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## **BENEFICIAL ASPECT OF CUSTARD APPLE (ANNONA SQUAMOSA): A REVIEW**

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### **ABSTRACT:**

Custard apple or *Annona squamosa*, are a tropical fruit that are widely grown in the West Indies, South and Central America, Peru, Brazil, India, Mexico, the Bahamas, Bermuda, and Egypt . They are a member of the Annonaceae family. The custard apple is a fantastic fruit for deserts, well known for its dessert and confectionery properties. In science, it is referred to as *Annona squamosa*. One of the *Annona* species that is grown most commonly is *Annona squamosa*. Numerous health benefits of the plant have also been demonstrated, including its anti-inflammatory, anti-dyslipidemic, anti-diabetic, and antioxidant properties. The leaves are used as a vermicide and to cure malignant tumors in addition to treating abscesses, bug bites, and other skin conditions. This review aims to summarize the custard apple's nutritional benefits, phytochemical makeup, and therapeutic applications.

Keywords: custard apple, leaves, biological activities, phenolic bioactive, health promoting effects.

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### **[1]INTRODUCTION:**

*Annona squamosa* is widely grown throughout several Indian states [Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Assam, Uttar Pradesh, Bihar, Rajasthan, Andhra Pradesh, and Tamil Nadu], covering an area of 40,000 hectares, according to the Indian Council of Agricultural Research [ICAR] one of the most significant and tasty dry fruits, the custard apple [*Annona squamosa* L] is mostly valued for its dessert and confectionary qualities. It is a member of the Magnoliales order's *Annonaceae* family [Sundaramahalingam, M.A. and Karthikumar S]

The Latin word anon, which meaning annual yield, is the source of the genus name *Annona*. The other closely related species are *Annona cherimola* and *Annona reticulate*.

Other names for it include sugar apple, sitaphal and Sharifa. The fruit is sweet with a hint of acidity, and it tastes and feels good. This subtropical tree grows to a height of 5 to 9 feet. It has large, falling green leaves and light yellow trumpet-shaped blooms that release a strong, pleasant scent in the late afternoon. It begins to bear when the child is 4 to 6 years old, and it ceases after 12 to 15 years. Custard apples are used to make ice cream because they have a good flavor and are high in carbs [230 grams per 100 grams]

Due to its high calorie content relative to other fruits, it is sometimes included in diets for athletes looking to gain weight. For every 100g of edible portion, it provides 104 Kcal [Dickson *et al.*1975]

*Annona squamosa* has been used in a variety of food applications and as a natural medicine. For example, its pulp is used as a flavoring in ice cream, and 50–80% of the fruit from custard apple is edible and can be pulped to make juice. Its noteworthy vitamin C concentration ranges from 35 to 42 mg per 100g. Additionally, it has significant levels of dietary fiber, potassium, and vitamin B1[Thiamine] [Zahid, M. and Mujahid, M]

Custard apples feature eighteen distinct phenolic compounds, mostly flavonoids or alkaloids, and numerous phenol-based chemicals, such as proanthocyanidins, according to phytochemical research [Mannino G. and Gentile C]

The wide pharmacological characteristics and biological activities of *Annona squamosa* leaves [ASLs], including their antibacterial, antidiabetic, antioxidant, antiviral, anticancer, and , make them potentially valuable. Alkaloids, phenols, flavonoids, peptides, glycosides, carbohydrates, oils, saponins, tannins [Al-Nemari, R. and Al-Senaigy]

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### **[2]Nutritional Value of Custard Apple:**

Custard apple fruit's nutritional value is determined by the plant's bioactive components, which have positive health effects [Reena Nair and Vijay Agrawal 2017]

Nutritional components	Value
Energy	101kcal
Total fat	0.6g
Protein	1.7g
Carbohydrate	25.2g
Dietary fibre	2.4g
Calcium	30mg
Potassium	382mg
Phosphorus	21mg
Iron	0.71mg
Magnesium	18 mg
Sodium	4mg
Vitamin C	19.2mg
Vitamin B6	0.221mg
Niacin	0.5mg
Riboflavin	0.1mg
Thiamine	0.08mg
Fatty acid	0.231mg
Tryptophan	0.007g

TABLE 1: NUTRITIONAL VALUE OF CUSTARD APPLE IN 100 GRAM

### [3]MEDICINAL PROPERTIES OF CUSTARD APPLE:

#### 3.1 Antioxidant Activity

Using the ferric reducing antioxidant power [FRAP], the antioxidant activity of 36 Taiwanese species and cultivars' ripe fruits was evaluated. With >70 mmol/100g of edible component, sugar apples were found to have very strong antioxidant activity in this investigation. Numerous investigations, including ones carried out in India have shown the strong antioxidant activity of *Annona squamosa*, *Annona cherimola* and *Annona muricata* extracts.

#### 3.2 Effects on Cardio-Vascular Disease

Pretreatment with custard apple pulp decreased myocardial injury. An 80 kg person's daily consumption of one-fourth of a regular-sized custard apple had cardio protective effects equivalent to captopril therapy dosages.

#### 3.3 Anticancer Properties

Custard apple's anti-cancer qualities seem to be mostly attributed to a class of chemicals called acetogenins, which are specific to the *Annonaceae* family. In vitro, acetogenins have been demonstrated to be efficacious against sixty distinct types of cancer cells. A few examples are colon, prostate, and breast cancer.

#### 3.4 Anti-Inflammatory Properties

The fruit contains compounds that may help reduce inflammation, potentially benefiting conditions such as arthritis and other inflammatory disorders.

#### 3.5 Digestive Health

Custard apple is known to aid digestion due to its fiber content, which can help prevent constipation and promote a healthy gut.

### 3.6 Immunity Boosting

The vitamins and minerals found in custard apple, particularly vitamin C, can enhance the immune system, helping the body fight off infections.

### 3.7 Blood sugar regulation

Some studies suggest that custard apple may help regulate blood sugar levels, making it a potential food for those managing diabetes.

### 3.8 Cholesterol management

The fruit may contribute to lowering cholesterol levels, which can support heart health and reduce the risk of cardiovascular diseases.

### 3.9 Skinhealth

The leaves and pulp of custard apple are used in traditional medicine to treat skin ailments, including boils and other infections.

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## [4]BENEFITS OF CUSTARD APPLE :

### 4.1 Helps in Weight Gain

Custard apples make a great dessert or snack for people who want to put on weight. This calorie-dense fruit's carbs increase metabolic rate, which in turn increases appetite. The better your food consumption, the greater your hunger. You might be able to put on weight as a result.

### 4.2 Boosts Immune System

Custard apples are a good source of vitamin C, an organic antioxidant. In addition, this vitamin is well known for strengthening immunity and reducing inflammation. Increase the resistance of your immune system against infectious invaders by including one serving of this delicious fruit in your regular diet. By scavenging harmful free radicals from the body, it stops the onset of several illnesses and ailments.

### 4.3 Improves our Brain Health

Vitamins, which control the chemical levels of GABA nerve fibers in the brain, are abundant in custard apples. Tension, irritability, and stress are released as a result. In addition to depression. Additionally, it prevents Parkinson's disease. A custard apple has 0.6 grams of vitamin C for every 100 grams. B6, which represents around 20% of the value of the daily needed quantity

### 4.4 Can Help to Avoid Anemia

Custard apples are a fantastic way to treat anemia since they are high in iron. The fruit can help with gout, nausea, and vitamin B6 deficient treatments.

### 4.5 Rich in Iron

Custard apple is high in iron, which lowers the chance of a baby being born prematurely. It lessens the severity of labor pain in expecting mothers. It is also referred to as enhance the amount of milk produced by pregnant women.

### 4.6 Very Effective for Digestive System

This fruit is a great way to get rid of indigestion. It eliminates toxins from the gut. Helping to keep the bowels in good working order. In addition, heartburn, ulcers, and other stomach-related disorders are prevented acidity and gastritis.

### 4.7 Extraction of oil from custard apple seeds

The seeds are deadly and bitter, and they are utilized as pesticides and fish poison. It was discovered that the custard seed, which possesses insecticidal properties, attracts fruit flies and liars. cancer is treated with seed pesticide. With exceptional cytotoxic and abortifacient qualities, custard apple [*Annona squamosa*] seeds yielded most of the acetogenins that were found.

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## [5]SIDE EFFECTS OF CUSTARD APPLE:

### 5.1 High Sugar Content

Custard apples have a high sugar content, which can lead to increased blood glucose levels.

### 5.2 Allergic Reactions

Some individuals may experience allergic reactions, characterized by symptoms like itching, rashes, or even anaphylaxis

### 5.3 Pesticide Residue

Custard apples are susceptible to pesticide application, which can lead to residue if not washed thoroughly.

### 5.4 Potential Toxicity Concerns

The seeds and bark contain compounds like annonacin, linked to neurotoxicity and studied for implications in Parkinson's disease.

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## [6] PRECAUTIONS TO TAKE WHEN COMSUMING CUSTARD APPLE:

When consuming custard apple, avoid the seeds as they may be toxic, especially during pregnancy. Additionally, if you have a nervous system condition, consult a healthcare professional before including it in your diet. Moderation is key to enjoying its benefits safely.

Precautions When Using Custard Apple

**6.1 Avoid Seeds:** The seeds of custard apple can be toxic and should not be consumed.

Pregnancy Considerations: Pregnant women should avoid eating custard apple seeds due to potential toxicity.

**6.2 Nervous System Conditions:** If you have any conditions affecting the nervous system, consult a healthcare professional before consuming custard apple.

**6.3 Moderation:** Consume custard apple in moderation to enjoy its health benefits without adverse effects.

**6.4 Allergic Reactions:** Be aware of any allergic reactions; if you experience symptoms like itching or swelling, discontinue use and seek medical advice. Consultation for Health Issues: Always consult with a healthcare provider if you have underlying health issues or are on medication that may interact with custard apple.

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## [7] CONCLUSION:

In conclusion, custard apple is a nutritionally rich fruit that offers a wide array of health benefits, making it a valuable addition to both diets and traditional medicine. Its high content of vitamins, minerals, and antioxidants contributes to its potential in promoting overall health, managing diabetes, supporting cardiovascular health, and even exhibiting anti-cancer properties. Additionally, the various parts of the plant have been utilized in traditional remedies for a range of ailments, highlighting its significance in herbal medicine. As research continues to uncover the beneficial aspects of custard apple, it holds promise as a natural resource for enhancing health and well-being. Incorporating custard apple into daily nutrition can be a delicious and effective way to harness its numerous health benefits.

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