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Pumpkin: Superfood with nutritional and health benefits

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Abstract

Pumpkin is produce all over the world for a number of purposes and is members of the genus *cucurbita* and family *cucurbitaceous.* Even though the seeds of several vegetables have a high nutritional value, they are nearly usually thrown away as trash, even if the meat has long been a part of the Indian diet. Despite possessing very nutritious and high- quality oil and rich source of protein, the seeds are frequently utilized as animal feed, broken up for fertilizer, or even thrown away after harvest. Application is seen as a viable substitute for adding nutrients to food items and may be eaten as food, offering a wealth of oil and nutrients. Primary and secondary metabolites, such as proteins, carbohydrates, monounsaturated and polyunsaturated fatty acids, carotenoids, tocopherols, tryptophan, delta-7-sterols and many other phytochemicals. Thus, it presents a fresh chance to investigate the potential for manufacturing processes for various value- added goods made from pumpkin seeds. This paper review previous studies on the nutritional and health advantage of pumpkin seeds, which may be used as an excellent substitute for adding nutrients to food items and eaten as food since they are a high source of oil and nutrients.

Keywords: Nutritional, Manufacturing, Substitute, Therapeutic and Health.

Introduction

Pumpkins are members of the *cucurbitaceae f*amily and genus *cucurbita.* one of the commonly grown vegetables, pumpkin fruit is exceptionally high in essential antioxidants and a wonderful source of carotenoids, which play a significant role as provitamin A. the majority of individuals

in underdeveloped nations get their vitamin A mostly via carotenoids. Pumpkin seeds, like those of other cucurbitaceae members, are found in the hollow cavity in the middle, with a net- like mucilaginous network scattered throughout. In order to yield high-quality seeds, the pumpkin fruit is often allowed to fully develop. Pumpkin fruit can range in seed content from 3.52% to 4.27 percent. Even though the seed of various vegetables have a high nutritional value, they are nearly usually thrown away as trash, even if the meat has long been a part of the Indian diet.

Following harvest the seeds are frequently thrown away, broken up for fertilizer, or fed to animals. Only little amounts of salted and roasted seeds are consumed in India, where they are wasted as animal fodder. The availability of animal protein in many emerging nations is insufficient to satisfy the fast expanding population's protein demands **(Ahmed and Khan, 2019).** Pumpkin fruit has a chance to take a new and developing market share in the snack food sector thanks to growing public knowledge of sustainable agriculture, clean and efficient energy, and waste management technology. As a healthier substitute for other fried snacks, pumpkin fruit is now gaining popularity in the snack food sector. The need for novel, economically feasible, and nutritionally good foods has grown significantly in India during the past ten years. as a result, a lot of focus has been placed on using vegetable by- products that are not widely utilized by the public or food sector **(Ardabili *et al*., 2011).** In light of the aforementioned information, a thorough evaluation of the literature on the nutritional makeup and health advantages of pumpkin fruit has been conducted and is presented below.

Nutritional profile of pumpkin Fruit

Depending on their orgins and growth conditions, their nutritional makeup will also vary (i.e.,*C maxima, C. pepo, C. moschata*). Additionally, studies have shown that pumpkin flesh and seeds are low in calories and a good source of proteins, carotenoids, tocopherols, and antioxidants. Because of its nourishing and health- promoting qualities, pumpkin fruit and its derivative products have grown in popularity in the fields of agriculture, medicine, and food processing. notably, different species and cultivars of pumpkin cultivated in different locations have different chemical compositions. Pumpkin cultivated in different locations has different chemical compositions. Pumpkin primary ingredients are pulp and seeds **(Asiedu *et al,* 2014).** Pumpkin pulp contains minerals, polysaccharides, pigments, amino acids, and active proteins. Along with being a strong source of lipid and proteins, they are also a great source of potassium, phosphate, and magnesium. Pumpkin pulp contains a variety of nutrients and health- protective substances, including proteins, carotenoids, minerals salts, vitamin, and polysaccharides like pectin. Other components include phenolic compounds and terpenoids **(Askari *et al.* 2017).**

The frequent of food provides the body with minerals it needs. Numerous physiological functions depend on minerals. Pumpkin may include a number of minerals that are vital to human health. Pumpkin pulp is a rich source of phytosterols and phytonutrients. According to in vivo research, the carotenoids, tocopherols, and sterols present in goods made from pumpkin have a variety of biological effects. Pumpkin seeds, which are usually considered agricultural trash, contain bioactive compounds with intriguing nutraceutical properties (**Fernandez *et al.,* 2005).** Pumpkin seeds are a nutritional powerhouse and a weapon in the fight against diseases like arthritis, inflammation, prostate cancer, and more since they include the elements zinc, phosphorous, magnesium, potassium, and selenium. Pumpkin seeds were often thought to be a waste of money, but their nutritional worth may now be important in the food chain. They have no detrimental effects on human health and are safe to consume on a daily basis **(Huang *et al.,***

2004).

Health benefits of pumpkin fruit

It has a claimed that pumpkin fruit powder has antidiabetic qualities. according to the results of this study, pumpkin powder tends to raise the body's insulin levels, which lowers glucose levels. Consequently, it also reduces the chance of renal injury. The enzyme a glycosidase, which is found in the epithelial mucosa, typically breaks down complex carbohydrates in the small intestine **(Jaiswal *et al.*, 2012).** Because a glycosidase breaks down glycosidic linkages found in complex carbohydrates, blood glucose levels rise. It supports the findings that pumpkin tends to increase the production of insulin and decrease bloods glucose levels **(Stevenson *et al.*, 2007).** Pumpkin may lower postprandial glucose levels when used in the early stages of diabetes. By encouraging the release of insulin and averting many of the consequences linked to diabetes, pumpkin helps control blood glucose levels. With this in mind, it is said that pumpkin contains antidiabetic qualities and can help diabetic people avoid hyperglycaemia **(Kowalska *et al.*, 2017).** However, researchers were unable to adequately describe the precise mechanism of action of pumpkin against diabetes using these data**.** According to reports, eating pumpkin seeds is negatively correlated with the chance of developing numerous cancers, including lung, breast, and rectal cancer**(Rolanik and Olas 2020).** The seed protein was easily seen, and the fluted pumpkin leaves came together to shield the brain cells from PEM- included oxidative damage. The effects of processed and natural pumpkins were evaluated. Several researches have already documented pumpkins liver protective properties. Pumpkin has a positive impact on renal function in addition to atherogenicity and blood lipid profile. Due to its anti-inflammatory qualities, pumpkin has been shown to have a significant impact on inflammatory conditions including arthritis **(Roongruanasri, 2015).**

Conclusion

Pumpkin is a cheap vegetable that is grown all over the world and is a member of the cucurbit family. Rich amounts of micro and macronutrients, such as carbs, fiber, amino acid, MUFA, PUFA, tocopherols, and carotenoids, may be found in the seeds, skins, and pulp of pumpkins,

numerous bioactive phytochemical substances found in pumpkin have demonstrated positive health outcomes and might be a preferred element in pharmaceutical and functional food products. Since each of these elements is vital to the body's regular functioning, they may all be used as effective thereuptic agents to treat a variety of illnesses. Pumpkins have been shown in earlier research to have a major role in the management and treatment of depression, diabetes, cancer, liver problems, and cardiovascular illnesses. Moreover, cucurbit species are used as anti-inflammatory, antibacterial, and antioxidants.

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