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AN OVERVIEW OF PSIDIUM GUAJAVA ADVANTAGEOUS QUALITIES

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ABSTRACT

Around the world, guavas are very nutritious. Numerous healthy substances found in plants, including lecithin, kaempferol flavonoids, rutin, naringenin, quercetin epicathechin, guaijaverin, gallic acid, catechin, and isoflavonoids, show promise in treating a variety of illnesses. Guava fruit offers a varied and advantageous nutritional combination. Fruits contain carbonyl chemicals that give them a unique smell. Manganese, thiamine, riboflavin, niacin, iron, and vitamins A and C are all found in fruit. Blood pressure, cancer, diabetes, and digestive issues can all be effectively treated with the leaf, fruits, seeds, and bark. Numerous illnesses, including bowel disorders, fever, gingivitis, bronchitis, catarrh, hemorrhoids, itching, jaundice, stomach issues, cholera, chorea, edema, epilepsy, menstrual issues, colic, convulsions, colds, dysentery, dyspepsia, nausea, tonic, bacterial infections, toothaches, ulcers, coughs, diarrhea, worms, spasms, sprains, wounds, boils, boils, colicGuava can help with nephritis, respiratory issues, rheumatism, scabies, sore or sensitive throat conditions, and edema. This review article has covered the pharmacological potential qualities of the most significant sections of the guava plant, including their antibacterial, antifungal, antioxidant, anticancer, anti-diabetic, anti ulcer and anti-diarrheal effects.

Keywords: Activity, Potential, Guava, And Beneficial Overview.

I. INTRODUCTION

Guava, or Psidium guajava, is a well-known plant with therapeutic uses (Naseer et al., 2018). In nearly every state in India, it is grown as a food crop up to 1500 meters (Chaturvedi et al., 2019). All around the world, this evergreen plant is planted. The main applications for guava fruits are in foodstuffs, drinks, and jams (Irshad et al., 2020). Its fruit is regarded as one of the superfruits since it is rich in dietary fiber and low in calories.in vitamins with antioxidant properties (Kumari et al., 2016). Nature contains everything an animal might possibly need to stay healthy and cure any kind of illness. Nowadays, the use of natural and herbal remedies for various illnesses is given particular attention. There are many resources found in nature, such as bacteria, plants, animals, minerals, and marine life. Plants are inexpensive and readily accessible resource in all of them. The traditional usage of the plant's leaves, bark, roots, and seeds for health maintenance and disease treatment predates considerable study into the synthesis of medicinal substances, as illustrated in Figure 1.

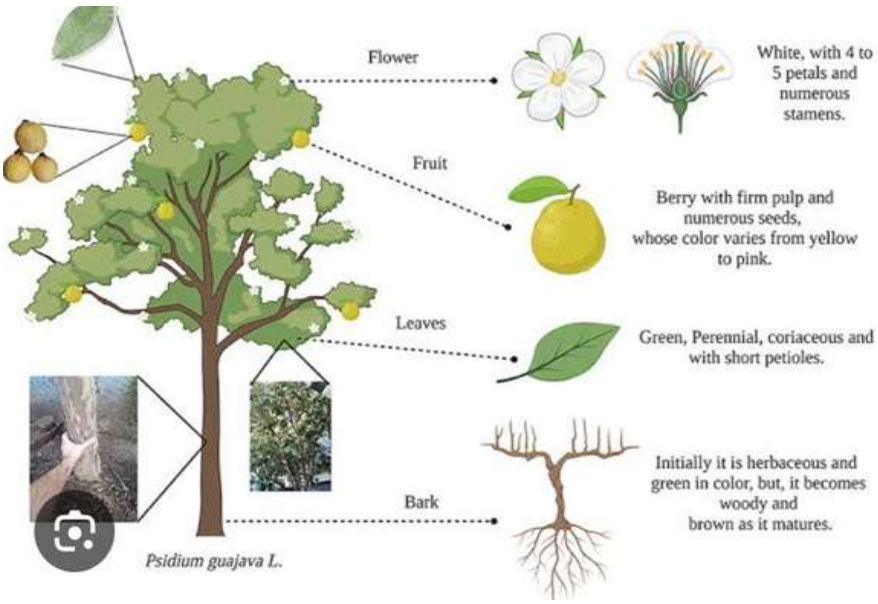

Fig 1:

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The Myrtaceae family's guava (Psidium guajava L.) has also historically been used to treat a variety Before much study was done to create pharmaceutical substances Synthetically, ailments from the plant's fruits, leaves, bark, roots, and seeds were customarily employed seen in Fig 2.

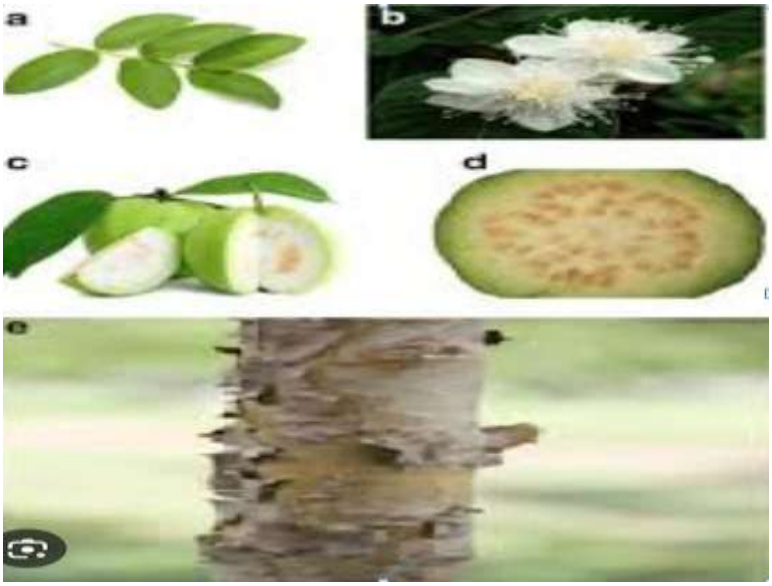

Fig 2:

Guava (Psidium guajava L.; Myrtaceae) has also been used historically to treat a variety of ailments, particularly those affecting the leaves and bark (Kaneria & Chanda, 2011). Table Kingdom describes the plant's taxonomy. Myrtaceae Family Subfamily Myrtoideae Genus Plantae Order Myrtales Guajava Psidium Species Psidium guajava Linn. is the binomial name (Dakappa et al., 2013).Typical Name It is referred to as guava in English and as gurfa (Yoruba), guava (Hausa), and gwaibwa (Igbo) in Nigeria (Abubakar, 2009). Guayaba in Spanish Pear in Arabic Mexico: Arryan Draksa Perala: Amaratafalam in Sanskrit Jamrukh, Gujarat Amrood, Amarut in Hindi Distribution It is a Central American native. These days, guavas are typically grown, dispersed, and consumed by a large number of people in tropical regions of the world (Nair & Chanda, 2007). Guava is now widely grown as well (Kaneria & Chanda, 2011).Photochemistry Lycopene, xanthine, lutein, vitamins, minerals, tannins, saponins, enzymes, alkaloids, glycosides, proteins, sesquiterpenoid, alcohols, triterpenoid acids, steroids, and flavanoids are only a few of the numerous significant substances found in guavas (Dakappa et al., 2013). β-copanene, β-sitosterol, guayavolic acids, farnesene, β-bisabolene, caryophyllene oxide, isopropyl alcohol, longicyclene, ursolic, limonene, caryophyllene, α-pinene, β-pinenementhol, nerolidiol, crategolic, quercetin, and other chemical compounds are de FL in guava leaves. [1a α-, 4a α-, 7 α-d 7a β-, 7b α-] Caryophyllene-cycloprop[e]-decahydro-1H Terpenyl acetate, azulene, Guajavolide (2 α-,3 β-,6 β-,23-tetrahydroxyurs-12-en-28,20 β-olide; 1), Guavenoic acid (2 α-,3 β-,6 β-,23-tetrahydroxyurs-12,20(30)-dien-28-oic acid, triterpene oleanolic acid, triterpenoids, flavinone-2 2'-ene, Prenol, Dihydrobenzophenanthridine, and Cryptonine, tannin, eugenol, cineol, mallic acids, curcumene, Cardinene resin and essential oil (Dakappa et al., 2013).

II. TAXONOMICAL CLASSIFICATION OF PSIDIUM GUAJAVA

- Kingdom - Plantae
- Division - Magnolioph
- Class - Magnoliopsidae
- Subclass - Rosidae
- Order - Myrtales
- Family - Myrtaceae
- Sub family - Myrtoide
- Tribe - Myrteae
- Genus - Psidium

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- Species - Guajava

Fruit:

Guava fruit offers a varied and advantageous nutritional combination. Fruits contain carbonyl chemicals that give them a unique smell. Young fruit has a high concentration of tannins. One of the main sources of ascorbic acid is fruit skin. Manganese, thiamine, riboflavin, niacin, iron, and vitamins A are all present in the main fruit portion. Another important component of fruit is water. There are trace amounts of lipids, protein, and carbs (Gutierrez RM, 2008). Fruit has the following chemical constituents: glucuronic acid, oleanolic acid, ursolic acid, and arjunolic acid (WS., 1982).Compared to water, which makes up the majority of fruit after fibrous content, lipids, proteins, and carbs make up a very small percentage (Gutierrez RM, 2008).Fruit has the following chemical constituents: glucuronic acid, oleanolic acid, ursolic acid, and arjunolic acid (WS., 1982).Compared to water, which makes up the majority of fruit after fibrous content, lipids, proteins, and carbs make up a very small percentage (Gutierrez RM, 2008).

Bark:

Amritoside, ellagic acid, leucocyanidin, luectic acid, and tannins (11–27%) are all present in bark. Begum S. (2004). Aspects of Guava Fruit Nutrition Guava fruit provides a variety of nutritional benefits that are highly advantageous for all living things. It's a wonderful gift from God.Niacin 40 I.U. and vitamins 36–50 mg make up the nutrients. 0.43–0.7 milligrams of fat 2.8–5.5g of moisture 9.5-10 milligrams of ash 0.1–0.5 mg of protein 0.6–1.068 mg of riboflavin Vitamin A (carotene) 0.046 mg Phenolic 0.30–0.70 mg 9.1–17 mg of carbohydrates. 17.8–30 mg of calcium Fiber crude (0.9–1.0g) Thiamin 0.03-0.04 mg Iron 200-400 I.U. Traditional Guava Uses Historically, guava has been used to treat a variety of illnesses, and its various portions have been employed for a variety of purposes. Guava was utilized for a variety of purposes in different nations.Uses in the Country Brazil for cholera, diarrhea, ulcers, vaginal discharge, digestive disorders, diarrhea, inflammation of mucous membranes, laryngitis, mouth swelling, skin healing, sore throat treatment, and gastric insufficiency.Peru For respiratory issues, diarrhea, vertigo, vomiting, gout, hemorrhages, gastroenteritis, dysentery, lung issues, PMS, and digestive issues Conjunctivitis, worms, gastritis, and vaginal ejection.The Philippines The management of sore throats, wound healing, and acidic or sour Trinidads Diarrhea, blood purification, and all bacterial infections The Amazon stomachaches, diarrhea, vertigo, and menstrual problems.Mexico For scabies, diarrhea, itching, ulcers, worms, wounds, deafness, and stomachaches.Malaya Skin conditions, epilepsy, diarrhea, menstruation issues, and hysteria. Haiti for itching, piles, scabies, diarrhea, skin sores, sore throats, epilepsy, ulcers, lesion, germicidal, and astringent (pungent) India Convulsions, anorexia, chorea, epilepsy, brain issues, delivery, and nephritis Cuba Dysentery, dyspepsia, and cold Ghana toothaches, coughs,sickness and diarrhea. Guava to Prevent Various Illnesses For cholera, chorea, bronchitis, catarrh, hemorrhoids, itching, jaundice, stomach issues, edema, epilepsy, nephritis, respiratory issues, rheumatism, scabies, discomfort, pain, or scratchiness in the throat, swelling, bacterial infections, toothaches, ulcers, coughs, diarrhea, worms, spasms, sprains, wounds, boils, menstrual issues, colic, convulsions, colds, dysentery, dyspepsia, nausea, tonic, bowel disorders, fever, gingivitis, bronchitis, nephritis, nephritis, rheumatism, scabies, discomfort, pain, or scratchiness in the throat, swelling, and as an antiseptic and astringent (Kamath et al., 2008).

Applications in Pharmacology Antioxidant Characteristics:

Guava's antioxidant qualities have been investigated and contrasted with those of other fruits, such as bananas and oranges. Guava has stronger primary antioxidant capacity than other fruits because of its high phenolic component content and ascorbic acid, according to the DPPH and Fe assays (Jiménez-Escrig et al.,Thaipong et al. (2006); Lim et al. (2006); 2001). Acetone, methanol, ethanol, and iso-propanol seed extracts have been found to have antioxidant activity (Gamal F. Mohamed*1, 2011).

Anti-Cancer Action:

Guava leaf hexane fraction (GHF) has been shown to have potent anticancer properties in mammals. According to the analysis, GHF has several avenues for managing the malignant process. By suppressing the AKT/mTOR/S6K1 and MAPK signaling pathways and downregulating a number of proteins involved in metastasis, angiogenesis, cell proliferation, and cell endurance, GHF has been shown in this study to have cytotoxic and apoptotic effects on PC-3 cells. GHF contains 60 components, according to qualitative and

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quantitative research, including %, phytol (7.95%), caryophylla 3(15),7(14)-dien-6-ol (2.68%), a-patchoulene (3.76%), b-caryophyllene oxide (CPO) (3.63%), and b-eudesmol.The following substances help prevent and treat cancer: octadecane (1.23%), a-copaene (7.97(E)-methyl isoeugenol (1.90%), a-terpineol (1.76%), and 11.98% (Lee & Park, 2010; Ryu et al., 2012; Sato et al., 2010). It has been determined that seed extracts including acetone, methanol, ethanol, and iso-propanol have anticancer properties (Gamal F. Mohamed*1, 2011). Avoidance of Diabetes When given at a dose of 10 mg/kg, guava leaf extract has been shown to have a potent anti-diabetic effect on mice, possibly as a result of PTP1B suppression (Oh et al., 2005). Myricetin, avicularin, guaijaverin, hyperin, quercetin, and kaempferol, which are found in guava leaf extract, have been shown to exhibit alpha glycosidase inhibitory activity (Guo et al., 2013; Hui Wang a, 2010)

Antidiarrheal Properties:

Aqueous leaf extract has been shown to have potent anti-diarrheal properties against castor oil-induced diarrhea in albino rats when compared to the intraperitoneal medication Diphenoxylate at a dose of 5 mg/kg (Bala & Adamu, 2008). Guava leaves are typically used as a medication to treat human and animal diarrheal illnesses (Sudira et al., 2019) (Gutiérrez et al., 2008).

Antitumor Action:

Triterpenoids, sesquiterpenes, and flavonoids—components of guava leaves—have the ability to prevent lung cancer (Jiang et al., 2020).Antimicrobial Action Four seed extracts—acetone, methanol, ethanol, and iso-propanol—were tested for their antibacterial properties against five bacterial strains: Salmonella, E. coli, Listeria monocytogenes, Bacillus cerius, and Staphylococcus aureus. All four samples have been found to be capable of eliminating all five bacterial strains (Gamal F. Mohamed*1, 2011). The beta pinene enantiomer's antimicrobial activity has been assessed (Ana Cristina Rivas Da Siliva et al., 2012; Biswas et al., 2013). Guava leaf oil extract has antibacterial qualities that can eradicate Escherichia coli and Staphylococcus aureus (Rakmai et al., 2018). Additionally, guava leaf tannis extract shows antibacterial properties against a variety of diseases (Mailoa et al., 2014).Guava leaf extract has antipyretic properties (Joseph & Priya, 2011).

Anti-Inflammatory Properties:

Additionally, Psidium guajava extract has been shown to be quite effective in treating a variety of inflammatory illnesses. Polyphenolics and triterpenoids are responsible for the anti-inflammatory effect (Rishika & Sharma, 2012).

Activity of Spermatoprotection:

The ability to generate sperm from infertile males with oligospermia and nonobstructive azoospermia makes the extract of Psidium guajava Linn. leaves extremely significant (Akinola et al., 2007).Cardioprotective Function P. Guajava L. contains biologically active chemicals called quercetin and gallic acid, which are particularly helpful for cardiac ischemia-reperfusion injury. The water-based leaf extract of Psidium guajava has a contractile effect and is utilized to lower heart rates and systemic arterial blood pressure. The most efficient secondary metabolites are those found naturally in guava plants, including phenolic chemicals, pentacyclic triterpenoids, flavonoids, quercetin, tannins, and guiajaverin (Lufuluabo et al., 2018).In

Anti ulcer Activity:

One of the most severe human health problems is gastric ulceration. It has *Psidium guajava* seeds significantly decreased the ulcer index and protected the mucosa from lesions. The antiulcer effect of *Psidium guajava* seed extract, which has the power of reducing the ensuing inflammatory reactions, can counteract the inflammation induced by indomethacin by the downregulation of relative genes expression (*IL-1β*, *IL-6*, and *TNF-α*). Moreover, PG leaves significantly downregulated the increased *COX-2*, *TGF-β*, and *IGF-1* relative genes expression, confirming its beneficial effect in ulcer healing,(.36-59)

III. CONCLUSION

Known for its health benefits, guava trees are grown in tropical areas for their delectable fruit. In addition to its high nutritional content, it has anti-inflammatory, anti-bacterial, anti-diarrheal, antioxidant, anticancer, antimicrobial, and antipyretic properties. Numerous phytochemicals can be found in its bark, and its fruit is high in iron, phosphate, and calcium as well as vitamins A and C. Guava plants contain phenolic chemicals that

are highly efficient against skin conditions and cancer. Oxidants with fungistatic and bacteriostatic characteristics are found in the leaves. Guava leaves include quercetin, an organic antioxidant component whose ethylacetate extract inhibits the formation of thymus and gum infections. Diabetes, diarrhea, dysentery, gastroenteritis, coughing, stomach ulcers, and liver inflammation have all been proven to benefit greatly from guava. The plant has a lot of healthy natural substances thatpossess antiviral, anti-inflammatory, antinociceptive, antimutagenic, and antiplague qualities. Because of its biological properties, guava can be utilized to prevent and treat a variety of illnesses. Guava leaves can also be used to treat male infertility by increasing sperm production.

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