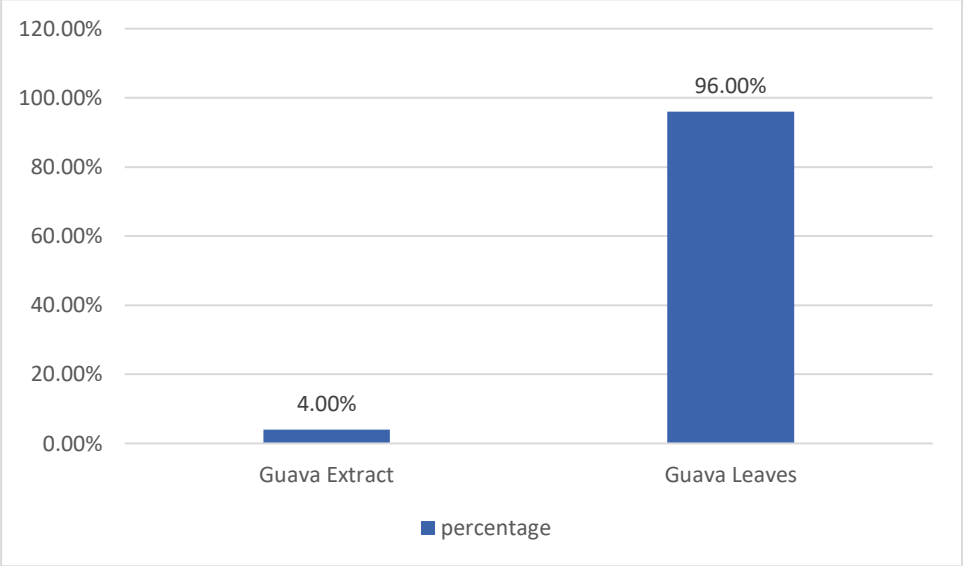

Figure 3. Diagram of the percentage of sample used

This study focused primarily on guava leaves. The diagram shows that the majority of samples used were guava leaves, while only a small amount was used in the seed extract. This indicates that the researchers were primarily interested in studying the health benefits of guava leaves.

Guava leaves are rich in phytochemical compounds that offer health benefits. Some important compounds found in guava leaves include flavonoids, tannins, terpenoids, and saponins. These compounds have various biological activities, such as antioxidant, anti-inflammatory, and antibacterial properties.

Numerous studies have demonstrated the efficacy of guava leaves. Guava leaves have been shown to be effective in treating various ailments, such as bacterial infections, inflammation, and diabetes. The significant potential of guava leaves as a natural medicine source has attracted the interest of many researchers to conduct further studies.

Profile of Test Animals or Microbes

The following diagram illustrates the percentage of various organisms employed in experimental research. This introductory section aims to contextualize the selection of model organisms, emphasizing their relevance, biological characteristics, and applicability to different types of scientific investigations.

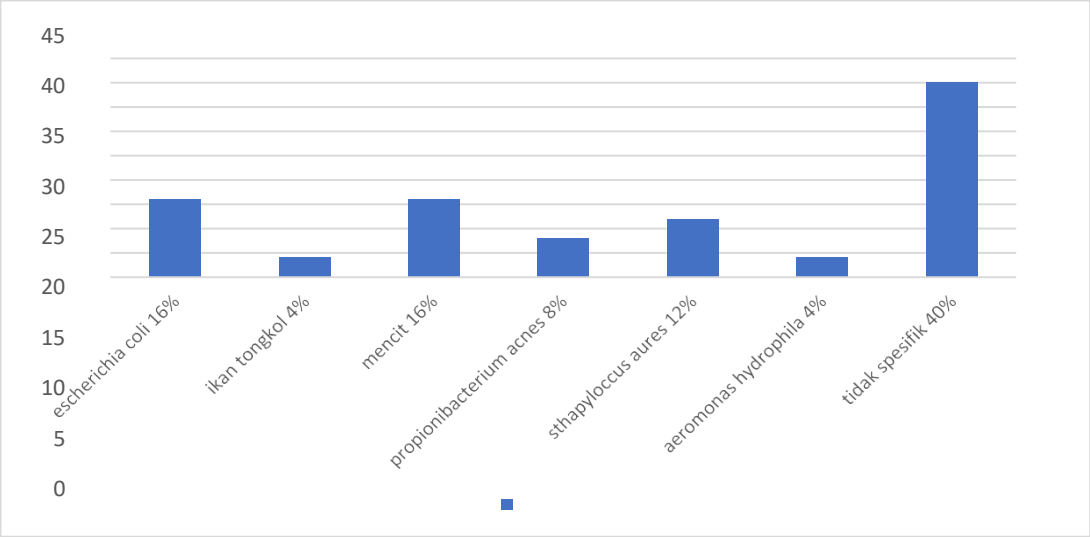

Figure 4. Diagram of animal/microbe test percentage

The diagram above shows that Escherichia coli is the most frequently used organism in research. This is due to several advantages of this bacterium, such as rapid growth, a well-mapped genome, and a relatively simple genetic system. Furthermore, E. coli is often used as a model for studying infectious diseases.

Previous research has demonstrated the usefulness of E. coli in various fields, such as molecular genetics, cell biology, biotechnology, and pathology. Another popular organism used in research is mice, which share significant genetic similarities with humans. Mice are often used to study human diseases such as cancer and heart disease.

The choice of model organism in research depends heavily on the research question being addressed. Each organism has its own advantages and disadvantages. Therefore, careful selection of the model organism is essential to ensure reliable and relevant research results.

Profile Of Extraction Method

The following diagram outlines the distribution of various extraction methods used to obtain bioactive compounds from plant materials. This section aims to contextualize the methodological choices, highlighting how different extraction approaches influence the quality, efficiency, and chemical composition of the resulting extracts

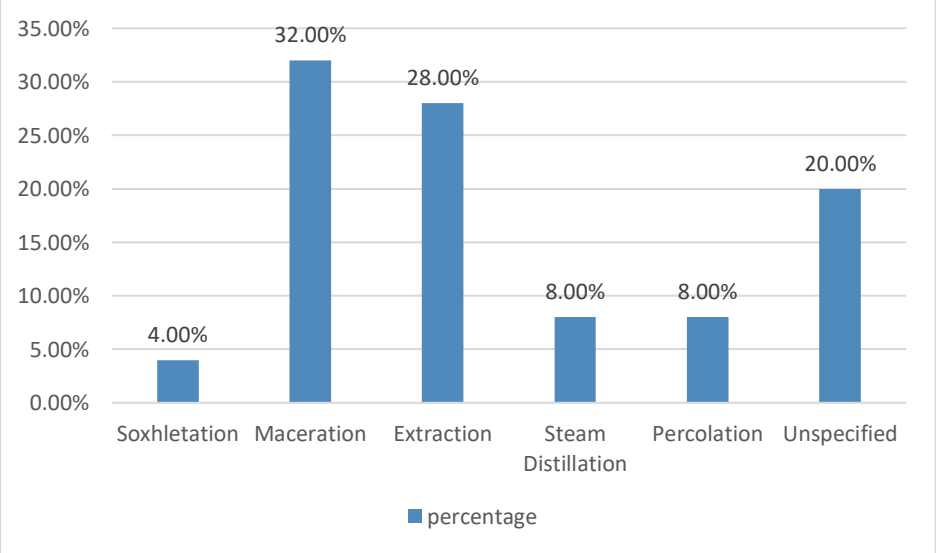

Figure 5. Diagram of Extraction Method Profile

The diagram above shows that the orange extraction method was the most frequently used in this study. This indicates that it has certain advantages over other extraction methods.

Possible reasons why the orange extraction method was chosen include its greater efficiency, selectivity, ease of use, or economics. However, to understand the exact reasons, we need to understand specifically which method the orange color represents and the purpose of the study.

To provide a more complete and accurate explanation, additional information is needed regarding the extraction method used, the target compound to be extracted, and the selection criteria for the extraction method. With this information, we can conduct a more in-depth analysis and compare the advantages and disadvantages of each extraction method.

In general, the choice of extraction method depends heavily on the sample type, target compound, and research objectives. Each extraction method has different characteristics, so choosing the right method will significantly impact the research results.

Profile of Pharmacological Effects

The following diagram summarizes the distribution of pharmacological properties reported across various studies. This introductory section aims to contextualize the relevance of these activities, emphasizing their scientific significance and their potential contribution to the therapeutic value of guava leaf extracts.

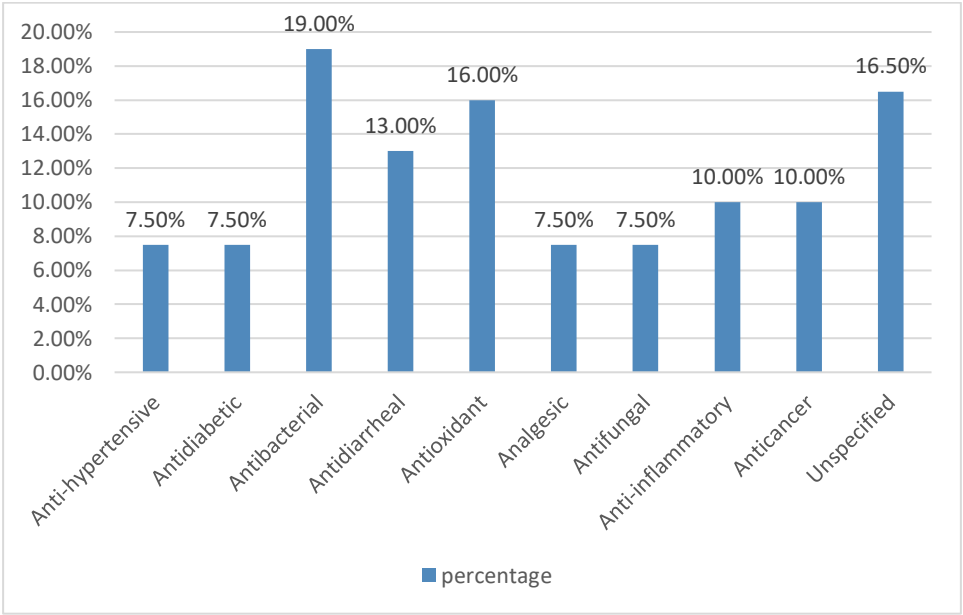

Figure 6. Pharmacological Effects

The image above shows that the majority of studies on guava leaves have focused on their antibacterial effects. This suggests that guava leaves have significant potential. Oppose infection bacteria.The antibacterial properties of guava leaves are due to the presence of phytochemical compounds such as flavonoids, tannins, and terpenoids. These compounds have various modes of action.hindergrowth bacteria, for example by damaging the bacterial cell walls or disrupting metabolic processes within the cells.

Many studies have demonstrated the efficacy of guava leaves as an antibacterial agent. However, it's important to remember that effectiveness may vary depending on several factors, such as the extraction technique used and the type of bacteria tested. Further research is needed to confirm this.understanding Whichmore in depth about how it works and its potential applications in medicine..

Based on the presented data visualization results, this research significantly focused on

isolating bioactive compounds from plant parts, particularly guava leaves. Approximately 95% of the research targeted leaves as the primary source of compounds with potential pharmacological activity. This choice was based on the understanding that guava leaves often contain higher concentrations of secondary metabolites than other plant parts.

Hexane emerged as the most frequently used solvent in the extraction process, contributing approximately 30% of the total research. The choice of hexane as a nonpolar solvent indicates that this research tends to focus on the isolation of lipophilic (fat-soluble) compounds, such as terpenoids or lipids. However, the variation in the use of polar solvents such as methanol or ethanol indicates that researchers are also interested in polar compounds such as flavonoids or alkaloids. Maceration extraction methods dominate this research, contributing approximately 40%.

Ease of implementation and cost efficiency are the main reasons for choosing this method. However, other extraction methods such as Soxhlet and percolation were also used, indicating an effort to optimize the extraction process based on the nature of the target compound and the characteristics of the plant matrix. The variety of plant species used indicates a broad interest in exploring the potential bioactivity of various plant species. This reflects the abundant biodiversity and great potential of natural biological resources as a source of new bioactive compounds. The conclusion from this analysis is that the research conducted has the main objective of discovering new bioactive compounds from plants that can be utilized for various applications, such as the development of drugs, cosmetics, or functional food ingredients. The choice of various solvents and extraction methods shows that this research has a comprehensive approach in achieving this goal.

CONCLUSIONS

Guava leaves (Psidium guajava) have significant pharmacological potential, particularly as an antidiarrheal, antibacterial, antioxidant, and anti-inflammatory therapy. Based on a literature review of various studies, guava leaf extract has been shown to be effective in reducing the frequency and duration of diarrhea, as well as fighting diarrhea-causing bacteria such as Escherichia coli and Shigella. The astringent properties of tannins and the antibacterial activity of flavonoids and polyphenols are the main mechanisms behind the therapeutic effects of guava leaves. Furthermore, the antioxidant and anti-inflammatory activities of the bioactive compounds in guava leaves also provide protection for the digestive tract.Although the results of existing studies are quite promising, further research is needed, especially clinical trials in humans, to confirm the effectiveness and safety of using guava leaves as an optimal herbal therapy in the treatment of diarrhea and other digestive disorders.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the conduct, analysis, or publication of this research. This study received institutional support solely for laboratory materials and facility access, and no external financial sponsors influenced the experimental design, data collection, data interpretation, or manuscript preparation. All authors had full access to the research data and independently determined the conclusions presented in this work.

REFERENCES

Aizah, S., Risnasari, N., & Listyawati, N. (2022). The Effectiveness of Using Guava Leaf Decoction to Reduce the Frequency of Diarrhea in Children. EDUnursing Journal, 6(1), 20–24. http://journal.stikeskendal.ac.id/indeks.php/PSKM

Arifuddin, M., & Bone, M. (2020). Phytochemical Screening and Thin Layer Chromatography Profile Phytochemical and Thin Layer Chromatography Profile

(TLC) Antimalarial Plants from Indonesia: Phytochemical Screening and Thin Layer Chromatography Profile of Indonesian Plants. Journal of Science and Health, 2(3), 174-181.

Amanda, L. P., et al. (2025). *Scoping Review of the Pharmacology of Andrographis paniculata*. Indonesian Journal of Health Pharmacy, 1(1), 33–45

Darsono, Lanawati, F., Artemisia, SD 2018. Antimicrobial Effectiveness of Guava Leaf Extract from Several Cultivars Against Staphylococcus aureus ATCC 25923 with Hole-Hole Plate Diffusion

Method. Berk Penel Hayati. Surabaya. Pages: 49-51.https://doi.org/10.37905/jfpj.v2i2.5947

Dian Vita Sari, RM (2019). Effectiveness of Guava Leaf Extract (Psidiun Guajava L) with Traditional Medicine and Modern Medicine on Toddlers with Acute Diarrhea in Ulee Rubek Village. http://jurnal.umuslim.ac.id/index.php/VR S/article/download/1594/1897

Fadilaturahmah, et al. 2020. "The Effect of Extraction Methods on Antioxidant Activity and Flavonoid Content of Kareho Leaves (Callicarpa Longifolia Lam)." Pharma Xplore Journal, Vol. 5, No. 1. https://journal.farmasi.umi.ac.id/index.php/mnpj

Hawary, R., Nurbaiti, N., Justeza, R., Sinaga, Y. P., Novelia, E. P., & Nur Syifa, A. (2025). *A Scoping Review: Pharmacology study of Kalanchoe pinnata*. Indonesian Journal of Health Pharmacy, 1(1), 46–58.

Girsang, GE, Indriarini, D., & Woda, RR (2020). Antibacterial Activity Test of Ethanol Extract of Guava Leaves (Psidium guajava linn) Against the Growth of Escherichia coli Bacteria. Cendana Medical Journal, 8(1), 450-455.

Hastuty, HSB, & Purba PN. Nurfadillah Eka. Physical Stability Test of Gel Formulation of Cassia alata L. Leaf Extract with Gelling Agent Na CMC against Staphylococcus aureus Atcc 230840. Journal of Jayapura Health Polytechnic. 10(1):32-40.

Hikmawanti, NPE, Yumita, A., Hanani, E., Faradisa, S., Az-Zahra, SF, & Ashfiya, SR (2023). Tissue Anatomy, Microscopic Identification, and Polyphenol Content of Ethanol Leaf Extracts from Three Types of Guava of the Genus Syzygium. MPI (Media Pharmaceutica Indonesiana), 5(1), 36-48

Indariani, Susi. 2010. Antioxidant Activity Test of Guava Leaf Extract (Psidium guajava L.). Bogor: Department of Chemistry, FMIPA – IPB.

Ishak, RA, Sulistijowati, R., Dali, FA 2015. Analysis of Total Bacterial Contamination and Organoleptic Value of Fresh Tuna Fish Preserved with Pineapple Peel Lactic Acid Filter at Room Temperature Storage. Nike: Scientific Journal of Fisheries and Marine Sciences. 3(3): 122-124.

Guava (Psidium guajavaL.) leaves: nutritional composition, phytochemical profile, and health-promoting bioactivities. Foods. 10(4): 1-20

Kumar, M., Tomar, M., Amarowicz, R., Saurabh, V., Nair, MS, Naheshwari, C., et al (2021): Guava (Psidium guajavaL.) leaves: nutritional composition, phytochemical profile, and health-promoting bioactivities. Foods. 10(4): 1-20

Kurniawan, A., Nurjana, MA, & ... (2022). The Role of Household Waste Management on Diarrhea Incidence in Toddlers in Indonesia (2018 Riskesdas Data Analysis). Research Media ....

Kurnia, KA, Widyatamaka, SQ, Masyorofah, D., Prayuda, EM, Andriani, N. (2020): Efficacy of Guava Leaves as Antidiarrheal. Health Science Growth Journal. 5(2): 43-57.

Meliala, L., Sari, W., and Tarigan, P. 2020. Test of the antidiarrheal effect of turmeric rhizome extract (curcuma domestica val.) on male mice. Journal of Herbal Pharmaceutical Research 2(2): 16-21. http://ejournal.delihusada.ac.id/index.php /JPFH/article/view/208/178

Niken, N., Yusuf, RN, & Annita, A. (2022). Antibacterial Activity Test of Guava Leaf Extract (Psidium guajava L.) on the Growth of Escherichia coli Bacteria. Bioscientist: Scientific Journal of Biology, 10(2), 726-735.

Nurfitriyana, N., Iskandarsyah, I., & Harmita, H. (2020). In Vitro Study of Transfersomal Gel Preparation Containing Lynestrenol as a Transdermal Drug Delivery System. International Journal of Applied Pgarmaceutics. 12(1):242-244

Purwanto, A., & Saputro, IRCD (2022). Antibacterial Activity Test of Guava Leaf Ethanol Extract (Psidium Guahava L.) against Escherichia Coli using the Cylinder Diffusion Method. JIIP-Scientific Journal of Educational Sciences, 5(6), 1900-1905

RF Anggraini and SB Widjanarko, "The Effect of Adding Rice Bran Extract on Antioxidant Activity, Total Phenol, and Flavonoid Content of Indonesian Beverages" Functional Properties of Corn-Bran

Extract," Journal of Food and Agroindustry, vol. 6, no. 1, pp. 53–63, 2018, doi:10.21776/ub.jpa.2018.006.01.7.

Sari, DV, & Mursyida, R. (2019). Effectiveness of Guava Leaf Extract (Psidium Guajava L.) with Modern Treatment on Toddlers with Acute Diarrhea in Ulee Rubek Village, North Aceh Regency in 2019. 11, 1–5.

Satiyaarti, RB, Yana, Y., & Fatimatuzzahra. (2019). Use of Guava Leaf Extract (Psidium gujava L.) as an Ovicide for Golden Snails (Pomacea canaliculate L.). Faculty of Tarbiyah and Teacher Training, UIN Raden Intan Lampung. Thesis.: Indonesia https://iontech.ista.ac.id/index.php/iontech

Sudira, IW, Merdana, IM, and Qurani, SN 2019. Preliminary Phytochemical Analysis Of Guava Leaves (Psidium guajava L.) Extract As Antidiarrheal In Calves. Advances in Tropical Biodiversity and Environmental Sciences, 3(2), 21.https://doi.org/10.24843/atbes.2019.v03

Aulia, R. H., Endri, N., Ariyanda, N., Zikra, Z. A., Anwar, Z. A., Ramadhan, N. J., & Utama, V. K. (2025). *Pharmacology study of Peperomia pellucida: A scoping review*. Indonesian Journal of Health Pharmacy, 1(1), 7–19

Tunny, R., Dusra, E., Kaplale, AK, Djarami, J., & Malisngorar, MS (2023). Comparative Analysis of Extracts Leaf Guava Seed (Psidium guajava L.) Against Growth Propionibacterium acnes and Staphylococcus aureus Bacteria Using the Well Method. Calory Journal: Medical Laboratory Journal, 1(4), 39-47

Vijayakumar, A. Vijaya Anand, R. Manikandan. 2015. In Vitro Antioxidant Activity of Ethanolic Extract of Psidium guajava Leaves. Journal of Research Studies in Biosciences. Vol. 3(2). pp. 145 -149.

Widiastuti, TC, Fitriati, L., Rahmawati, N., Kumalasari, S., & Putri, FA (2023). Antibacterial Activity Test of the Combination of Ethanol Extract of Guava Leaves and Arumanis Mango Leaves Against S. Aureus: Antibacterial Activity Test of the Combination of Ethanol Extract of Gua Va and Arumanis Mango Leaves Against Staphylococcus. Aureus.Medical Science: Scientific Journal of Pharmacy, 8(3), 911-9