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A brife review article on “various pharmacological activities of guava plant”

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Abstract--Guava (*Psidium guajava* L.) used in a various countries like India ,East Asian as herbal medicinal. Basically the aim of the study was research the various activities of guava. Guava belongs to Myrtaceae family. In India we located guava in Bihar, Andhra Pradesh, Gujrat ,Uttra Pradesh etc. guava contains citric acid, ascorbic acid , Malic acid , tartaric acid , oleanolic acid ,tannins, ursolic acid etc. this all different compounds present in different party of guava tree like roots, leaves , fruits, seeds etc .Guava shows the different - different activities like anti caner activity, antibacterial activity, anti malarial activity, anti-Diarrheal activity, anti oxidant activity, anti cough activity etc. our result display the guava has various different activities which can help to treatment /therapy of different disease like cough, diarrhea, hypertension, diabetes etc.

Keywords--anti oxidant, antibacterial, anti-diarrheal, anti-inflammatory, anti-malarial.

Introduction

Psidium guajva (Linn.) also known “poor man’s apple of the tropics’.Guava (*Amorood*) belong to Myrtaceae family .guava term arise from” Arawak guayabo “, via the Spanish guayaba. Its biological name is *Psidium guajava*.

Scientific Classification

Kingdom-Plantae
 Division-Magnoliophyta
 Class-Magnoliopsida
 Subclass-Rosidae
 Order-Myrtales
 Family-Myrtaceae
 Subfamily-Myrtoideae
 Genus-Psidium L.

Synonyms- 1-Assamese- Madhuriaam, Bengali-Peyara, Gujarati-jaamkal, Hindi-Amrood, Kannada-Perale, Konkani-Pairr, Malayalam-pera, Manipuri- pungton, Tamil-Segappu Koyyaa, Telugu-Goyyapandu. Guava located in different - different place/ countries and know as different -different name for example -In India it is known as Amarood /jamba . it knows guwafah(Arabic), araca(Brazil), fan shiliu(Chinese), apple guava(English) gouyave (frecnh) etc.



Plant Description-Hight- 6 to 25 feet, Leaves- oval along 3 inches length, flower- Petaled white flower about 1 inch, Fruits- pear shaped and 7.6cm in diameter. Guava belongs to genius psidium and it 133 groups and greater than 3,800 of various species for example Psidium amplexicaule, psidium incanescens, Psidium havanese, Psidium montanum, Psidium sintenisii, Psidium guineese etc. In our traditional system of medicine guava has a very - very important value. In Ayurveda, it is consider as diarrhea. The different - different parts of guava tree contains different - different compounds, for example

Plant part	Compound
Leaves	Catechin, kaempferol, Rutin, Isoflavonoids ⁽¹⁻²⁾
Pulp	Ascorbic acid, ⁽³⁻⁴⁾
Seed	Glycosides ⁽⁵⁻⁶⁾
Skin	Phenolic compounds ⁽⁷⁻⁸⁾
Bark	Phenolic compounds ⁽¹⁻⁹⁾

Fruit	Esters, ten acids ^(1 0)
Twings	Calcium, fluoride, coper , iron ⁽¹⁰⁾
Root	Tannin ,

Phytochemical screening of Guava

There are following steps done to determine the photochemical of guava.

- **Test for flavonoid phytochemical detection-** Firstly we take 3ml of aliquot filtrated & 10 present(%) of 1ml NaOH And futher studys so that the flovonoid are present in guava. if the test show tallow color it indicate the presence of flavonoids.
- **Test for alkaloids phytochemical dectection-** firstly determination of alkaloids are done by 2ml of 10% aq. HCl with 2ml of guava extract . 1ml of it treated with few drops of wagner's reagent ad 1ml part treated with myers reagent. if the end product show the white ppt. it means presence of alkaloid.
- **Test for Tannin phytochemical dectection-** in determination of tannin ,firstly we take chloride solution and 5% ferric choride solution & Add drop by drop in sol. of guava extract. if the end product show the dark green color
- Which indicated the presence of tannin.
- **Test for Saponin phytochemical dectection-** Saponin determination is done by adding 5ml of poured in test tube & 5ml of water and shaken strongly. If the and product show the presence of honey comb froth in solution it show the presence of saponin.

Some other phytochemical presence of guava

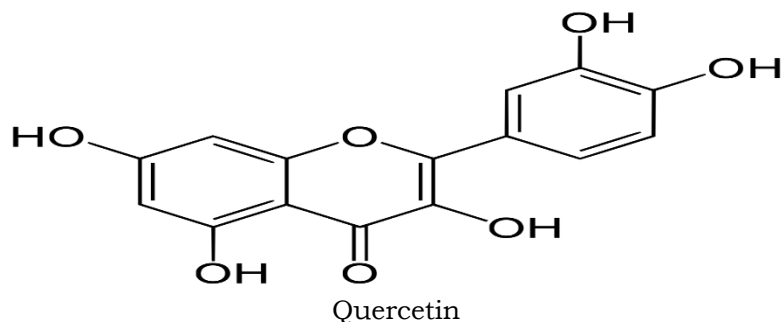
S.no	PHYTOCHEMICAL	PRESENCE/ABSENT IN GUAVA EXTRACT
1	Steroids	Presence
2	Saponin glycoside	Presence
3	Glycoside	Absent
4	Cardiac glycosides	Absent
5	Anthraquines	Presence
6	Volatile oil	Absent

The nutrition value of Guava

s.no.	Nutrition	Value per 100gm
1	Protein	2.6g
2	Fat	0.4g
3	Carbohydrate	14.3g
4	Zinc	0.23g
5	Calcium	1.8g
6	Copper	0.23g
7	Iron	0.26g
8	Magnesium	22g

Guava tree various parts used as different pharmacological activity **Antioxidative Activity- (Present in leaves or pulp)**

Psidium guajava linn (guava) leaves and pulp have anti-oxidative because it contain presence of flavonoids compounds. Anti-oxidative activity means a limitation or decrease of oxidation by restraining oxidation chain reactions. In National library of medicine, Bo wang et al. published a study on antioxidative activities of psidium guajava Linn leaves extract. Psidium guajava leaves extract show dose – dependent effective effect on scavenging hydroxyl radicals and inhibiting lipid peroxidation. ⁽¹⁰⁾ In December 2011 journal of the brazillian chemical society published research on antioxidant activity of phenolic extract obtained from guava seed with co2-ethanol done by Mile a. et al. this research allow to recall that the guava seed extract considered as promising source of antioxidant. ⁽¹⁷⁾ According to 12 dec. 2018 published study on international journal of phytomedicine and phytotherapy by Sumar naseer et al. quercetin is most activity antioxidant of guava leaf. ⁽¹⁸⁾



Anti-Diabetic Activity-(Present in leaves)

The digestive intestinal enzymes alpha-Glucosidase and alpha-amylase are important Enzymes on management blood glucose level. In International journal of current microbiology and applied science, R. Manilandam et al. published study on phytochemical and in vitro anti diabetic activity of psidium guajava leaves by treating with methanolic extract. According to study psidium guajava linn show significant dose dependent inhibition activity effect on alpha – glucosidase enzyme (upto 89%), & alpha amylase enzyme (upto 93%). ⁽¹¹⁾ In year 2016 Elixabet Diaz-de-Cerio et al. published study anti diabetic activity of guava leaf at different oxidation states on International journal of molecular science. This research allow to recall that the guava seed extract considered as promising source of anti diabetic. ⁽¹⁹⁾

Anti-Diarrhoeal Activity-(Present in bark)

Guava traditionally used in African folk medicine to treat diarrhoeal. diarrhoeal means loss of water more than usually. Antidiarrhoeal activity means the used to prevent treat diarrhoeal. National Library of medicine, John A O Ojewole et al. study Antidiarrhoeal activity on psidium gaujava linn. Leaf aq. extract in rodent dose – dependent & signification protection of rat and mice against diarrhea. ⁽¹²⁾ In January 2015 Santosh Mazumdar et al. published study on ethanolic extract on

psidium guajava(L.) Bat. Leaves in wister rat & demonstrate that the guava ethanolic extract has stroge antidiarrohel activity by reacting with glucose metabolic enzymes in liver tissues.⁽²⁰⁾ quercetin is most activity antioxidant of guava leaf.⁽¹⁸⁾

Spasmolytic Effect-(Present in leaves)

Spasmolytic effect means antiapasmodic effect. Antispasmodic effect use to reduction excessive smooth muscle contractility, responsible for cramping, discomfort abdominal area.X Lozoya et al. (1994) published study about determination of spasmolytic principle. according to thids study the psidium gaujava leaves medically effective aganist acute diarrhea.Many study show that the guava has a strong spasmodic activity. Due to present algycone quercetin. The guava leaves extract mainly form flavonoids who produce effect when they are hydrolyzed gastrointestinal fluid. So, we can say that the different – different study proved that the guava has a strong spasmolytic effect. ⁽¹³⁾ In year 2009 Witness D h Chiwororo et al. published study on spasmolytic effect of guava and they demonstrate that the guava leaf extart show spamolytic effect by PGE observation.⁽²⁰⁾

Anti-Malarial Activity-(Present In Leaves)

N Nundkumar et al. (2002) published a study on anti malarial activity present on guava leaves by Using parasite lactate method (pLDH). Many more study proved that the guava has a strong anti-malaria activity. The anti-malarial activity present in guava because off guava contain anthraquinones, flavonoids, seccorridoids, and trependois. Because presence this compounds effective guava show the effective treatment on malaria. So, we say guava has a strong anti malarial activity. ⁽¹⁴⁾ in 30 November 2020 Akshay R.yadav et al. published study on Antimalarial activity on guava & the demonstrate that guava has promising antimalrial activity . the antimalarial action may be produce because of resnce of bioactive secondary metabolites.⁽²¹⁾

Anti-Inflammatory-(present in leaves)

Inflammatory effects mean a complex biological effect of body. Inflammation produce when body cell/ tissues are damaged. S Kaviman et al. published a study on volatile oil of pasidium guajava aginst its anti inlammatrooy activity. Many study show that guava containsthat kind of chemical how can help to decrease the inflammation or prevent the inflammation. The anti-inflammatory effect guava is / its ability to inhibit prostaglandin, kinin and histamine .The guava leaf and stem extract show anti inflammatory effect by decreasing CRP level. ⁽¹⁷⁾ In year 2014 Mi jang et al. published a study on the anti inflammatory effect ogf guava leaves extract with ethano. This study demonstrate that the guava extract significantly inhibit lipoplysaccharide in dose dependant manner.⁽²²⁾ In 24 september 2013 Carina Denny et al. published study on guava pomace as new source of Anti inflammatory. this study demonstrated that the guava show anti inflammatory activity by serotonin, histamine.⁽²³⁾

Antimicrobial Activity –(present in Bark or leaves)

Guava tree bark has a strong anti-microbial activity. Many study show that the guava extract with ethanol and menthol show high antimicrobial activity. Antimicrobial activity mean the ability to stop all bacteria growth on any surface. The antimicrobial activity of guava we can use in different –different formulation to make a sterile product/preparation. ⁽¹⁵⁾

Antihypertensive Activity-(Present in leaves)

Hypertension can explain as condition in which blood pressure above than 140/90mg. In present time hypertension is a very common condition. Many study show that the guava leaves anti hypertensive activity pink guava puree.

Antipyretic Activity

extract of guava and the aspirin produce to comparable antipyretic activity show up to 1 hour. ⁽¹⁶⁾

Conclusion

Psidium guajava (guava), possess several medicinal belonging, has been widely researched for abundant pharmacological belonging. The laboratory studies and clinical trials provide a strong scientific base studies give the various ethno batarical/ethnopharmacological reports from all over the work. It is far obtained for medicinal futhermore for commercial use. It is usage could be inappropriate to rural citizens elsewhere since the health plot across. Outside committee is likely to be parallel. It has many actions like Antimicrobial, Anti-diarrhoeal, Anti-inflammatory, Antioxidative activity, Spasmolytic effect, Antipyretic, Antihypertic activity, Anti diabetic activity etc. Thus we can say that guava and guava extract with its multiple medicinal properties needs to be for their improved for desert used for the treatment of communicable diseases and non – communicable diseases. Spotting and isolation of promising compounds for development of products are also needed.

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