

Pumpkin: Unveiling the Functional and Nutritional Benefits of Superfood

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Pumpkin belongs to the family Cucurbitaceae and is a widely grown vegetable all over the world. Based on the colour of the seeds, the origin of pumpkin has been attributed to Guetmala, Central Mexico or Columbia. The name pumpkin originated from a Greek word Pepon which means large melon. French converted the Pepon to Pompon and English adapted the word Pompion. In the stages of development, the American colonists replaced the ion with kin giving rise to pumpkin. *Cucurbita pepo*, *Cucurbita maxima* and *Cucurbita moschata* are the worldwide commonly grown species of pumpkin. The main growing season is summer and rainy seasons in most parts of India. Winter pumpkins are also grown in some parts of Southern and Western India. There is a large variation in the size and shape of pumpkin fruits and the average fruit weight fluctuates between 8 and 10 kg sometimes even up to 20 kg have been noticed. The colour of flesh ranges from pale yellow to crimson and flesh thickness often varies widely. The pumpkin fruits contain 77.5 % edible portion. Pumpkin fruits are rich in carotenoids, vitamins, minerals and dietary fibers. The β carotene content of pumpkin fruits varies from 1.6 to 45.6 mg/100g and 2.8 to 3.4 mg/100 g. Organically grown pumpkin fruits accumulate higher amount of β -carotene (0.4 mg/100 g) and vitamin E (0.5 mg/ 100 g) as compared to conventionally grown fruits where higher content of dietary fiber (2.1 %) and ascorbic acid (5.2 mg/100 g) have been documented. Depending upon the variety, pumpkin contains 85- 90 % water, 70-86% edible portion, 2.0-2.1 % protein, 0.3-0.6 % fat, 1.4-3.5 % starch, 1.1-2.7 % dietary fiber, 179-190 kJ of energy and 8-27 mg vitamin C/100 g of edible portion. Fresh pumpkin contains 92.2% moisture, 0.15 % fat, 0.98 % protein, 0.76 % ash, 0.56 % crude fiber and 5.3 % carbohydrates. The proximate analysis of pumpkin flesh protein (1.4 %), fat (0.1 %), carbohydrate (4.6 %), Ca (10 mg/100 g), P (30 mg/100 g) and Fe (0.7 mg/100 g). Pulp of pumpkin is rich in Na, K, Fe, Mn, P and pectin but low in proteins. Pumpkin seeds as a source of oil and nutrients. Pumpkin seeds also known as Pepitas are small, flat, green and edible with a chewy texture and having rich nutty flavour.



Raw Pumpkin

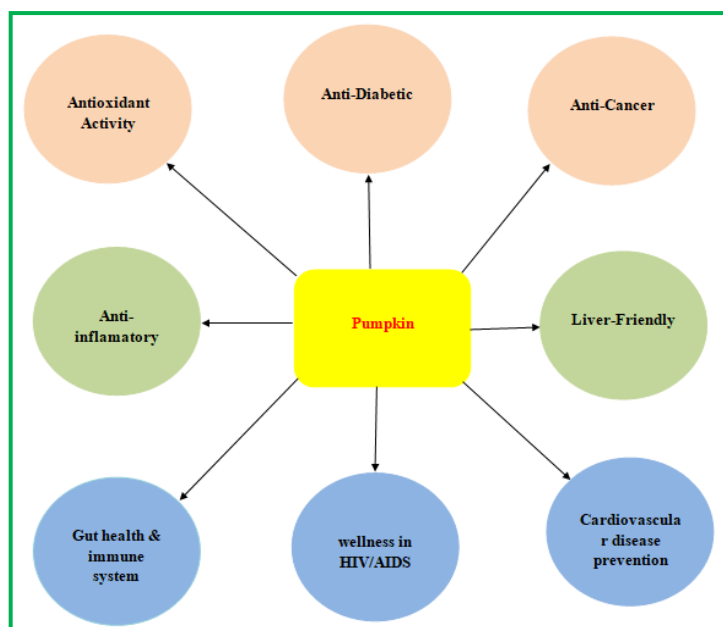


Health Benefits of Pumpkin

Most pumpkin seeds are covered by a white husk however, some varieties may produce seeds without husk. The seeds of pumpkin representing 3.5% of total pumpkin fruit weight are rich in protein (35%), high in S containing amino acids and low in phytic acids and trypsin inhibitor. Seeds contain Mg and Fe in addition to high levels of Zn, P, K, Se, Mn and Cu.

Functional properties of pumpkin

Pumpkin is a valuable source of functional components mainly carotenoids, lutein, zeaxanthin, vitamin E, ascorbic acid, phytosterols, selenium, and lenoleic acid, which act as antioxidants in human nutrition. Pumpkin fruits are sweet when fully mature with yellow or orange flesh rich in carotene. Pumpkin flesh is rich in fibre, vitamin C, vitamin E, Mg, K and a variety of carotenoids being the important sources of these amazing phytonutrients. β -Carotene is one of the plant carotenoids converted to vitamin A in the body. In the conversion of vitamin A, β -carotene performs many functions in overall health. It works most efficiently in combination with other carotenoids and has been found to reduce the risk of lung and colon cancer. Pumpkin also has huge concentration of β -carotene which protect against certain cancers and cataract and is a powerful ally against degeneration aspect of aging. Pumpkin has no cholesterol, low in fat and sodium and rich in vitamins. Carotenoids are important for the prophylactic treatment of xerophthalmia. Deficiency of vitamin A leads to impaired cellular functioning since it has a role in numerous physiological processes in animals. Carotenoids derived from plant foods are the chief sources of vitamin A in the diet of many population groups in India. Carotenoids are said to have a variety of accessions which are related to the decreased risk of some degenerative diseases and also act as antioxidant. It is believed that β -carotene has a protective role against cancers and coronary heart diseases. The presence of Mg, K and folate in pumpkin highlights its heart friendly attributes.



As the amounts of organic acids and cellular tissues are not high in pumpkin they can be consumed to cure stomach and intestinal disorders. The fruits of pumpkin are diuretic, tonic and calm thirst. The pulp of fruit is considered as sedative, emollient and refrigerant. Pumpkin seeds have many health benefits as they are said to be lower in cholesterol and has antidepressant qualities due to the presence of tryptophan which can elevate mood. Pumpkin seeds in China are regarded as a remedy for depression. 1 gram of pumpkin seeds protein contains as much of tryptophan as a full glass of milk. Seeds also contain Omega-3 and Omega-6 essential fatty acids and have a broad range of health functions in the body. The seeds of pumpkin are anthelmintic and useful as taenicide. Its oil is used in giving quick relief in scalding of urine, spasmodic infection of the urinary passage and has been reported to cure gonorrhoea. Pumpkin seeds provide high phosphorous levels and can be used as a potential agent in lowering the risk of bladder stone disease. Though the seeds of pumpkin are nutritionally important and have medicinal value however, they are thrown away. Pumpkin seeds also contain cucurbitacin's which rid the body off intestinal parasites and are also

traditional remedy for tape worm and safe for children and pregnant woman. Pumpkin seeds may reduce hormonal damage to prostate cells, thus probably reducing the risk of prostate cancer. Its seeds have also been used to treat learning disorders and are considered to be useful in gastritis, enteritis and febrile diseases. The seeds have anti-inflammatory properties which help in the treatment of arthritis. Pumpkin seed oil is useful in promoting wellness in HIV/AIDS patients.

Conclusion

Importance of fruits and vegetables in human diet is universally recognized. Fruits and vegetables both fresh and processed contribute significantly to improve the quality of our diet. In recent years, the interest in the exploration, development and evaluation of functional foods to the target population has increased considerably amongst the researchers and technologists. Scientists are exploring the ignored crops which are otherwise a rich source of phytochemicals of human interest for combating the deadly diseases like cancer and cardiovascular disease. Pumpkin is one of such vegetables gaining popularity as its technological and nutritional characteristics are equal or even better than those of widely cultivated vegetables and fruits. Although, pumpkins are utilized for the preparation of various value added products like pies, freeze, canned, dried and pickled products in foreign countries however, in India they are mostly consumed as fresh vegetable with exception of its use in vegetable sauce where the pumpkin is being added as a thickening agent. The pumpkin has a vast scope for diversification and exploring its utilization into commercial products like jam, pickle, beverages, candy, seed oil, bakery and confectionery products. Moreover, pumpkin is a rich source of β -carotene and can also be utilized in combination with other vegetables and fruits to enrich the nutritional properties of such products.