

A Review on Pharmacological Activity of *Psidiumguajava* Linn. Leaves

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Abstract: *Guava (Psidiumguajava Linn.) commonly known for its food and nutritional values throughout the world. The medicinal properties of guava fruit, leaf and other parts of the plant are also well known in traditional system of medicine. Since, each part of guava tree possesses economic value; it is grown on commercial scale. Guava plant is considerable process has been achieved regarding the biological activity and medicinal application of guava and the fruit considered as poor man apple of tropics. The guava plant parts are used for the development of various industrial and pharmaceutical products. In the present review, nutritional value of guava fruit and medicinal properties its various parts have been discussed.*

Keywords: Guava, *Psidiumguajava*, Medicinal Plant, Poor man apple, Pharmacological properties.

I. INTRODUCTION

Guava (*Psidiumguajava* Linn.), Belonging to the Family Myrtaceae, is originated. In the tropical South America ¹And grows wild in Bangladesh, India, Thailand, Brazil, Florida, West Indies, California and also in several other Countries ². Guava is rich in antioxidants Compounds and contains a high level of ascorbic Acid ranging from 174.2 to 396.7 mg/100 g fresh Fruit ³. Myricetin and apigenin were reported to be 549.5 and 579.0 mg/kg dry weight, respectively ⁴. It plays a vital role in fulfilling the Vitamin C deficiency among the people of the Country since 100 g of fruit contains about 260 Mg of vitam⁵, which is 2–5 times higher than the Fresh orange. The wood is hard and tough ⁶, used As posts for rural house buildings. The pharmacological actions and the Medicinal uses of aqueous extracts of guava Leaves in folk medicine include the treatment of Various types of gastrointestinal disturbances Such as vomiting, diarrhea, inhibition of the Peristaltic reflex, gastroenteritis, spasmolytic Activity, dysentery, abdominal distention, Flatulence and gastric pain ⁷. These extracts have Also been indicated to cause disturbances of the Central nervous system: insomnia, convulsions And epilepsy ⁸. Bronchitis, asthma attacks, cough, Pulmonary diseases could be also treated with Guava teas ⁹ and could also be useful as anti-Inflammatory and hemostatic agent ¹⁰. Moreover, Aqueous extracts of guava leaves were described To be effective against a number of microbial Strains ¹¹ and anti-rotavirus activity ¹².

Taxonomic classification of *Moringa oleifera* :-

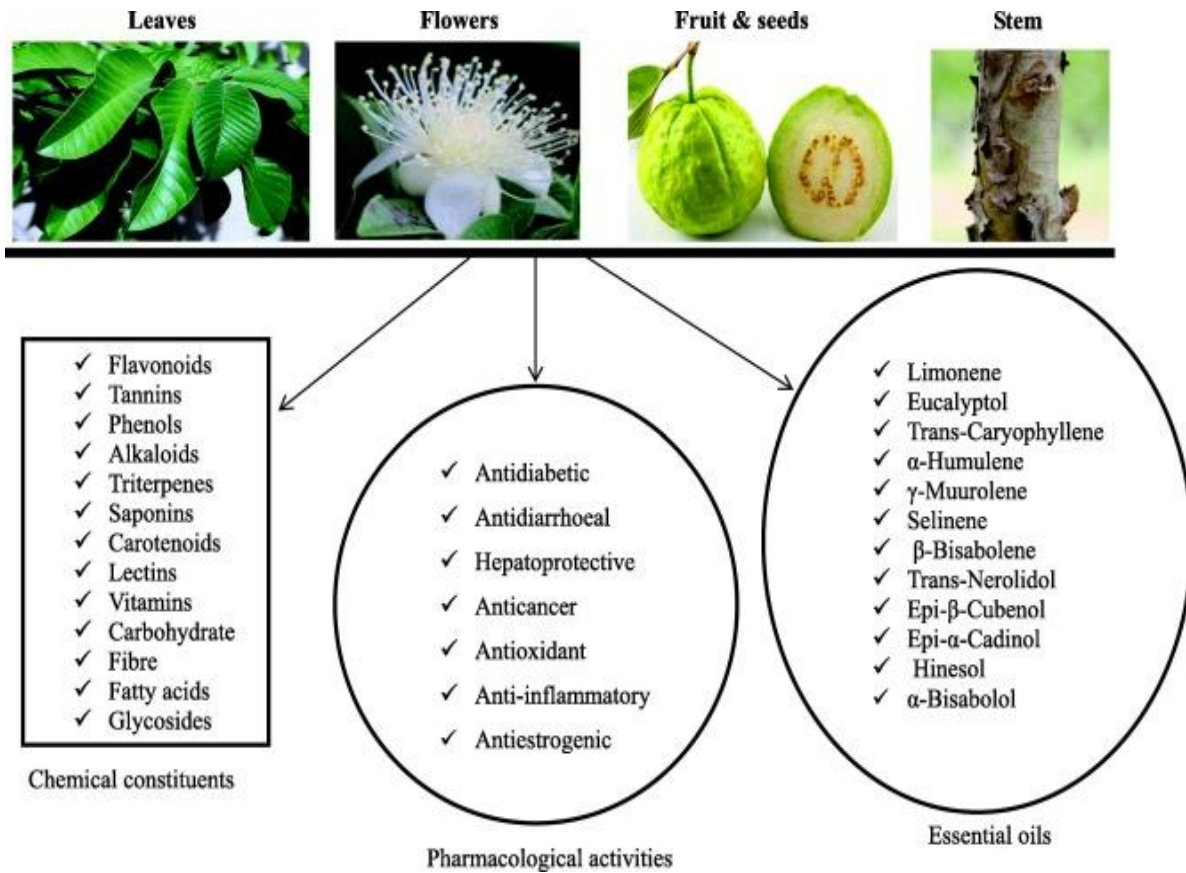
Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Myrtales

Family	Myrtaceae
Genus	Psidium
Species	P. guajava



Pharmacological properties of *Psidium guajava* Linn. Leaves:-

- 1) Antioxidant activity:** The extracts from distilled water, 65% ethanol and 95% ethanol respectively showed effects on scavenging hydroxyl radicals and inhibiting lipid peroxidation in the dose-dependent manner, had 50% effective concentration (EC50) on scavenging hydroxyl radicals of 0.63, 0.47 and 0.58g/L, had EC50 on inhibiting lipid peroxidation of 0.20, 0.035, 0.18g/L¹³.
- 2) Treatment of cough:** The water extract of the g/kg, p.o. decreased the frequency of cough induced by capsaicin aerosol by 35 and 54%, respectively, as compared to the control, within 10 min after injection of the extract, (P < 0.01)¹⁴.
- 3) Anti-diabetic activity:** The ethanolic stem bark extract exhibited statistically significant hypoglycaemic activity in alloxan-induced hyperglycaemic rats but was devoid of significant hypoglycaemic effect in normal and normal glucose loaded rats (OGTT) 38. In both acute and sub-acute tests, the water extract, at an oral dose of 250 mg/kg, showed statistically significant hypoglycemic Activity¹⁵.
- 4) Antimicrobial activity:** *Psidium guajava* aqueous bark and methanolic extracts were found to possess anti-bacterial activity 40 Four antibacterial compounds were isolated from leaves of guava were identified. The minimum inhibition concentration of morin-3-O-alpha-L-lyxopyranoside and morin-3-O-alpha-L-arabopyranoside was 200 microg/ml for each against *Salmonella enteritidis*, and 250 microg/ml and 300 microg/ml against *Bacillus cereus*, respectively¹⁶.



5) Hepatoprotective activity: *P. guajava* aqueous leaf extracts (250 and 500mg/kg, po) possesses good hepatoprotective activity¹⁷.

6. Antidiarrhoeal activity: *Psidium guajava* leaf aqueous extract (PGE) (50-400 mg/kg p.o.) produced dose-dependent and significant protection of rats and mice against castor oil-induced diarrhoea, inhibited intestinal transit, and delayed gastric emptying. Like atropine (1 mg/kg, p.o.), PGE produced dose-dependent and significant antimotility effect, and caused dose-related inhibition of castor oil-induced enteropooling in the animals. Like loperamide (10 mg/kg, p.o.), PGE dose-dependently and significantly delayed the onset of castor oil-induced diarrhoea, decreased the frequency of defaecation, and reduced the severity of diarrhoea in the rodents¹⁸.

7. Treatment of plaque: The active flavonoid compound, quercetin- 3- O- α - 1-arabinopyranoside (guajaverin) isolated from *Psidium guajava* demonstrated high potential antiplaque agent by inhibiting the growth of the *Strep. mutans*¹⁹.

8. Spermatoprotective activity: The extracts of the leaves of *Psidium guajava* Linn. possess beneficial effects on sperm production and quality, and may thus improve the sperm parameters of infertile males with oligospermia and nonobstructive azoospermia²⁰.

9. Antimutagenic activity: The water extract of *guajava* was effective in inactivating the mutagenicity of direct-acting mutagens²¹.

10. Inotropic effect: The extract from *P. guajava* leaves depress myocardial inotropism²².

11. Spasmolytic effect: The spasmolytic activity of the *Psidium guajava* leaf remedy is mainly due to the aglycone quercetin, present in the leaf and in the extract mainly in the form of five flavonols, and whose effect is produced when these products are hydrolyzed by gastrointestinal fluid²³.

12. Treatment of infantile rotaviral enteritis: *Psidium guajava* showed good curative effect on infantile rotaviral enteritis²⁴.

13. Anti- cancer activity: Aqueous extract of *Psidiumguajava* L. budding leaves has been shown to possess anti-prostate cancer activity in a cell line model. Treatment with *Psidiumguajava* L. budding leaves (1.5 mg/mouse/day) significantly diminished both the prostate specific antigen (PSA) serum levels and tumor size in a xenograft mouse tumor model²⁵.

14. Antifungal activity: The hot water extract and the methanol extract of *Psidiumguajava* showed high activity against *Arthriniunsacchari* and *Chaetomiumfunicola* strains²⁶.

15. Analgesic & anti-inflammatory activity: The aqueous extract of *P. guajava* leaves possesses analgesic and anti-inflammatory properties⁴⁹. The hexane, ethyl acetate and methanol extracts of *Psidiumguajava* leaves (20,100,500 and 1250 mg/kg) exhibited mostly dose-dependent antinociceptive effects in chemical and thermal tests of analgesia²⁷.

16. Immunomodulatory activity: Extracts derived from *Psidiumguajava* revealed immunomodulatory activities²⁸.

17. Treatment of acne: *Psidiumguajava* leaf extracts are used in treatment of acne²⁹.

18. Malaria: The leaves are used as an ingredient in the preparation of fever “teas”. They are also used as a part of the pot herb used in steam treatment for malaria. The stem bark extract contained anthraquinones, flavonoids, secoirridoids and terpenoids and was found to be effective for the treatment and/or prophylaxis of malaria³⁰.

19. Oral care: In southern Nigeria the twigs are used as chew sticks and the presence of bioactive compounds comprised of saponins, tannins, flavonoids, alkaloids is responsible for their effectiveness. Chewing sticks when used without toothpaste are very efficient, effective, and reliable for cleaning teeth. The teeth of chewing sticks users are usually strong, clean, fresh, and devoid of dental plaques carries³¹.

II. CONCLUSION

Major thrust by whole of the pharmaceutical industry is focused towards design and development of new innovative/indigenous plant based drugs through investigation of leads from traditional system of medicine⁶¹. In recent years, ethno-botanical and traditional uses of natural compounds, especially of plant origin received much attention as they are well tested for their efficacy and generally believed to be safe for human use. It is best classical approach in the search of new lead molecules for management of various diseases. Thorough screening of literature available on *Psidiumguajava* depicted the fact that it is a popular remedy among the various ethnic groups, vaidhyas, hakims and Ayurvedic practitioners for cure of ailments. It is needed to explore this plant very thoroughly and researchers are exploring the therapeutic potential of this plant.

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