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(REVIEW ARTICLE)

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A review: Pharmacological and phytochemical update of *Passiflora edulis F. Flavicarpa*

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Abstract

A native of tropical America (Brazil), passion fruit (*Passiflora edulis F. Flavicarpa*) is a desirable, high-value crop that is a member of the Passifloraceae family. The fruits of the yellow species (*Passiflora edulis F. Flavicarpa*) are almost round to oval in shape, with a stiff peel that is smooth and waxy, and weigh approximately 35-40 grams. Plants are used medicinally all over the world for their many health advantages; this particular plant has the highest concentration of phytoconstituents. Numerous phytoconstituents, including flavonoids, tannins, phenols, glycosides, fatty acids, and alkaloids, are present, according to the review. According to reports, *Passiflora edulis F. Flavicarpa* has anti-inflammatory, anti-convulsant, anti-microbial, anti- cancer, anti-diabetic, anti-hypertensive, anti-sedative, and anti-oxidant qualities. It can also be used as a colon cleanser and have a variety of therapeutic uses for ailments like osteoarthritis and asthma. The various plant parts have also been used as sedatives, sleep aids, ulcer and hemorrhoid treatments, and digestive aids. The ethnopharmacology, phytoconstituents, and medicinal advantages of plants are briefly reviewed in the article, emphasizing the need for more study and advancement in the pharmaceutical field.

Keywords: Passion fruit; Antidiabetic activity; Jellies; Nutrition; Diabetes mellitus; Passiflora

1. Introduction

A complicated, acute or chronic illness, diabetes causes a gradual metabolic disturbance of glucose metabolism that ultimately results in micro- and macrovascular abnormalities. When someone has diabetes, their blood sugar levels rise either because their cells do not respond to insulin produced by the pancreas (insulin dependent type I diabetes) or because their pancreas produces insufficient amounts of insulin (insulin dependent type II diabetes).[1] When insulin synthesis ceases, the islet cells that are needed by the pancreas to make insulin are killed by the immune system. In particular, type II diabetes is on the rise globally, and diabetic complications constitute a public health concern linked to higher rates of morbidity and death.[2] Diabetes can be avoided by inhibiting the digestion enzymes α-amylase and α-glucosidase by the absorption of reducing sugar. One well-known enzyme that is present in both the pancreas and saliva is α-amylase. It breaks down the α-1-4-glycosidic bond in polysaccharide (starch) to produce glucose and disaccharide (maltose), which are smaller sugar molecules.[3] Multiple therapeutic techniques are necessary for the management of diabetes because it causes many problems. Numerous pharmaceutical interventions are employed to treat diabetes through various mechanisms of action, including increased insulin release, increased glucose transporter numbers, suppression of gluconeogenes, and decreased intestinal glucose absorption.[4]Chronic hyperglycemia and abnormalities in protein, lipid, and carbohydrate metabolism brought on by deficiencies in insulin action, secretion, or both are hallmarks of diabetes mellitus.[5] In the US, 29.1 million people (9.3% of the population) suffer with diabetes. Additionally, it was stated that in 2008–2009, 5089 individuals under the age of 20 were diagnosed with type II diabetes and an estimated 18436 individuals under the age of 20 had type I diabetes.[6] Reports from the World Health Organisation state that 32 million individuals in India had diabetes in 2000. Global estimates for the prevalence of diabetes were 2.8% in 2000 and 4.4% in 2030. It is anticipated that by 2030, there will be 366 million diabetics worldwide, up from 171 million in 2000.[7]

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2. *Passiflora edulis*

The majority of the world's passion fruit is grown in tropical and subtropical regions. Native to tropical America (Brazil), passion fruit is a high-value commodity with a focus on exports. It is a member of the Passifloraceae family. Passion fruit is distinguished by its remarkable nutritional and therapeutic qualities in addition to its exotic and distinctive flavour and aroma. Fruits are generally acknowledged to be an essential part of a balanced diet, and eating enough of them may help prevent a number of illnesses.[8] Because of its many applications in the production of juice, jelly, and ice cream products, passion fruit (*Passiflora edulis*) is a visually appealing and nutritionally rich fruit crop that is highly valued for both fresh consumption and industrial purposes.[9] The fruit has an ovoid or spherical shape and a thick, smooth, waxy peel with faint, small white flecks that gives it a dark purple or yellow colour. The fruit is essentially filled with a fragrant mixture of double-walled, membranous sacs that contain pulpy orange juice and up to 250 tiny, hard, pitted seeds that range in hue from dark brown to black. A ripe fruit has a high nutritional content, a pleasant aroma, a refreshing taste, and a delicate flavour. In India, passion fruit can be grown effectively up to 2000 metres above sea level, if there is 1000–2500 mm of precipitation per year. Before it was brought from Sri Lanka a few decades ago, the yellow variant was unknown in India. It quickly showed itself to be well adapted to the low elevations around Chennai and Kerala.

Table 1 Taxonomical classification

Kingdom	**Plantae**
Division	Magnoliophyta
Class	Magnoliopsida
Order	Malpighiales
Family	Passifloraceae
Genus	*Passiflora*
Species	*Passiflora edulish f. flavicarpa* (yellow) *Passiflora edulis* L.(purple)

Figure 1 Passion fruit

2.1. Types

Edible passion fruit comes in two recognised varieties: purple (*Passiflora edulis* Sims) and yellow (Passiflora *F. Flavicarpa* Deg.). Tropical regions are where the purple passion fruit originated. In contrast, yellow passion fruit is thought to be a natural hybrid between purple and another related species of passion fruit, or a mutation of the purple type found in America[10]. A limited amount of huge granadillas, Passiflora quadrangularis L., are also grown for local consumption. While kavery, a hybrid of purple and yellow, is popular in south India, purple and yellow are regularly grown in northeastern India.[11]-

2.2. Purple passion fruit

Higher altitudes are conducive to vine productivity. When ripe, the 4-5 cm diameter, deep purple fruits weigh 35–45 g each. The percentage of juice fluctuates between 31% and 35%. The cultivar is renowned for having high-quality

nutrients and flavour. The seeds have a dark hue. This particular cultivar is prone to leaf spot. collar rot, nematode and thrip attack.

2.3. Yellow passion fruit

Because of its sensitivity to low temperatures, this cultivar does better at lower elevations and produces less well at higher elevations. The fruit is larger than the kind that is purple.

Each weighs roughly 60 g and is spherical with mottled yellow dots. When ripe, they turn golden yellow. Juice has a higher acidity and a lower recovery rate than purple grape juice. Brown in colour, seeds can withstand nematodes and withstand damage from thrips as well as leaf spot and wilt.

2.4. Giant Granadilla

The enormous Granadilla bears incredibly eye-catching flowers and has big leaves. The largest fruits in the genus are the greenish-yellow fruits of P. quadrangularis, which resemble melons. Fruits are about 600g in weight and 15–20 cm in length. The fruits are oblong, smooth and thin-skinned, and have a subtle scent. Fruit has big seeds and a rich flesh.

2.5. Kaveri Hybrid Passion Fruit

It was created at the Indian Institute of Horticulture Research's Central Horticulture Experimental Station in Chettalli, Karnataka, as a hybrid of purple and yellow passion fruit. It's an high productive cultivar, with 85–110 g of fruit per fruit. The fruits have a purple hue and a similar quality to the Purple variety. According to reports, the variety is resistant to worms, wilt, brown leaf spot, and collar rot in the field.

3. Nutrient contents of passion fruits

The quantum of vitamin C in a many different types of passion fruit was measured(Table 1). Vitamin C attention was set up to be loftiest in unheroic passion fruit(36.34 mg), followed by sweet passion fruit(20.76 mg) and grandilo quent passion fruit(15.7 mg). The chosen passion fruit types' total carotene content varied. Total carotene content was loftiest in unheroic passion fruit(91μg), followed by grandiloquent passion fruit(74.33 μg) and sweet passion fruit(28.97 μg). It was noted that the fruit with the loftiest fibre content was the sweet passion fruit(11.5 mg), which was followed by the grandiloquent passion fruit(8.23 mg) and unheroic passion fruit(8.33 mg).

Table 2 Nutrient content in selected varieties of passion fruit

Sr No.	Sample	Vitamin C (mg/ 100 g)	Total Carotene (μg/100 g)	Fiber (mg/100 g)
1.	Purple Passion Fruit	15.57	74.33	8.23
2.	Yellow Passion Fruit	36.34	91	8.33
3.	Sweet Passion Fruit	20.76	28.97	11.5

4. Importance of passion fruit

The fruit is rich in nutrients and remedial parcels. Because citric and malic acids predominate, passion fruit has a pH of roughly3.2, making it a high acid food. In addition to being a strong source ofnon-nutritive phytochemicals including carotenoids and polyphenols, the fruit also contains vitamins A, B2, and C. Minerals like K, P, Ca, Fe, Na, Mg, S, Cl, and protein are also abundant in it (Table 1). Because of the quantum of nutrients it contains, passion fruit is occasionally appertained to as a fruit that's nutritionally thick. The main factor impacting similar nutritive rankings is the high attention of vitamins A, C, and B2 set up in passion fruit. Table1.2 lists the nutritive makeup of passion fruit per 100g. Passion fruit can be grown for its juice, which is constantly added to other fruit liquids to ameliorate their aroma, or for eating. Fruit is consumed on its own or in ice cream, fruit salads, sherbets, and as concentrates, stupefied drinks, and logjams. The grandiloquent variant is vended in fresh fruit requests, whereas the unheroic type is employed in juice processing. According to Zas and John's review[12], the *Passiflora edulis* factory hasanti-inflammatory, anticonvulsant, antimicrobial, anticancer,anti-diabetic, antihypertensive, antioxidant, and dreamy parcels in addition to being used as a colon cleaner and in a variety of other medicinal operations for affections like asthma and osteoarthritis. The colorful factory corridor have also been used as anodynes, ulcer and haemorrhoid treatments, sleep aids, digestive instigations, and treatments for gastric cancer. Table1.3 lists the different physicochemical compositions of ripe passion fruit species

Table 3 Nutritional composition of passion fruit per 100g

Nutrients	Nutritional value per 100 g	Nutrients	Nutritional value per 100g
Energy	97 Kcal	Thiamine	0.0 mg
Carbohydrate	23.38 g	Vitamin A	1274 IU
Protein	2.20 g	Vitamin C	30 mg
Total fat	0.7 g	Potassium	348 mg
Cholesterol	0.0 g	Calcium	12 mg
Dietary fiber	10.4 g	Iron	1.60 mg
Folates	14 µg	Magnesium	29 mg
Niacin	1.5 mg	Phosphorus	68 mg
Pyridoxine	0.1 mg	Carotene	743 µg
Riboflavin g	0.130 mg	Cryptoxanthene	41 µg

Table 4 Physico-chemical composition of various species of ripe passion fruits

Characteristics	*P.edulis*	*P.edulis f. flavicarpa*	*P. quadrangularis*
Fruit Weight (g)	45-60	80-115	120-480
Fruit Length(cm)	3.5-6	8-10	20-30
Fruit diameter (cm)	3.5-7	5-7.5	10-12
Pulp weight (g/100g)	32-44	26-31	22-48
Rind weight (g/100g)	51-65	57-68	42-65
Juice recovery (%)	30-34	24-26	22-26
TSS (Brix)	14-18.4	12.4-16.4	16-18
Titrable acidity (%)	2.4-3.0	3.4-3.8	2.4-3.2
TSS/ Acid ratio	5.8-6.1	3.64-4.31	5.6-6.6
Total Sugar (%)	5.8-8.0	5.4-6.8	4-4.8
Reducing sugar (%)	3.5-4.2	4-5.2	3-3.8
Non-reducing sugar (%)	1.8-2.5	1.2-2.0	2.2-2.8
Ascorbic acid (mg/100g juice)	22-32	16-20.4	14-18
Weight of residues (g/100g)	3-5	6-12	10-15

4.1. Ethno-Pharmacology

To treat hypertension and diarrhoea, fresh Passilforea edulis leaves are cooked in a small quantum of water and the performing excerpt is consumed in Nagaland.[13] When making specific exclusive particulars, the flowering and regenerating corridor are dried, conserved, and used as a drug. also, ulcers and haemorrhoids are treated with the root excerpts.[14] In the Netherlands, Mexico, and the West Indies, the root has been used as a vermifuge and opiate. The factory has comforting andanti-spasmodic parcels in Italy. Factory excerpts and tinctures have been utilised in Mauritius to treat wakefulness brought on by different whim-whams diseases — not by pain. Both the root and a splint decoction have been used as emetic and diuretic, independently. Passiflora has been used in South America for centuries as a opiate, diuretic, antihelmintic, anti-diarrheal, goad, and to treat hypertension, menopausal symptoms, and

invigorated bellyache. The fruit of the *Passiflora edulis* factory is used as a gastric cancer treatment and is allowed to stimulate digestion. Consuming fruits helps people who are constipated.[15]

5. Cultivation and collection

5.1. Climate and soil

Tropical shops include huge granadillas and unheroic passion fruit, while tropical shops like grandiloquent passion fruit can repel a many degrees of downtime cold wave without suffering damage. hurt, but it will not stand up to really cold temperatures. Ideal temperatures for vegetative growth and flowering are between 20 and 30 degrees Celsius. With 1000 – 2500 mm of downfall each time, it can thrive up to 2000 m in elevation. Vines grow stylish in nearly neutral soil(pH of 6- 7), well- drained soil with a high position of organic matter(2), while alkaline soils may be permitted by the unheroic passion vine. Temperature axes can be dangerous to vines; high temperatures can lead to lush growth with minimum fruit set.

5.2. Propagation

Grafting on flexible root stocks, seeds, and slices are the styles used to reproduce passion fruit. Compared to slices, seedlings and grafted shops are more robust.

5.3. Seed Propagation

Fruits are gathered from vines that parade outstanding quality and volume. After birth, the pulp is left to raise for a full day before the seeds are taken out. The seeds are planted deeply. seed beds were ready in March and

April. When the seedlings reach the stage of 4- 6 leaves, they're scattered into 10 cm by 22 cm polybags that are filled with a 211 rate of soil, compost, and beach. In roughly three months, the seedlings will be prepared for broadcasting into the main field.

5.4. Vegetative Propagation

Ideal slices are semi-hardwood, around 30- 35 cm long, pencil- sized, and have three to four bumps. The slices must be originally fitted into pots or beach beds to initiate root growth before beingmoved.to polybags in order to ameliorate root growth. About three months will pass before the embedded slices are ready to be planted.

Pruning :- Following crop crop, the laterals are trimmed back to four to five kids. Following the crop's crop in December and April, pruning should be completed.

5.5. Nutrient Management

The nutrient operation depends up on the age and stage of growth viz. vegetative growth, factory coming in bearing and full product stage. The approximate nutrient demand of passion fruit is N 150, P 100 and K 200kg/ ha. The nutrient should be applied in splits after fruit crop.

5.6. Fruit maturity

The main flowering seasons for the unheroic passion fruit and kavery are May through June and September through October. Passion fruit fruits reach maturity 70 – 80 days after they bloom.

5.7. Harvesting and Yield

After a time or two after planting, the factory begins to yield economically, and a robust factory yields 150 – 180 fruits annually. further grandiloquent passion fruit than unheroic or huge kinds are produced. Granadilla as a result of pollen comity. A good yield is presumably between 4 and 6 kg of fruit per plant. As soon as unheroic passion fruits grow, they start to lose humidity and fleetly wrinkle. Fruits can be kept for over to three weeks at 7- 9 °C in plastic bags without going bad. Completely overgrown fruits (10 – 11 weeks old) may be gathered and stored for growing because passion fruit is a climactic fruit and can grow off the tree.

6. Phytoconstituents table

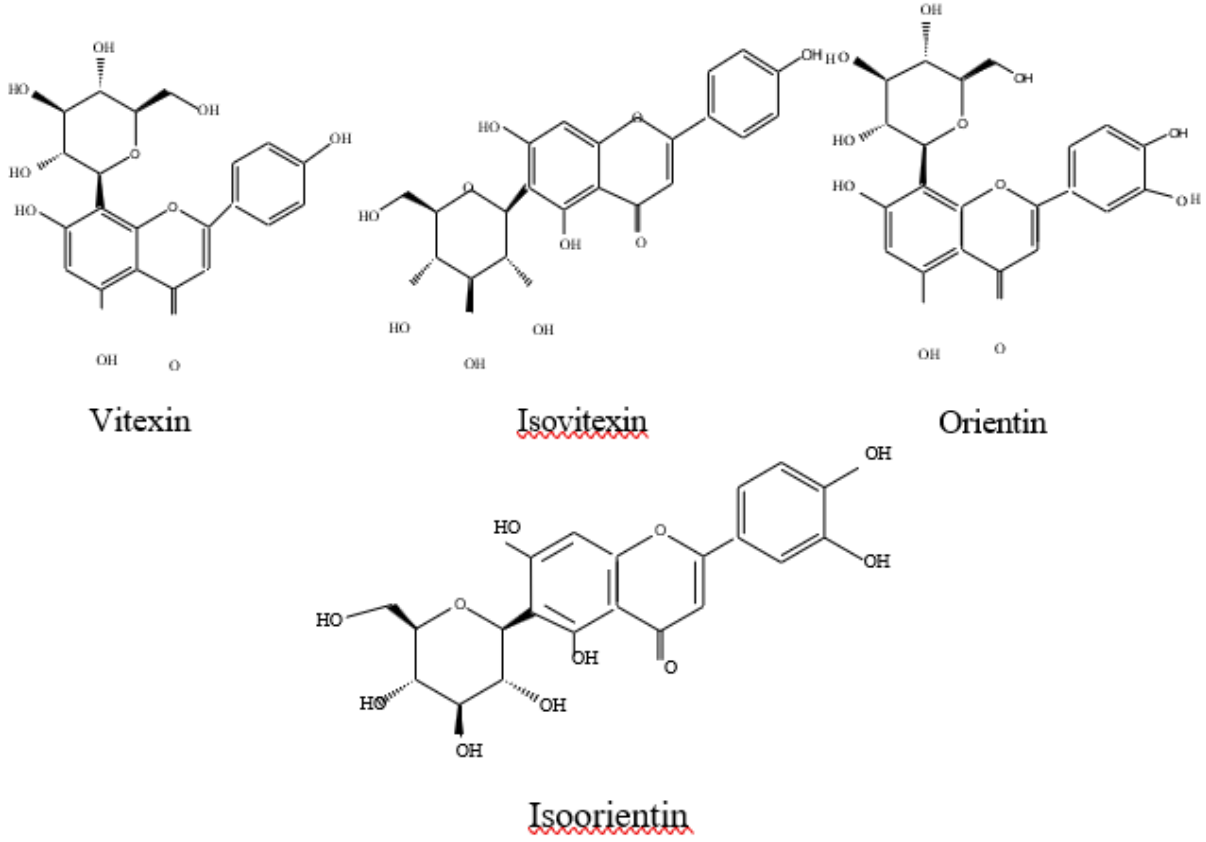
Table 5 Phytoconstituents table of Passion Fruit

Species	Therapeutic Activity	Plant part used	Phyto- Constituents
Passiflora edulis f.*Flavicarpa*	Diabetic Activity	Peel, Seeds	Passiflin, Isoorientin, Orientin, Vitexin, Isovitexin
	Antioxidant Activity	Leaf	Isovitexin, Orientin,
	Sedative and Anticonvulsant	Flower, Dried Leaves	Orientin, alkaloids
	Anti-microbial Activity	Leaf	Orientin
	Anti-Cancer Activity	Fruit pulp,	Isoorientin, Isovitexin
	Improves Cardiovascular function	Passion Fruit Peel	Orientin
	Colon cleanser	Fruit Juice	Soluble Fibre
	Vision and Eye	Fruit Juice	Beta Carotene
	Increased Hemoglobin	Passion Fruit	Iron
	Digestion and Intestinal Health	Rind from passion fruit	High amount of Fibres

6.1. Phytoconstituents of *Passiflora edulis*

Within the genus, alkaloids, phenols, glycosyl flavonoids, and cynogenic compounds are known.[16] *Passiflora edulis* was found to include alkaloids, phenolic compounds, carbohydrates, glycosides, flavonoids, resins, and flavonoids. The fruit and leaf both contained tannins, while the stem and leaf contained saponins. It has been observed that *Passiflora edulis* leaf organic extract (methanol, ethanol) contains tannins, flavonoids, terpenoids, steroids, and saponins.[17],[18] In addition to lower levels of (2R)–(2S)-sambunigrin, the leaves and stem of *Passiflora edulis* contain novel cyanogenic (2R)–â-Dallopyranosyloxy-2-phenylacetonitrile and (2S)–â-D- allopyranosyloxy-2-phenylacetonitrile.[19] Glycoside content has reportedly been high in Passiflora edulis. which include luteolin-6-Cchinovoside and luteolin-6-C-fucoside, two examples of flavonoid glycosides.[20] Sixteen luteolin or apigenin derivatives were identified using the HPLC-DAD-MS/MS technique. These included four mono-C-glycosyl, eight O-glycosyl, and four O-glycosyl derivatives. (Mareck, 1991) The current alkaloids are Harman harmine, harmalol, harmol, and harmaline, with leaves containing the maximum concentration of Harman alkaloids. *Passiflora edulis* was also reported to contain the pectins known as Edulans I and Edulans II.[21],[22] The majority of the pigments in the purple fruit juice are carotenoids, with β-carotene being the most prevalent. (India, 2011) The purple fruit juice has been found to include leucines, valine, tyrosine, proline, threonin, glycine, aspartic acid, arginine, and lysine as free amino acids.[23] The oil seed extraction of passion fruit seed revealed large percentages of carbohydrates and fiber (48.73%) together with high levels of unsaturated fatty acids (87.59%), primarily linoleic (73.14%) and oleic (13.83%), tocopherol (499.30 mg/kg).[24]

6.1.1. Structures



7. Pharmacological activities

7.1. Anti-Diabetic

A study conducted on albino rats using doses of 100, 200, 300, and 400 mg/kg body weight showed that the percentage reduction in blood glucose was 6.31, 7.14, 6.73, and 6.00 for each dose. Additionally, after three hours of glucose delivery, it was discovered that 200 mg/kg body weight had the greatest effect on lowering blood glucose levels, with a maximum decrease rate of 47.25%.[25] The hypoglycemic effect of *Passiflora edulis* has been noted; this could be attributed to the presence of flavonoids and phenols.(Devaki K, 2011)Significant amounts of iron, potassium, zinc, and manganese can be found in passion fruit. In diabetic mice, the addition of 5% flour made from passion fruit peel lowers blood glucose levels by 59%, bringing them down to normal levels (112.6 mg/dl). The mechanism is caused by the presence of fibre, tannins, and phenolic chemicals (Maria do socoro Ramos de Queiroz, 2012), which boost insulin sensitivity in muscle and adipose tissue and decrease the digestion and absorption of carbs.[26]

7.2. Sedative and Anticonvulsant

Passion fruit and its blossom contain alkaloids that have medicinal properties, and the phytonutrients within may have relaxing benefits as well. It has been demonstrated that consuming passion fruit can induce sleep and soothe the nervous system. Research demonstrated that a decoction made from dried *Passiflora edulis* leaves administered to mice exhibited sedative properties, augmenting the overall amount of sleep caused by diazepam. It also showed anti-convulsant activity that stopped seizures.[27]

7.3. Anti-microbial Activity

At 500µg/disc, the crude extract of *Passiflora edulis* leaves shown antibacterial activity against B. megaterium and P. aeruginosa. The chloroform crude leaf extracts (500µg/disc) showed moderate antibacterial activity against gramme positive (B. megaterium, B. Subtilis, S. Aureus, and Sarcina Lutea) and gramme negative (E. Coli, P. aeruginosa, S. Paratyphi, S. Typhi, Shigella Boydii, and Vibrio Mimicus) bacteria, with an average zone of inhibition of 7–10 mm by disc diffusion method.[28]

7.4. Anti-Oxidant Activity

Antioxidant exertion was demonstrated by the petroleum ether and chloroform excerpts of *Passiflora edulis* leaves. The antioxidant exertion of P. edulis leaves excerpt was significantly identified with polyphenol contents. the implicit use of P. edulis excerpt in the forestallment of pathologies, similar as diabetes mellitus and neurodegenerative conditions, where oxidative stress damage to protein seems to play a major part.[29], [30]

7.5. Anti-Cancer Activity

Passion fruit contains high levels of the powerful antioxidants vitamins C and A. They combat free radicals and prevent cancer. The flavonoids in passion fruit further boost its anti-oxidant and cancer-prevention qualities. Furthermore, passion fruit has been shown in vitro to completely eliminate cancer patients' malignant cells.[31] Because free radicals have the ability to alter the DNA of healthy cells into cancerous ones, they are the primary antagonists of the antioxidants present in passion fruit.[32]

7.6. Improve Cardiovascular function

Passion fruit is a great blood pressure defender since it contains a lot of potassium and almost little sodium. This was found to result in a considerable reduction in blood pressure.[33], [34]

7.7. Colon Cleanser

Because soluble fibre in passion fruit promotes regular and healthy bowel movements, it helps flush out toxins that have been accumulated in the colon. Passion fruit contains antioxidants that help cleanse the gut. Through giving faeces more volume and softness, the minerals and components in passion fruit reduce and prevent constipation. This also helps to defend against piles and anal irritation.[35]

7.8. Vision and Eye

Passion fruit is one of the nutritious foods that is good for the eyes since it is rich in antioxidants including vitamin A, vitamin C, and flavonoids. This fruit's beta carotene is well known for improving vision and the eye.[36], [37]

7.9. Increased Hemoglobin

Along with vitamin C, passion fruit has a high concentration of iron (20% of the daily necessary requirement). For the body to absorb iron, vitamin C is essential. It keeps iron from being lost and raises haemoglobin levels in the blood.[38]

7.10. Digestion and Intestinal health

The insoluble fibre in passion fruit facilitates elimination of waste products and cleanses the digestive tract. The yellow-colored passion fruit rind contributes to the prevention of diverticula problems. The high water content and high fibre content of passion fruit aid in better digestion. With the aid of enzymes that enhance the quantity of digestive juices produced in the stomach, it promotes digestion.[39]

7.11. Asthma

The flavonoids and antioxidants included in passion fruit peel help to reduce asthma symptoms like coughing, wheezing, and dyspnea.[40],[41]

7.12. Anti-inflammatory

The waterless excerpt of P. edulis leaves and two deduced fragments (butanolic and waterless residue) displayed potent anti-inflammatory action. The waterless leaves excerpt of P. edulis retain a significant-inflammatory exertion.[42]

7.13. Anti anxiety

Anxiety is a veritably common internal health problem in the general population. Passiflora (or Passionflower) is a folk remedy used for anxiety. Several species of Passiflora have been employed extensively as a folk drug because of opiate and painkiller conditioning. Passiflora, an herbal drug, could be an option for treating anxiety if shown to be effective and safe.[43], [44]

7.14. Anti hypertensive

An related species of Passiflora nepalensis called P. edulis has already been shown to have antihypertensive properties, while P. nepalensis itself is used in traditional medicine to treat hypertension. One of the consistent polyphenols in the P. edulis rind methanol extract, luteolin, was given orally to individuals who were spontaneously hypertensive, and it dramatically reduced their systolic blood pressure.[45]

7.15. Anti-tumor

Fruit's decoction of P. edulis has been estimated for the inhibition of exertion of gelatinase matrix metalloproteinases. Water excerpt of P. edulis, at different attention, inhibited the enzymes.[46]

7.16. Antifungal

An actual worldwide problem consists of an suggestive increase of profitable losses and health problems caused by fungi. In order to break this problem, several studies have been concentrating on the webbing of new factory defence peptides with antifungal conditioning.[47]

8. Therapeutic uses

- Dietary fiber from passion fruit facilitates easier digestion.
- It strengthens immunity.
- Decrease the chance of cancer.
- It is applied to asthmatic patients.
- Promote healthier skin.
- Increase susceptibility to insulin.
- Skin cells are shielded by passion fruit.
- Calming and mild sedation effects.
- Employed as a sedative.
- Encourages cardiac wellness.

9. Adverse effect

- It results in the latex-food syndrome.
- In sensitive people, it triggers an allergic reaction.
- Due to the high concentration of cyanogenic glycosides in unripe passion fruit, steer clear of it when pregnant.

10. Marketed formulations

Table 6 Marketed formulation of Passion Fruit

Type of Product	Brand Name	Quantity	Price
Passion fruit concentrate	Planters Treasure	100ml	119.80 rs
Passion fruit facewash	Auraa	100 gm	56 rs
Passion fruit Delight	Ossoro	100ml	570 rs
Passion fruit syrup	Manama	100ml	1.53 rs
Passion fruit flavoured syrup	Fruitaco	100ml	39.87 rs
Passion fruit food flavours Essence	Marvino	100gm	150 rs
Passion fruit Blossom Body	PRETTY PLS	100ml	210 rs

11. Home-remedies

- A cancer patient's diet during chemotherapy.

- Chemical peel to achieve flawless skin.
- Eating passion fruit before bedtime promotes relaxation and promotes sleep.
- Juice is flavor-boosted with passion fruit.
- Passion Fruit Nectar.
- Jam made with passion fruit.

12. Conclusion

The results of this study show that consuming passion fruit produces a variety of naturally occurring secondary metabolites that control blood sugar levels. Passion fruit thus helps with glucose control management for those with Type 2 diabetes and with nutraceutical applications. Adults' use of pectin, a flour high in fibre, appears to have had a positive impact on their insulin sensitivity over the course of eight weeks. These outcomes could lower the chance of long-term type-2 diabetes problems. Because *Passiflora edulis* contains phytochemicals such as glycosyl flavonoids, alkaloids, phenols, cynogenic compounds, and antioxidants, it has been shown to have health advantages and can be used to cure and prevent diabetes mellitus.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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