

Psidium guajava leaves compound as anti- inflammation: systematic review

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PSIDIUM GUAJAVA LEAVES COMPOUND AS ANTI-INFLAMMATION: SYSTEMATIC REVIEW

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Abstract. *Psidium guajava* leaves are plants that have been widely used to treat health problems, such as inflammation. Guava leaves are one of [9] parts used in this plant. People use guava leaves because it can be reached and has minimal side effects. The aim of this study was to identify the content available in guava leaves and their bioactivity as anti-inflammatory. The design of this study uses systematic reviews. Article is taken from electronic databases such as Scopus, Pubmed, ProQuest, and Science Direct. Articles are taken from 2013 to 2019 with the keywords “phytochemical” OR “chemical” OR “compounds” AND “*psidium guajava leaves*” AND “anti-inflammation”. The review results of 3 articles explained that guava leaves contain ingredients that can be useful as anti-inflammatory. Guava leaves provide a great effect or benefit to inflammation.

Keywords: Phytochemical, *psidium guajava* leaves, anti-inflammation

I INTRODUCTION

Psidium guajava is a member of the Myrtaceae family and is known for its antioxidant, anti-allergic, antimicrobial, antigen toxic, antiplasmodial, cytotoxic, antispasmodic, cardioactive, antispasmodic, and diabetetic, anti-inflammatory, and antinociceptive [1]. The use of guava leaf decoction has been around for a long time and guava leaves are used as traditional medicine to treat various human diseases such as wounds, ulcers, bronchitis, eye wounds, intestinal diseases, diarrhea, and cholera [2][3]. Even by chewing guava leaves has become a way in a therapeutic application. Globally, almost 80% depend on herbal treatments because herbal treatments are considered to have low side effects [4]. Many people are interested in the [3] treatment of guava leaves. Guava leaves are believed to have an active component that can help treat various diseases [5].

Plants are related to their bioactivities which can inhibit diseases and increase life expectancy [6]. Many articles evaluate the benefits of guava plant activity, by several study [7]. Some research results provide an explanation of traditional plants that can fight infection and have made it possible to indicate an alternative medicine [2]. This systematic review was carried

out to evaluate the content in guava leaves used as anti-inflammation.

II METHODOLOGY

This study uses a systematic review design. The method used begins with determining topics and keywords. The keywords used are “phytochemical” OR “chemical” OR “compounds” AND “*psidium guajava leaves*” AND “anti-inflammation”. Article traced using English. Article search began from 2013 to 2019 through the Scopus, Pubmed, ProQuest, and Science Direct databases. Selection of terms beginning with the letters “P” or “L” is included. Selected articles use the PRISMA model that has been adapted. The choice of literature is determined by the inclusion criteria as follows: 1) articles that match keywords; 2) articles published in English; 3) articles published from 2013 to 2019; 4) articles focusing on analysing the content of guava leaves; 5) articles that include anti-inflammatory bioactivity in guava leaves. Duplicate articles (the same article in 2 or more databases) will be filtered. Three articles from 51042 articles were found in accordance with the inclusion criteria (1 article from Scopus and 2 articles from Science Direct).

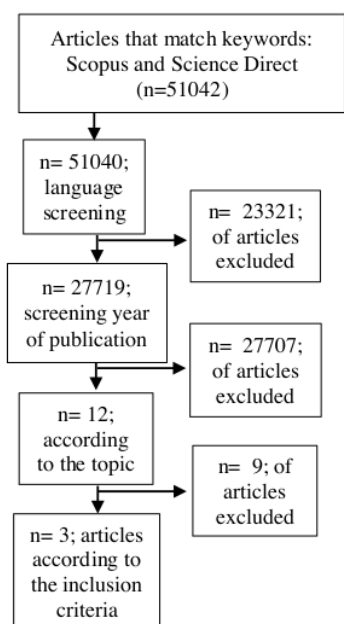


Figure 1 The selection process of the articles includes in the review used PRISMA flow diagram

III RESULT AND DISCUSSION

The review results of 4 articles showed that guava leaves have a bioactive content that acts to treat diseases. Anti-inflammatory is one of the bioactivity found in guava leaves.

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 Table Phytochemical analysis and bioactivity of *Psidium guajava* leaves

Author	Phytochemical analysis	Bioactivity
Joachim	Tannins, Flavonoids (myricetin, quercetin, luteolin, kaempferol)	Anti-inflammatory, coughing, diabetes, kidney problems, diarrhea, tonics, laxatives, anti-helminthics, oral care, conjunctivitis, and antispasmodics.
Tello	Tannin, Flavonoids (myricetin, quercetin, luteolin, kaempferol), anti-caryophyllene, nerolidol, β -bisabolene, aromadendrene, terpenoids (oleanic acid, ursolic acid, catecholic acid,	Anti-inflammatory, hepatoprotector, anti-hyperglycemia, analgesic, anti-cancer, and as a protector of cardiovascular

guyavolic acid, disease.
 maslinic acid, ellagic acid), β -sitosterol.
 Gill α -Pinene, β -pinene, Anti-amoba, anti-inflammatory, anti-spasmodic, antipyretic, blood cleanser, sore throat, anti-infection, convulsions, diabetes mellitus, and anti-bacterial.
 limonene, menthol, terpinyl acetate, isopropyl alcohol, longicyclene, caryophyllene, β -bisabolene, caryophyllene oxide, β -copanene, farnesene, humulene, selinene, cardinene, and curcumene, nerolidol, sitosterol, 3- γ -4-4-arabinofuranoside (avicularin) dan 3- γ -4- γ -ranoside, tannins, eugenol, caryophyllene, guajavolide and guavenoic acid, terpenes, such as oleanolic acid, triterpenoids, flavonone-2, 2'-ene, prenol, dihydrobenzophenanthridine, and cryptonine.

Phenolic compounds in guava leaf extract vary depending on the drying of the leaves, what extraction techniques are carried out and of maturity [8]. Guava leaves contain α -Pinene, β -pinene, limonene, menthol, terpinyl acetate, isopropyl alcohol, longicyclene, caryophyllene, β -bisabolene, caryophyllene oxide, β -copanene, farnesene, humulene, selinene, cardinene, and curcumen, nerolidol, β -sitosterol, 3- γ -4-4-arabinofuranoside (avicularin) dan 3- γ -4- γ -ranoside, tannins, eugenol, caryophyllene, guajavolide and guavenoic acid, triterpenes, such as oleanolic acid, triterpenoids, flavonone-2, 2'-ene, prenol, dihydrobenzophenanthridine, and cryptonine. This study also explains that guava leaves also contain ingredients that act as anti-amoba, anti-inflammatory, antispasmodic, antipyretic, blood cleanser, sore throat, anti-infection, convulsions, diabetes mellitus, and anti-bacterial. *Psidium guajava* leaves have essential oils that are rich in cineol, tannins, triterpenes, flavonoids, resins, eugenol, malic acid, fat, cellulose, chlorophyll, mineral salts, and other components [1].

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 A plant that has antioxidant activity is known to have phenolic acids and flavonoids. Guava

leaves are used as herbal medicines to treat disease such as inflammation, diabetes, hypertension, caries, wounds, pain relief, fever, and other complaints [9]. In the pharmacological experiments carried out by previous studies, the biological content of guava leaves is very beneficial in health interest. The most important metabolites are phenolic, flavonoids, carotenoids, and triterpenoids [1].

CONCLUSION

In general, *psidium guajava* leaves have compounds such as tannins, flavonoids, phenols and others that have active ingredients in anti-inflammatory and other diseases. Flavonoids play a big role as a inflammatory therapy.

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