

Guava: The Super Fruit with Anticancer Potential

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In present scenario where the country population accounts for more than 17 percent of world's population with present decadal growth rate of about 17.7 percent. One of the resultant effects of population expansion in a short period is food scarcity and nutritional insecurity. This problem is further aggravated with increasing outmigration at inter-state level from rural areas at about 25 percent for the purpose securing livelihood. Further, the decline in operated area to 756 thousand hectares and expansion of cities into the sub -urban area has aided in this process. To address the problem of nutritional security and achieve SDG-2 (Zero Hunger) a major role can be played by including Guava (*Psidium guajava*) into the diet as the Indian population adores the tropical delicacy known as Poor Man's Apple. It thrives in both commercial and wild orchards throughout subtropical and tropical countries, and it comes in a wide variety of sizes, colours, and forms (i.e pomiforms and pyriforms). Guava is valued for its notable therapeutic properties in addition to its delicious taste. It has shown that both the fruit itself and guava leaf extracts have anti-carcinogenic properties. As a result, it has established itself as a strong rival in the world of anti-cancer fruits. In the field of cancer treatment, diet plays a crucial part in improving the wellbeing of patients receiving chemotherapy while also reducing the risk of cancer development.

Health benefits of Guava (*Psidium guajava*) are immense and it has been used extensively in traditional and medicinal applications. This remarkable plant has been embraced for its multifaceted attributes, including its antimicrobial, emmenagogue, anti-inflammatory, astringent, antispasmodic, and gastrointestinal advantages.

In India, guava leaves have a special place in the world of Ayurveda. These leaves are useful for treating a range of medical disorders, including toothaches, rheumatic diseases, digestive problems, skin wounds, and specific microbiological infections. Guava is used for its ability to treat hypertension (high blood pressure) and influenza infections throughout Southeast Asian countries. The leaves of this plant are used in Malaysia to treat diarrhoea,

relieve stomach aches, and aid in placenta discharge after childbirth. Guava is used as an antibacterial, anti-diarrheal, and anti-diabetic agent in China.

In 2010, research on humans examined the plant's effects on prostate cancer and found that guava extract helped in reducing tumour size. Later, a study highlighted the anticancer potential of guava against human prostate cancer and was published in the Journal of Medicinal Food in 2012. Beyond its host of health advantages, guava shows promise in the fight against cancer, with its leaves being especially effective sources of polyphenols. These polyphenolic substances have potent anti-inflammatory and antioxidant effects. Guava's potential to prevent and treat cancer is further increased by the presence of additional anticancer substances like Ascorbic Acid (Vitamin C), Apigenin, Lycopene, and Kaempferol in the fruit.

A potent antioxidant, vitamin C helps the body cleanse itself and successfully fights free radicals. Apart from other fruits like oranges, kiwis, and lemon, Guava being the third richest source after Barbados cherry and Indian gooseberry, should be included in our diet. Apigenin, a typical flavonoid present in fruits and vegetables, is notable for its capacity to prevent the spread of certain cancer cell lines, particularly human colon cancer and oral epidermal carcinoma. Lycopene, a vitamin that is present in guavas in higher concentrations than in watermelon, is abundant in guava juice. The carotenoid lycopene, which gives fruit its colour, is an effective free radical scavenger that greatly reduces free radicals in the body. Additionally, it functions as an apoptotic, anti-metastatic, and anti-proliferative agent. Significant effects of red guava fruit extract against ER-positive breast cancer have been observed. Another guava ingredient called kaempferol is anti-proliferative and anti-carcinogenic, especially when it comes to thyroid cancer cell lines. It also demonstrates strong antioxidant properties. Guava's abundance of terpenes, which include guajadial, psiguadial A, B, and psidial A, aids in its ability to inhibit the proliferation of a number of human cancer cell lines, including those from the colon, ovary, kidney, breast, lung, leukaemia, and prostate. Guava essential oils exhibit strong anticancer effects, especially against human mouth epidermal carcinoma. Guava leaf hexane extracts have also proven to be cytotoxic to leukaemia cells.

In conclusion, guava is a multipurpose plant with advantages for both nutrition and medicine. Its leaves and bark are prized for its medicinal qualities, and its fruit is known for its full complement of nutrients. Guava is also widely accessible in nations with middle- to low-



income levels, making it a cost-effective and convenient option for cancer prevention, therapy, food and nutritional security.

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