

Psidium guajava : An affordable tasty medicine

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SUMMARY

Psidium guajava (Family: myrtaceae) is a beautiful, tasty fruit, which is cultivated in all tropical and subtropical areas of the world for its nutritional and medicinal value. The fruit of *Psidium guajava* is commonly known as Amrood in Hindi or Guava in English. These fruits are not only cheap, but available throughout the year. The phytochemicals isolated from various parts of the plant include ascorbic acid, asiatic acid, ellagic acid, guajaverin, guavin B, chlorogenic acid, gallic acid, guajavolide, guavacoumeric acid, quercetin, b-sitosterol, oleanolic acid, obtusin, ursolic acid, protocatechuic acid, jacoumeric acid, lycopene, alpha-pinene, beta-pinene, menthol, terpenyl acetate, longicyclene, caryophyllene, cineol, ilelatifol D, apigenin, myricetin and arjunolic acid. *Psidium guajava* has been shown to possess useful medicinal properties such as anti-diarrhoeal, anti-oxidant, hepatoprotective, anti-allergy, anti-microbial, anti-genotoxic, cardioprotective, anti-cough, anti-inflammatory, analgesic, anti-spasmodic and anti-hyperglycemic properties. Thus, it is evident that guava fruit possess a wide range of useful medicinal properties, which can be exploited clinically. The present review article covers comprehensively an up-to-date information on the medicinal profile of guava. We have also discussed in detail the chemical constituents and traditional uses of *Psidium guajava* in this review article.

Key words : *Psidium guajava*, Amrood, Traditional medicine

Nature has provided us with a beautiful, tasty and powerful medicine in the form of Amrood/Guava fruit. *Psidium guajava* belonging to family myrtaceae, is a low evergreen tree or shrub 6 to 25 feet tall. It is a native of Mexico and extends throughout South America, Europe, Africa and Asia. It grows in all the tropical and subtropical areas of the world, adapts to different climatic conditions, but prefers dry climates. Guava fruit is recommended mainly for the management of stomach disorders, jaundice, diabetes and cardiovascular disorders in traditional systems of medicine.

Botanical classification :

Domain	:	Eukaryota
Kingdom	:	Plantae
Subkingdom	:	Viridaplantae
Phylum	:	Tracheophyta
Subphylum	:	Euphyllophytina
Infraphylum	:	Radiatopses
Class	:	Magnoliopsida
Subclass	:	Rosidae
Superorder	:	Myrtales

Order	:	Myrtales
Suborder	:	Myrtineae
Family	:	Myrtaceae
Subfamily	:	Tabaninae
Tribe	:	Archipini
Genus	:	<i>Psidium</i>
Specific epithet	:	<i>Guajava</i>
Botanical name	:	<i>Psidium guajava</i> L.

Natural habitat :

The guava is one of the most widely distributed trees of India and grows from sea level upto an altitude of 1500m. It is sturdy and thrives on all types of soils ranging from alluvial to lateritic, but is sensitive to water logging. The best suited soils would be deep, friable and well-drained. The young plants are sensitive to drought and cold, particularly frost. In humid climates, fruits develop insipid taste. Apparently, guava tree produces abundant fruits of excellent quality in irrigated tracts of the country having dry and moderate winters.

Geographical distribution :

Native range: Colombia, Mexico, Peru, United States of America.

Exotic range: India, Australia, Bangladesh, Brunei, Cambodia, Cameroon, China, Costa Rica, Cote d'Ivoire, Cuba, Dominican Republic, Ecuador, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Greece, Guyana, Haiti, , Indonesia, Israel, Kenya, Laos, Malawi, Malaysia, Myanmar, Nigeria, Pakistan, Panama, Philippines, Puerto Rico, Samoa,

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Senegal, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Togo, Uganda, Venezuela, Vietnam.

Botanical description:

Psidium guajava is a low evergreen tree or shrub 6 to 25 feet tall, with wide-spreading branches and square, downy twigs with bark peeling in large thin flakes. The branches are crooked, bringing opposite leaves. Flowers are white, axillary, solitary or 2 to 3 together on slender peduncles, about 3 cm in diameter; consisting of calyx-tube campanulate, deeply divided into 4-5 lobes above the ovary. Leaves are simple, opposite, oblong or elliptical 7-14 cm long and 4-6 cm wide; consisting of obtuse or micronulate apex, margin entire or slightly curved; with broadly cuneate or obtused base. Blades are more or less hairy beneath. The fruit is pear-shaped, tipped with remnants of the calyx lobes. The pulp is white or pink containing many small, hard seeds.

Table 1 : Synonyms in Indian languages

Name	Language	Country/region
Amrud, amrood, jamba, sapari	Hindi	M.P., U.P. and Delhi
Amrud	Haryanavi	Haryana.
Perala, mansala	Sanskrit	India
Lal peyara (red), goacchi-phal, piyara	Bengali	Bengal
Jam-pandu, goyya-pandu	Telugu	Andhra Pradesh
Koyyapalam, segappu koyyaa	Tamil	Tamil Nadu
Jama-phala, perala	Kannada	Karnataka
Palamper, pera	Malyalam	Kerala
Pungton	Manipuri	Manipur
Pairr	Konkani	Konkan
Peru	Marathi	Maharashtra
Amrud	Urdu	Kashmir

Varieties of *Psidium guajava* :

The local varieties found in India are named according to the physical characters of their fruits. The varieties, have been described on the basis of fruit shape, surface, skin, flesh colour and seedlessness.

Traditional uses :

– Bolivia- A few drops of liquid from boiled leaves of *Psidium guajava* is mixed with table-spoon of *Orbignya martiana* fruit oil and taken orally 4 times a day for the management of cough.

– Canary Islands – Hot water extract of dried fruit is used as an anti-hemorrhoidal.

– China – Extract of the root is taken orally by monks in south China to suppress libido.

Table 2 : Synonyms in International languages

Name	Language	Country/region
Abas	Chamaroo	Guam
Guava	English	U.K.
Amba, bilauti, guava	Nepali	Nepal
Amrud, amrut, guava	Fijian	Fiji
Arasa, guayaba	Spanish	Paraguay
Banjiro, banziro, goiabeira	Brazilian	Brazil
Guava, guayabo, xalxocotyl, xalxoctl	Spanish	Mexico
Bugoyab	Wolof	Senegal
Djambu bidji, djambu klutuk, jambu biji, kautonga	Bahasa	Indonesia
Fa-rang	Thai	Thailand
Goavy	Malagasy	Madagascar
Gojaba	Dutch	Suriname
Goyav	French, Creole	Haiti
Guava	English,Chamaroo	Ghana
Guyaba	Spanish	Cuba
Guayaba, borimak, krue, kubas, kuawa, sikra	Spanish	Nicaragua
Guayabero, Guayabo	Canarian Spanish	Canary island
Guayabo	Spanish	Peru
Guayaba, guayava, guayabe	Spanish	Guatemala
Ipera	Kinyarwanda	Rwanda
Jaama, maduriam, mansala, motiram, amrood	Hindi	India
Guava	Tamil	Srilanka
Kiswahili, mpera, mabera, guava	Swahili	Tanzania
Guava	English	U.S.A
Kuliabas.	Malay	Malaysia
Mugwavha	Venda	S. Africa
Psidiium, quwawa.	Mandarin	Taiwan
Tuava.	Maori	Cook islands

– Cook island – Dried leaves of *psidium guajava* and *Citrus aurantium* are crushed and taken orally for pain around navel. Infusion of dried leaves is taken orally to relieve postpartum pain and rid the body of residual stale blood. Dried leaves are chewed with or without coconut oil and then applied to the sores.

– Fiji – Dried fruit is taken orally for constipation. Infusion of dried leaves and roots are taken orally for diarrhoea and indigestion. Fresh leaf juice is taken orally for dysentery and stomach disorders.

– Ghana – Peeled twig is used as a chewing stick.

– Guam – Hot water extract of leaves is administered intravaginally to treat vaginitis and to promote conception.

– Guatemala – Decoction of dried bark and leaves

Table 3 : Fruit characteristics of Indian guava varieties

Sr.	Variety	Place of cultivation	Fruit characteristics
1.	Allahabad Safeda	UP (Allahabad)	Medium sized, roundish; average weight 171g; surface smooth, glossy; skin colour yellowish white with small distinct dots; flesh white, soft melting; flavour pleasant; taste very sweet; seeds, about .313 per fruit; good for canning
2.	Anakapalli	Andra Pradesh., Tamil Nadu	Small to medium sized, roundish; average weight 38g; surface slightly rough and ridged; skin thin, pinkish-yellow with numerous red dots; pulp light pink, slightly granular; flavour pleasant; taste sweet, slightly acidic; seeds small, about .144 per fruit; good for table purposes; keeping quality average 5 days.
3.	Apple colour	UP (Allahabad)	Medium sized, more or less spherical; average weight 112g; surface slightly rough; skin thick, colour light red or pinkish (apple- like) with scattered dots; flesh creamy white, soft-melting; flavour pleasant; taste sweet; seeds about 279 per fruit.
4.	Behat coconut	UP (Saharanpur, Behat)	Larged sized, elliptical round; average weight 269g; surface slightly rough with dots; skin thin, colour light greenish yellow; flesh white, crisp; flavour mild; taste acidic sweet; seeds large, about 200 per fruit; quality good for tablepurposes, canning quality poor.
5.	Chittidar	UP (Allahabad)	Small to medium sized, roundish ovate; average weight 126g; surface smooth, glossy; skin colour straw-yellow with few scattered red dots; flesh yellowish white, soft melting, flavour mild; taste sweet acidic; seeds about .570 per fruit; quality good for canning
6.	Dharwar	Maharashtra	Small to medium sized, ovate or pyriform; average weight 85g; surface slightly rough, dotted, ridged; skin colour greenish yellow with sprinkling of red; flesh creamy white, thin, crisp; flavour pleasant; taste very sweet; seeds about 375 per fruit; quality good for table purposes
7.	Hafsi (Red-fleshed)	U.P.(Allahabad)	Medium sized, ovate-roundish; average weight 168g; surface smooth, glossy; skin thick, colour greenish yellow or pinkish yellow with small close dots; flesh reddish pink, soft melting; flavour pleasant; taste acidic sweet; seeds about 568 per fruit; quality good for table purposes, canning and nectar making
8.	Hari jha	Bihar	Medium to large sized, round, ovate; average weight 109g, skin colour greenish yellow; flesh white, soft; flavour aromatic; taste sweet.
9.	Kothrud	Maharashtra, Gujrat	Medium sized, pyriform; average weight 112g; surface smooth and glossy, skin thin, light yellow,pulp pink, granular; flavour pleasant; taste medium sweet; seeds 222 per fruit; quality good for table purposes; keeping quality poor
10.	Lucknow-49("sardar")	UP (Lucknow)	Medium to large sized, roundish ovate; average weight 182g; surface slightly rough; skin thick, yellowish white, distinct medium dots; flesh creamy white, soft melting; flavour slightly acidic; taste sweet, acidic; seeds about 338 per fruit; quality good for canning and jelly; keeping quality excellent
11.	Mirzapuri	UP (Mirzapur)	Medium sized, roundish; average weight 154g; surface smooth; skin thin, colour yellowish white, scattered dots; flesh white, soft; flavour mild; taste medium acidic, sweet; seeds about 265 per fruit; quality medium
12.	Pear Shaped	Uttar Pradesh	Medium to large sized, pyriform; average weight 142g; surface smooth to rough with large dots; skin colour straw-yellow; flesh creamy white, soft, melting; flavour pleasant; taste sweet; seeds about 518 per fruit; quality good for table purpose, poor for canning.
13.	Seedless	UP (Allahabad), Bihar, Andhra Pradesh	Small to medium sized, pyriform or ovoid; average weight 179g; surface smooth or minutely warty; skin thin, colour dull yellow, dots large scattered; flesh white, soft with locular cavity; flavour mild; taste sweet; seedless or only a few seeds; quality excellent.
14.	Smooth green	UP (Varanasi), Andra Pradesh	Medium sized; round; average weight 132g; surface smooth; skin thin, colour yellow, dots medium scattered, flesh white, soft melting; flavour typical guava like; taste sweet; seeds about 338 per fruit; quality good for table purpose and canning

Table 4 : Phytoconstituents present in *Psidium guajava*

Sr.	Chemical constituents	Source	References
1.	(E)-2-hexenal	Fruit	Jordan <i>et al.</i> , 2003
2.	(Z)-3-Hexen-1-ol	Fruit	Kenneth <i>et al.</i> , 1970
3.	1-O-3,4-dimethoxy-phenylethyl-4-O-3,4-dimethoxy cinnamoyl-6-O-cinnamoyl- β -D-glucopyranose	Seeds	Salib and Michael, 2004
4.	2,3-Butanediol	Fruit	Kenneth <i>et al.</i> , 1970
5.	2 α -hydroxy-3 β -p-E-coumaroyloxyurs-12,18-dien-28-oic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a,b
6.	2 α -Hydroxyursolic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a
7.	2 α -Hydroxyursolic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a,b
8.	3-Hydroxy-2-butanone	Fruit	Kenneth <i>et al.</i> , 1970
9.	3-Methyl-1-butanol	Fruit	Kenneth <i>et al.</i> , 1970
10.	3-Methylbutanoic acid	Fruit	Kenneth <i>et al.</i> , 1970
11.	3-Phenylpropanol	Fruit	Kenneth <i>et al.</i> , 1970
12.	6-Methyl-5-hepten-2-one	Fruit	Kenneth <i>et al.</i> , 1970
13.	Alpha-pinene	leaves	Li <i>et al.</i> , 1999
14.	Amritoside	Leaves, fruit	Fujita <i>et al.</i> , 1985
15.	Apigenin	Mature leaves	Vargas <i>et al.</i> , 2006
16.	Araban	Leaves, fruit	Radha and Chandrasekaran,1997
17.	Arjunolic acid	Seeds	Salib and Michael, 2004
18.	Ascorbic acid	Leaves, fruit	Fujita <i>et al.</i> , 1985
19.	Ascorbigen	Leaves, fruit	Radha and Chandrasekaran ,1997
20.	Asiatic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a,b
21.	Avicularin	Leaf and fruit	Arima and Danno, 2002
22.	Azulene	Leaf	Li <i>et al.</i> , 1999
23.	Benzaldehyde	Fruit	Jordan <i>et al.</i> , 2003
24.	Beta- bisabolene	leaves	Li <i>et al.</i> , 1999
25.	Beta-copaene	leaves	Li <i>et al.</i> , 1999
26.	Beta-pinene	leaves	Li <i>et al.</i> , 1999
27.	Butanal	Fruit	Jordan <i>et al.</i> , 2003
28.	Caffeic acid	Leaf	Liang <i>et al.</i> , 2005.
29.	Cardinene	leaves	Li <i>et al.</i> , 1999
30.	Caryophyllene, Caryophyllene oxide	leaves	Li <i>et al.</i> , 1999
31.	Chlorogenic acid	Leaf	Liang <i>et al.</i> , 2005
32.	Cinnamyl alcohol	Leaf	Kenneth <i>et al.</i> , 1970
33.	Copaene	Fruit	Li <i>et al.</i> , 1999
34.	Criptoflavin	Leaf and fruit	Mercadante <i>et al.</i> , 1999
35.	Curcumene	leaves	Li <i>et al.</i> , 1999
36.	Ellagic acid	Leaf	Misra and Seshadri,1968.
37.	Ferulic acid	Leaf	Zhu <i>et al.</i> , 1997.
38.	Gallic acid	Leaf and roots	Okuda <i>et al.</i> , 1984
39.	Goreishic acid I	Leaf and fruit	Begum <i>et al.</i> , 2002a,b
40.	Guajaverin	Leaf and fruit	Prabu <i>et al.</i> , 2006
41.	Guajavolide	Leaf and fruit	Begum <i>et al.</i> , 2004
42.	Guavacoumaric acid	Leaf	Begum <i>et al.</i> , 2002a
43.	Guavanoic acid	Leaf and fruit	Begum <i>et al.</i> , 2004
44.	Guavenoic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a
45.	Guavin B	Leaf and fruit	Okuda <i>et al.</i> , 1984
46.	Ilelatifol D	leaves	Begum <i>et al.</i> , 2002a,b
47.	Isonerioumaric acid	leaves	Begum <i>et al.</i> , 2002a,b
48.	Isopropyl alcohol	leaves	Li <i>et al.</i> , 1999

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49.	Jacoumaric acid	Seeds	Salib and Michael.,2004
50.	Kaempferol	Leaf, flowers and fruit	Liang <i>et al.</i> , 2005
51.	Kaempferol-3-glucoside	Leaf,flowers and fruit	Liang <i>et al.</i> 2005
52.	Limonene	Leaf	Li <i>et al.</i> , 1999
53.	Longicyclene	leaves	Li <i>et al.</i> , 1999
54.	Lutein	Leaf and fruit	Mercadante <i>et al.</i> , 1999
55.	Luteolin	Mature leaves	Vargas <i>et al.</i> , 2006
56.	Lycopene	Leaf and fruit	Mercadante <i>et al.</i> , 1999
57.	Mecocyanin	Leaf and fruit	Liang <i>et al.</i> , 2005
58.	Mecocyanin	Seeds	Salib and Michael, 2004
59.	Menthol	leaves	Li <i>et al.</i> , 1999
60.	Methyl cinnamate	Leaf	Li <i>et al.</i> , 1999
61.	Morin-3-O- α -L-arabinopyranoside	Leaf and fruit	Arima and Danno, 2002
62.	Myricetin	Mature leaves	Vargas <i>et al.</i> , 2006
63.	Neochrome	Leaf and fruit	Mercadante <i>et al.</i> , 1999
64.	Obtusinin	Flowers, roots	Jordan <i>et al.</i> , 2003
65.	Octanol, Ethyl octanoate	Fruit	Kenneth <i>et al.</i> , 1970
66.	Oleanolic acid	Leaf and fruit	Siddiqui <i>et al.</i> , 2002
67.	Phytofluene	Leaf and fruit	Mercadante <i>et al.</i> , 1999
68.	Protocatechuic acid	Leaf and fruit	Okuda <i>et al.</i> , 1984.
69.	Quercetin	Leaf flowers and fruit	Liang <i>et al.</i> , 2005
70.	Quercetin 3- β -D-glucoside	Leaf and fruit	Liang <i>et al.</i> , 2005
71.	Quercetin 3- β -galactoside	Leaf and fruit	Liang <i>et al.</i> , 2005
72.	Quercetin-3- α -L-arabinofuranoside	Leaf, flowers and fruit	Liang <i>et al.</i> , 2005
73.	Quercitrin	Leaf and fruit	Liang <i>et al.</i> , 2005
74.	Rubixanthin	Leaf and fruit	Mercadante <i>et al.</i> , 1999
75.	Selinene	leaves	Li <i>et al.</i> , 1999
76.	Terpenyl acetate	leaves	Li <i>et al.</i> , 1999
77.	Ursolic acid	Leaf and fruit	Begum <i>et al.</i> , 2002a
78.	Uvaol	Leaf and fruit	Begum <i>et al.</i> , 2004
79.	Zeatin riboside, zeatin nucleotide	Leaf and fruit	Nagar and Rao, 1981
80.	α -Humulene	Fruit	Jordan <i>et al.</i> , 2003
81.	α -sitosterol-3-O- β -D-glucopyranoside	Leaf and fruit	Begum <i>et al.</i> , 2004
82.	β -carotene	Leaf and fruit	Mercadante <i>et al.</i> , 1999
83.	β -caryophyllene	Fruit	Li <i>et al.</i> , 1999
84.	β -cryptoxanthin	Leaf and fruit	Mercadante <i>et al.</i> , 1999
85.	β -sitosterol	Leaf and fruit	Begum <i>et al.</i> , 2002a

is taken orally to treat fevers, respiratory ailments and skin infections. Dried fruit is powdered and eaten for gastro-intestinal spasms. Infusion of dried leaves is taken orally to treat infections. The hot water extract of leaves of *psidium guajava* is applied externally for dermatomucosal lesions and ringworm.

– Haiti – Decoction of dried leaves is taken orally for diarrhea. Fresh fruit juice is taken orally for diarrhoea.

– India – Crushed fresh flowers, together with the juice from buds squeezed through muslin cloth, are taken orally as an anti-helmentic. Decoction of dried leaves is

taken orally for diarrhea and as an anti-emetic. Hot water extract of dried leaves is used in bath for high fever and headache. Dried fruit is used for jaundice.

– Malaysia – Hot water extract of bark and leaves are taken orally to expel placenta and as an emmenagogue.

– Mexico – Infusion of dried leaves is taken orally for diarrhoea.

– Nigeria – Water extract of dried roots is taken orally for diarrhoea.

– Peru – Hot water extract of dried roots is taken orally as an astringent, anti-hemorrhagic, anti-diarrhoeal

Table 5 : Medicinal profile of *Psidium guajava*

Sr. No.	Pharmacological activity	Responsible ingredients	References
1.	Anti-diarrhoeal	Quercetin, lectin	Zhang <i>et al.</i> , 2003; Coutino <i>et al.</i> , 2001.
2.	Anti-microbial	Guaijaverin, avicularin, caffeic acid, morin-3-0- α -L-arabinopyranoside.	Prabu <i>et al.</i> , 2006; Arima and Danno, 2002; Zhou <i>et al.</i> 2007.
3.	Anti-malarial	Anthraquinones, flavanoids, secoiridoids, terpenoids.	Nundkumar and Ojewole, 2002.
4.	Anti-cancer	Mecocyanin, chlorogenic acid, jacoumaric acid, copaene, limonene, 1-O-3,4-dimethoxy-phenylethyl-4-O-3,4-dimethoxy cinnamoyl-6-O-cinnamoyl-beta-D-glucopyranose; 1-O-3,4-dimethoxyphenylethyl-4-O-3,4-dimethoxy cinnamoyl-beta-D-glucopyranose.	Salib and Michael, 2004; Siani <i>et al.</i> 1999.
5.	Hepatoprotective	Asiatic acid.	Gao <i>et al.</i> , 2006.
6.	Anti-oxidant	Gallic acid, protocatechuic acid, caffeic acid, ferulic acid, chlorogenic acid, guavin B, β -carotene, asiatic acid.	Gao <i>et al.</i> , 2006; Misra and Seshadri, 1968; Okuda <i>et al.</i> 1984; Zhou <i>et al.</i> , 2007; Thaipong <i>et al.</i> , 2005; Yamashiro <i>et al.</i> , 2003.
7.	Anti-diabetic	Guaijaverin, quercetin, ursolic acid, oleanolic acid, arjunolic acid, glucuronic acid .	Ojewole, 2005
8.	Anti-inflammatory	Ellagic acid, Asiatic acid, copaene, limonene	Siani <i>et al.</i> , 1999; Gao <i>et al.</i> , 2006; Ojewole, 2006.
9.	Analgesic	Ellagic acid	Ojewole, 2006.
10.	Cardioprotective	Gallic acid	Yamashiro <i>et al.</i> , 2003.
11.	Hypotensive	Guaijaverin, quercetin, ursolic acid, oleanolic acid, arjunolic acid, glucuronic acid	Ojewole, 2005
12.	Wound healing	Methanolic leaf extract	Chah <i>et al.</i> , 2006
13.	Oral care	Saponin, tannin, flavanoid, alkaloid	Okwu and Ekeke, 2003.
14.	Cytotoxic	Mecocyanin, jacoumaric acic, 1-O-3,4-dimethoxyphenylethyl-4-O-3,4-dimethoxy cinnamoyl-beta-D-glucopyranose.	Salib and Michael, 2004
15.	Anti-allergic	<i>Psidium guajava</i> leaf extracts	Seo <i>et al.</i> , 2005
16.	Anti-spasmodic	Asiatic acid	Conde <i>et al.</i> , 2003

and for stomach pain.

– Venda – Decoction of dried roots is taken orally for venereal diseases.

– Philippines – The astringent unripe fruit, the leaves, the cortex of the bark and the roots are used for washing ulcers and wounds, as an astringent, and for diarrhoea.

– West Indies – Leaves and shoots are used in febrifuge, and antispasmodic baths. The dust of the leaves is used in the treatment of rheumatism, epilepsy, and cholera; and guava leaves tincture is given to children suffering from convulsions.

– Central and West Africa – Guava is considered as an astringent, drying agent and a diuretic. A decoction is also recommended as a gargle for sore throats, laryngitis and swelling of the mouth. It is used externally for skin ulcers, vaginal irritation and discharge.

– Mozambique – The decoction of leaves is mixed

with the leaves of *Abacateira cajueiro*, to alleviate the flu, cough and pressed chest.

– Nicaragua - Guava leaves are applied externally for inflammatory diseases.

– Brazil – The fruits and leaves are used for the management of anorexia, cholera, diarrhoea, digestive problems, dysentery, gastric insufficiency, inflamed mucous membranes, laryngitis, mouth(swelling), skin problems, sore throat, ulcers, vaginal discharge.

– USA – Guava leaf extracts are used in various herbal formulas for a myriad of purposes; from herbal antibiotic and diarrhea formulas to bowel health and weight loss formulas.

– Costa Rica – A decoction of the flower buds is used as an effective anti-inflammatory remedy.

– Uruguay – A decoction of the leaves is used as a vaginal and uterine wash, especially in leucorrhoea.

Table 6 : Commercial applications of *Psidium guajava*

Plant parts	Applications	Country/Regions
Fruit	Food, juice, jelly nectar, stuffing of candies, gelatins, pastes, tinned products, confectionaries etc.	All over the world
Wood	Engravings, carpentry, spinning tops, hair comb, construction of houses, to make a black dye for silk	Malaysia, India, Guatemala, Nigeria
Leaves	Employed to give black colour to cotton	South-east Asia, Indonesia
Bark	Dyes, stains, inks, tattoos and mordants	Africa

– Tipis - The tender leaves are chewed to control toothaches by their weak sedative effect.

– Amazon – The decocted leaves or barks of guava is employed for dysentery, sore throats, vomiting, stomach upsets, vertigo, menstrual disorders, mouth sores, bleeding gums, or used as a douche for vaginal discharge and to tighten the tone of vaginal walls after childbirth.

Conclusion:

Psidium guajava, is a tasty, household fruit possessing several medicinal properties. The pharmacological studies conducted on *Psidium guajava* indicate the immense potential of this plant in the treatment of conditions such as diarrhoea, wounds, dental plaques, malaria, allergies, coughs, diabetes, cardiovascular disorders, inflammatory ailments including (rheumatism

and menstrual pain), liver diseases, cancer etc. Not surprisingly, guava also exhibits anti-oxidant and anti-inflammatory effects as oxidative injury underlies many of these diseases. It is very clear that this is a plant with tremendous widespread use now and also with extraordinary potential for the future. On the basis of the low toxicity of guava extracts and their use as a nutraceutical (fruit) as well as a reliable medicine backed by proven activity of the traditional formulations, further clinical studies can only cement *Psidium guajava* as an important part of our biodiversity. Today, the drawback of allopathic medicines is their associated side-effects. But, nature has provided us with a beautiful and tasty medicine known as Amrood. Since no side-effect has been reported till date, it become a unique, affordable, safe, tasty fruit.

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