PAPAYA IS MORE THAN A TASTY DESSERT FRUIT

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Introduction

Carica papaya, commonly known as Papaw or Papaya, or Paw paw in Australia and New Zealand, is immensely popular in Sri Lanka as a dessert fruit. It is an oblong shaped, normally greenish yellow, yellow or orange coloured fruit borne on a large tree plant, reaching up to around 2.5 kg in weight.

It has a bitter taste when raw, and sweet when mature, and grows in tropical countries with higher humidity. It is native to Southern Mexico, and now cultivated in Brazil and countries of Central America, Hawaii, South Africa, Thailand, Indonesia, Vietnam, Sri Lanka and other countries of Asia and grows well in Australia.

The plant has been hailed by traditional medicine men as a source of powerful medicine. Other than the fruit, the Papaw tree, like the coconut tree, has multiple uses from different parts of the plant and with increasing research, more public awareness is now being raised on the health benefits of Papaya. Papaw is not a seasonal fruit, being available throughout the year in the country, in large cultivations, as well as in home gardens. In some countries, fermented papaya, herbal teas or even tablets are available, bearing testimony to the beneficial effects of the fruit. In Sri Lanka, it is mainly used as a fresh fruit or juice. Although its basic effects on health due to the presence of vitamins and dietary fibres could be termed common knowledge, many other more potent and powerful effects of the fruit and other parts of the plant are less well known.

Composition

Papaya fruit is an excellent source of dietary fibre, folate, high amounts of vitamin A, C , and vitamin E. It also contains small amounts of calcium, iron, riboflavin, thiamine and niacin, and is rich in antioxidant nutrients flavonoids and carotenes, and low in calories and sodium.

The presence of the enzyme Papain, mainly in the skinny peel of the fruit, is being made use of widely, for softening of meat. Papain and chymopapain which is also present, have the capacity to break down the proteins from foods such as meat, and convert them into amino acids, which are easily digestible.

Papaya also contains fibrin, another useful compound not readily found in the plant kingdom. Fibrin reduces the risk of blood clots and improves the quality of blood cells, increasing the ability of blood to flow through the circulatory system, and also preventing strokes. Papaya leaves boast large doses of important nutrients that support the immune system, including vitamins A, C, and E, and most importantly, vitamin B17. Papaya leaves also contain over fifty active ingredients which account for many of the beneficial health effects attributed to the plant.

Heath Benefits

Digestion

Papaya facilitates better digestion, prevents bloating and chronic indigestion. This is due to the ability of papaya enzymes to break down proteins into amino acids, making papaya an ideal dessert after meals - the culinary pleasures experienced being an additional bonus. As we age, less and less of digestive enzymes are produced in our stomach and pancreas, and this leads to ineffective digestion of proteins. This results in an excess amount of undigested protein, and not enough of amino acids to perform all important chemical reactions. Amino acids play a major role in metabolic activities in the body, the chemical reactions contributing significantly to both mental and physical health.

Papaya enzymes are also helpful after antibiotic use to replenish friendly intestinal bacteria that were destroyed along with the unwanted bacteria. When the intestinal tract is well populated with friendly bacteria, the immune system is strengthened, and can better protect against flu and other disease. To rid the body of intestinal parasites, a home remedy of half a cup of papaya juice alternated each hour for twelve consecutive hours with the same amount of cucumber or green bean juice has been effectively used.

Cancer

Some of the first documented anecdotes of the effect of papaya on cancer was in Gold Coast, Australia where papaya leaf juice was claimed to have reversed cancer in many people living in the area. Papaya leaves have been known for their cancer fighting properties and have been used as an alternative cancer treatment option for many years, although there has been no scientific evidence to give veracity to this. However, researchers from Japan and US have now shown this claim to have much credibility, having conducted extensive studies on it. They conclude that a dried extract of papaya leaves have dramatic cancer fighting properties against a broad range of tumors, including those of the cervix, breast, liver, lung, and pancreas. According to their studies, higher the dose of papaya leaf extract, the more it impacted the tumor. It is reported that components in papaya tea extracts actually kill cancer cells directly. An added plus, is that papaya leaves are not known to have toxic effects and their consumption does not have side effects. In light of this discovery, doctors are beginning to recommend papaya leaf tea as part of a well balanced traditional chemo treatment, while others go so far as to say that this treatment could replace the harmful procedures of chemotherapy and radiation.

The cancer fighting properties of papaya leaves are partly attributed to increased production of key anti-tumor molecules called Th1-type cytokines, which are regulators of the immune system. The ability of papaya leaves to stimulate these Th1-type cytokines, which in turn strengthens the ability of the immune system to destroy cancerous cells, is the key to its potency. Proteolytic enzymes are able to digest and destroy the defense shields of viruses, tumors, allergens, yeasts, and various forms of fungus. Once the shield is destroyed, tumors and invading organisms are extremely vulnerable and easily taken care of by the immune system.

As mentioned, papaya leaves contain several vitamins, including B 17 which in concentrated form is already

used as part of traditional chemotherapy treatments. A recent study by Purdue University on over 3500 plants, showed that Papaya Leaf Tea consisted of over 50 biologically active ingredients found to kill fungi, worms, parasites, bacteria, and many forms of cancer cells. They identified Acetogenins as the medically effective ingredients of this plant. They compared this with conventional chemotherapy agents, and found that they worked comparably in cell culture and animal studies, but at far lower concentrations and with almost no toxicity to host animals. They postulated that papaya was effective against any type of abnormality which involved faster than normal growth and could be used as a support during Chemotherapy and radiation.

Studies have also shown that the fruit is a store-house of carotenoids, of which beta carotene and lycopene are found in abundance. The intense orange to pink colour is one indication of the presence of carotenoids. Lycopene is highly reactive towards oxygen and free radicals, and scientists think that this antioxidant activity makes it an effective cancer fighting agent. In addition to antioxidant activity, other experiments have indicated that lycopene induces cancer cell death and anti-metastatic activity in addition to other beneficial effects. This has been shown to be so by epidemiological studies on prostrate cancer in Australia, where they found that men who consumed the most lycopene rich fruits and vegetables such as papaya, were 82% less likely to have prostate cancer.

Papaya also contain Isothiocyanates which are organo – sulphur compounds. Animal studies have shown that isothiocynates are effective against some type of cancers as well as leukemia, and have postulated that they have the potential to prevent cancer in humans as well. Researchers have identified the isothiocyanate in papaya as BITC (Benzyl isothiocyanate) , and have established that BITC exerted cancer cell killing effects that were greater in proliferating cells than in quiescent cells. So it seems that papaya uses a multi pronged approach to fight the dreaded disease, rather than depending on one type of compound.

Papain is also being studied for relief of cancer therapy side effects, especially relieving effects such as difficulty in swallowing and mouth sores after radiation and chemotherapy, in addition to boosting up the immune system and helping the body to fight the cancer. This has created the trend of large scale cultivation of organically grown papaya, to produce fermented papaya enzymes, and these are available on a commercial scale.

It would be interesting to study and analyse the recipe given by those who traditionally used this plant for cancer treatment. This is as follows:

Wash and partly dry several medium-size papaya leaves. Cut them up like cabbage and place them in a saucepan with 2 quarts/ litres of water. Bring the water and leaves to the boil and simmer without a lid until the water is reduced by half. Strain the liquid and bottle in glass containers.

The concentrate will keep in the refrigerator for three to four days. If it becomes cloudy, it should be discarded.

The recommended dosage in the original recipe is 3 Table-spoons/ 50ml three times a day.

Dengue

In Sri Lanka, Dengue is now becoming a severe health hazard, almost assuming epidemic proportions. It is transmitted by mosquitoes and can be fatal. Common symptoms include fever with headache, severe muscle pain, joint pain and rashes on the body. There is no effective medicine for dengue.

However, in traditional medicine, the juice of papaya leaf has been found to be effective in the treatment of dengue fever, and following upon this knowledge, studies have been carried out to substantiate these claims. A recent study done by the Indian Institute of Forest Management on five dengue patients given papaya leaf juice, has shown some interesting observations. The number of platelets increased in all five patients within 24 hours of drinking the juice, with all patients reporting significant improvement in their health. It seems that this bitter green juice is promising without posing any serious ill-effects. As a result, pharmaceutical and nutraceuti-cal companies are already formulating papaya leaf extract preparations. The extract of raw papaya leaf helps boost platelets, also known as thrombocytes. In Sri Lanka too, undocumented evidence have displayed the efficacy of using papaw leaf juice on dengue patients, and is now frequently

used on them. As a home remedy, the juice is extracted by crushing fresh leaves of papaya - one leaf of papaya giving about one tablespoon of juice. Two tablespoons of papaya leaf juice given to dengue patient three times a day has shown amazing results according to unpublished reports.

Interestingly, papaya leaf has also been found to possess powerful anti-malarial effects apart from its anti-cancer properties and the extract has been used in some parts of the world as a prophylactic to prevent malaria in endemic regions.

Other effects

Because of its anti-inflammatory properties papaya is also said to relieve the severity of rheumatoid arthritis and osteoarthritis. Its high antioxidant content can prevent cholesterol oxidation and can be used as a preventative treatment against atherosclerosis, strokes, heart attacks and diabetic heart disease. It can also lower the inflammation in the body, alleviate the pain and edema caused by sport injuries.

Also, home applications of leaf and bark papaya extract is used to deal with mouth gums and toothaches which is being effectively practised in many cultures around the world. It is also traditionally used to treat various skin disorders, including wounds and burns, especially in developing countries.

However one point to be aware is that the unripened papaya (still green papaya) contains far more of the proteolytic enzymes papain and chymopapain than ripened papaya which we commonly eat. You can also juice the leaves and stems but be prepared for the most objectionable taste of it .... you wont naturally like its taste but then nor does the cancer cells. So why not try it?

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Transfer of Traditional knowledge and the extinction of languages

A language dies every fourteen days. The disappearance of a language deprives us of knowledge no less valuable than some future miracle drug that may be lost when a species goes extinct. Small languages more than large ones provide keys to unlock the secrets of nature because their speakers tend to live in proximity to animals and plants around them and their talk reflects the distinctions they observe. When small communities abandon their languages and switch to English or Spanish there is a massive disruption in the transfer of traditional knowledge across generations - about medicinal plants, food cultivation, irrigation techniques, navigation systems, seasonal calendars etc...

Russ Reymer : in "Vanishing Voices" in National Geographic vol 222 No.1 July 2012 p 78.

Editorial Note: The disappearance of the indigenous language of the veddah community in Sri Lanka is such a case of Wisdom Lost. The Veddas were semi-nomadic hunters and their lifestyle was linked to the characteristics of plants and animals in their natural habitat.