

## MEDICINAL AND PHARMACOLOGICAL PARTS OF CARICA PAPAYA: A REVIEW

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| <p><b>*For Correspondence:</b><br/> <sup>2</sup>Department of Pharmacology, Prasad Institute of Technology, Jaunpur</p> | <p><b>ABSTRACT</b></p> <p>The <i>Carica papaya</i> (L.) is a steamy fruit that is widely cultivated and obsessive, both for its enjoyable flavor as well as its many pharmacological properties. This plant is commonly known as papaya and in Hindi it is called Papita. It is now cultivated throughout the world and grown in gardens as an ornamental tree. In India it was introduced in the 17th century. Papaya is seen in orange-red, yellow-green and yellow-orange, with a rich orange pulp. The fruit is not just delicious and healthy, but whole plant parts, fruit, roots, bark, peel, seeds and pulp are also known to have medicinal properties. Papaya shoots, latex and juice were used as herbal medicine. Papaya content vitamins A, B and C, proteolytic enzymes like papain and chymopapain which have Antiviral, Antifungal and Antibacterial properties, Papaya is used for treatment of a several diseases like corns, sinuses, eczema, cutaneous tubercles, glandular tumors, blood pressure, dyspepsia, constipation, amenorrhea, general debility, expel worms and stimulate reproductive organs. This review talk about the fruit's origin and few words explore its nutritional and pharmacological attributes.</p> <p><b>KEYWORDS:</b> <i>Carica papaya</i> (L.), Papita, Pharmacological Activities, Diseases.</p> |
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### INTRODUCTION

First discuss about the papaya tree was made in Europe in 1535 by the Spanish author, G. H. de Oviedo. *C. papaya* Linn, also known as pawpaw, belongs to the family of Caricaceae and is cultivated in tropical regions. It contains a digestive enzyme-papaintha effectively treats causes of trauma, allergies and sports injuries [1, 2]. All the nutrients of papaya as a whole improve cardiovascular system (in case of heart diseases, heart attacks), also used in Colon cancer. It also helps in the prevention of diabetic heart disease. *Carica papaya* (L.) improves all types of digestive abdominal disorders. It is a medicine for dyspepsia, hyperacidity, dysentery and constipation. Papaya lowers high cholesterol levels as it is a good source of fiber. *Carica papaya* (L.) is an inspiration of nutrients and is available the whole time the year. It is a wealthy source of antioxidant vitamin A, C, E, the minerals, magnesium and potassium, the B vitamin pantothenic acid and folate and fiber [2].

### CHARACTERISTICS:

- It is a short-term, fast growing and single stemmed tree which reaches a height of up to 10 m.
- The stem is straight, soft, hollow and cylindrical in shape.
- The leaves are interchange have long petioles, glabrous and are seen on the top of the tree forming a top.
- Flowers are unisexual, dioeciously and trimorphous [3].

## CLASSIFICATION OF PAPAYA AND PLANT NAME IN DIFFERENT LANGUAGE:

**Sub Kingdom:** Tracheobionta

**Kingdom:** Plantae

**Order:** Brassicales

**Family:** Caricaceae

**Genus:** Carica

**Botanical Name:** Carica papaya Linn

**Hindi:** Papita

**English:** Papaya, Pawpaw

**Sanskrit:** Chirbhita

**Malyalam:** Omakai

**Tamil:** Pappali

### CHEMICAL CONSTITUENT:

*Carica papaya* leaves contain, saponin, tannin, flavonoid, alkaloid and Glycoside, leaves and shoots contains Minerals Ca, K, Mg, Zn, Mn, Fe, Unripe fruit contains Enzyme, Papain, chymopapain, Fruits contains Carotenoids carotene, crytoxanthin, roots contains Carposide, Glucosinolates Benzyl isothiocynate, papaya oil found in seeds, shoots consists Flavoniods Myricetin, kaemferol, fruits Monoterpenoids Linalool,4-terpinol[3].

### SIDE EFFECTS:

Internally it causes severe gastritis, some people are allergic to various parts of the fruit.

### PHARMACOLOGICAL ACTION:

#### 1. Antimicrobial Properties of *Carica papaya* (Papaya) Different Leaf Extract against *E. coli*, *S. aureus* and *C. albicans*:



**Figure:** *Carica papaya* leaves and Flower

Papaya plants are used medicinally in different countries and are sources of many potent and powerful drugs. Antimicrobial and antifungal activity of *Carica papaya* (Papaya) plant different leaves extract is tested by methods reported in literature. Phytochemical screening of leaves extracts for alkaloids, carbohydrates, saponins, proteins, amino acids, tannins, flavonoids, glycosides, terpenoids is also done by standard test procedure reported in literature. The researcher used four extracts but the strongest activity showing in methanol extract. Methanolic extract showing inhibition against in *S. aureus* than *E. coli* and *C. albicans* [4].

#### 2. Phytochemical analysis of paw-paw (*carica papaya*) leaves:

On the basis of this work, the phytochemical analysis of *Carica papaya* leaves showed the presence of alkaloid, flavonoid, Saponin, Tannin and Glycosides, and also the plant can characterized by multiple pharmacological activity and broad spectrum of therapeutic actions. *Carica papaya* leaves contain, saponin, tannin, flavonoid, alkaloid (like, Mayer, Wagner) and Glycoside. The standard method of analysis used to identify really that *Carica papaya* leaves contain Alkaloid, Saponin, Tannin, Glycoside and Flavonoids [3].

### **3. Anti-ulcerogenic action of aqueous extract of *Carica papaya* seed on indomethacin-induced Peptic ulcer in albino rats:**

In this study, the pretreatment with aqueous extract of *Carica papaya* seed exhibited anti ulcerogenic and antioxidant effects, which may be due to the enhanced antioxidant enzymes. On the basis of



**Figure: *Carica papaya* fruits and Seeds**

The basis of this research article, find out or investigated the anti-ulcerogenic and antioxidant activities of aqueous extract of *Carica papaya* seed against indomethacin-induced peptic ulcer in albino rats [5].

### **4. Therapeutic benefits of carica papaya leaf extracts in dengue fever patients:**

This research will helpful in chiefly dengue fever patients, because the plant leaf extract will increase the platelet count in the suffering patients. *Carica papaya* leaf extract could be used as an added or as a harmonizing drug in acute febrile illness patients with thrombocytopenia, it accelerates the increase in the platelet count. Nisar Ahmed demonstrated rise of platelet count from 55000/ $\mu$ l to 168000/ $\mu$ l after *C. papaya* leaves extract in dengue fever patient [6].

### **5. Effect of papaya latex extract on gravid and non-gravid rat uterine preparations in vitro:**



**Figure: *Carica papaya* Latex**

In this research, the uterotonic principles, papaya latex extract (PLE) was tested on rat uterine preparations in vitro at various stages of the estrous cycle and gestation periods. Author observe, increased Rat uterine contractile activity on different doses of PLE in proestrus and estrus stages compared to metestrus and diestrus stages of the estrous cycles. A direct dose-dependent spasmodic action with increased frequency and amplitude was observed with PLE in all non-gravid uterine preparations. Pretreatment of the tissue with phenoxybenzamine (PB) non-competitively blocked the effect of PLE. Blocking of the 5-HT receptors with methysergide partially blocked the excitatory response to PLE. From this work the crude papaya latex have an uterotonic principle which can bring

to mind sustained contraction of the uterus acting mainly on the alpha adrenergic receptor of the uterus at different stages [7].

#### **6. Evaluation of anthelmintic activity of carica papaya Latex using pheritima posthuma:**

On the basis of this research work we can find an important knowledge about latex of *Carica papaya* which will use in the anthelmintic diseases. This paper provides the vital information to evaluate Anthelmintic potential of latex of *Carica papaya* using *Pheritima posthuma* as test worms. A choice of concentrations of *Carica papaya* latex were tested in the assay, which involved determination of time of paralysis (P) and time of death (D) of the worms. The results of this study indicated that the latex of *Carica papaya* showed significantly demonstrated paralysis, and also caused death of worms mainly at higher concentration as compared to standard reference using Piperazine citrate and control [8].

#### **7. Papaya - An Innovative Raw Material for Food and Pharmaceutical Processing Industry:**

In this review, Nutritional value of fruits and medicinal properties of various part of papaya are discussed and also we have studies that, papaya is not only known as for its nutritional benefits it also considered to its medicinal properties. It has low calories but rich in natural vitamins and minerals (such as, vitamin A, B, C and fibre etc.). Many biologically active phytochemical have been isolated from papaya and studied for application. Almost all parts of the plant (leaves, latex, seed, fruit, bark, peel, roots) have important biologically active substances that can be isolated for application predominantly in the pharmaceutical industry. Papain found in papaya latex has natural digestive properties beneficial to the human digestive system. Papaya used in most of the pharmaceutical and in the food industry [3].

#### **8. Biological activities of carica papaya (Linn):**

This review provides important information about the various pharmacological activities of papaya plant. A review speck, the plant is very useful in traditional medicine. The different plant parts of *C. papaya* have many biological activities and many pharmacological activities like, antioxidant activity, hypolipidemic activity, antiulcer activity, Antibacterial activity, Antifungal activity, Anti-amoebic activity, Wound-healing activity, Anthelmintic activity, Antiulcerogenic activity, Hypolipidemic activity, Hypertensive activity, Diuretic activity, Anti-fertility activity[9].

#### **9. Benefits of Papaya:**

In this article gave the vital information about papaya neutrinos and its medicinal uses, which are exceptional nutrients and medicinal properties throughout the world. According to this, the papaya, whole plant (including leave, seeds, fruits etc.) have traditional medicinal properties. Papaya is considers as a neutraceutical fruit because of it has many medicinal properties. Some medicinal properties are uterotonic, antifertility activity, diuretics, anthelmintic, anti hypertensive, hypolipidemic, wound healing, and anti fungal, anti bacterial etc. [10]

#### **10. Nutritional, medicinal and pharmacological properties of papaya (Carica papaya Linn):**

*Carica papaya* (L.) is a plant that have many Nutritional, medicinal and pharmacological activities (such as in preventions of diabetic heart disease, diuretics, anthelmintic, anti hypertensive, hypolipidemic, wound healing, and anti fungal, anti bacterial), and this plant parts are also used in many Ayurvedic preparations and home remedies so we are called this plant is used in traditional medications. The plant parts like fruits are contains low calories and rich in vitamins A, B, C, and minerals also used as anti-aging properties, used in also cosmetic preparations which have antioxidant

actions. The fruits have many Nutritional values like proteins, carbohydrates, fibres, minerals, beta carotene etc [11, 12].

### 11. Antifertility effect:

An oral administration of crude ripe papaya seeds at 100 mg/kg body weight for 8 w showed degeneration of the germinal epithelium and germ cells, a reduction in the number of Leydig cells and the presence of vacuoles in the tubules [13].

### 12. Anxiolytic and sedative actions:

Many medicinal plants are also having the property of anxiolytic and sedative effects. The ethanolic extract of *C. papaya* pulp shows role as Anxiolytic and sedative actions in mice. On the basis of this study was performed to evaluate the Anxiolytic and sedative effects of ethanolic extract of *C. papaya* pulp. Various medicinal plants or their constituent's shows role as Anxiolytic and sedative effects. A study was performed to evaluate the anxiolytic and sedative effects of ethanolic *C. papaya* pulp extract in mice, and the results confirmed that extract at 100 mg/kg showed Anxiolytic effect [14].

## CONCLUSION

An olden period, papaya products (plants, fruits, latex and leaves) have been used in diseases treatment universal. Several studies based on in vivo and in vitro have definite their role in disease prevention and treatment through modulation of the various processes such antioxidant, anti-inflammatory, anti-diabetic and immunomodulatory activity. *C. Papaya* leaves have Platelet increasing property, confirmed and show a vital role in the management of malaria and dengue fever. In bad feeling of numerous therapeutic implication of *C. Papaya*, detailed studies based on animal model and clinical trials are needed to regulate the safe dose of leaf juice, seeds and fruits and its method in disease preclusion.

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