International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)
ISSN :2581-9925, Impact Factor: 7.555, Volume 07, No. 02(I), April- June, 2025, pp. 19-22

Benefits of Nutritionally Dense Super Food Chia Seeds

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ABSTRACT

The desert plant Salvia Hispanica, a member of the mint family, produces the delicious seed known as chia. The omega-3 fatty acids found in chia seeds are abundant. Because of its high antioxidant content, the seeds don't quickly decay and may be kept for extended periods of time without being rancid. In addition to calcium, phosphorus, magnesium, manganese, copper, iron, molybdenum, niacin, and zinc, it offers a lot of fibre. Chia's nutritional composition is what gives it its health advantages. By slowing digestion and lowering LDL cholesterol, its fibre may help avoid sharp spikes in blood sugar levels. The seeds' omega-3 fatty acids can improve cardiovascular health by lowering cholesterol and controlling blood pressure. The particular omega-3 found in chia, like other plant sources, is ALA (alpha-linolenic acid), which has been linked in many studies to a decreased risk of sudden cardiac death. Whole grains, cooking oils, lentils, and soy were the ALA sources in the pertinent studies. The desire for night time snacking is reduced by 50% and obsessive thoughts about food are reduced by 60% when a high protein diet is consumed. For those who consume little to no animal products, chia seeds are a great source of protein. Its soluble fibre expands in our stomachs after absorbing a lot of water, which should make us feel fuller and slow down the absorption of food. The high protein and fibre content of chia seeds has been linked to weight reduction. Nevertheless, research on chia seeds has shown contradictory findings. The omega-3 fatty acid ALA is abundant in chia seeds. The most crucial omega-3 fatty acid, DHA, is difficult for humans to convert from this. Chia seeds are rich in a number of minerals that are critical to healthy bones. This comprises protein, calcium, phosphorus, and magnesium. Chia seeds are generally beneficial to health. According to animal research, they may enhance insulin sensitivity and blood sugar regulation, stabilising blood sugar levels after meals.

***Keywords**: Nutritionally Dense Super Food, Chia Seeds, Alpha-Linolenic Acid, Omega-3 Fatty Acid, DHA.*

Introduction

Global public health consciousness has raised demand for functional foods with a variety of health advantages. The public is increasingly becoming more aware of the use of traditional medicine's therapeutic foods to avoid conditions including diabetes, obesity, and heart issues. A traditional meal in central and southern America is chia seed, which comes from the Salvia hispanica L. plant. It is currently commonly taken for a number of health advantages, particularly for preserving a healthy level of serum lipids.

Omega 3/6 oil and phenolic acid, which are found in chia seeds, contribute to this action. The health advantages of chia seeds are justified by their active constituents; nonetheless, scientific study is required to confirm the safety and effectiveness of this natural product or therapeutic food. The annual herbaceous plant Salvia hispanica L. produces the little, tasty seeds known as chia. Chia seeds are prized for their nutritional and therapeutic qualities. It has protein, which includes all of the required amino acids, vitamins, calcium, and other vital minerals, as well as polyunsaturated fatty acids, dietary fibre, and beneficial omega-3 fatty acids.

Chia is a very popular ancient grain in many nations' modern diets because of its high α-linolenic acid content, which makes it an excellent source of omega-3 fatty acids (about 65% of the oil content). Numerous physiological processes inside the human body have been linked to omega-3 fatty acids. With

the inclusion of chlorogenic acid, caffeic acid, myricetin, quercetin, and kaempferol—all of which are thought to have protective effects on the heart and liver as well as anti-aging and anti-carcinogenic properties—chia seeds are a possible source of antioxidants.

Along with having a greater content of healthy unsaturated fatty acids, gluten-free protein, vitamins, minerals, and phenolic compounds, it is also a fantastic source of dietary fibre, which helps with diabetes mellitus management and the digestive system. Chia has anti-inflammatory, anti-oxidant, and anti-blood pressure properties that help regulate diabetes, dyslipidaemia, and high blood pressure.

Research on chia seeds has accelerated in the scientific community in recent years, and several novel and intriguing findings on its nutritional qualities, phytochemicals, and transcripts linked to the triacylglycerol biosynthesis pathway have been made. Chia seeds are said to be among the healthiest foods on the globe since they are nutrient-dense and beneficial to the body and brain. Supporting the digestive system, encouraging good skin, building stronger bones and muscles, lowering the risk of heart disease, diabetes, and ageing symptoms are just a few of the health advantages of chia seeds. Recent studies on the pharmacologic characteristics of chia seeds have prompted many people to assert or think that chia offers several (almost miraculous) health advantages, such as:

- Encouraging strong bones, muscles, and skin
- Assisting the digestive and cardiac systems
- Easing weight loss
- Inhibiting cancer
- Plummeting the emblems of ageing
- Helping in the dealing of diabetes and metabolic syndrome

Nutritional Properties

Numerous studies have been conducted on the nutritional qualities of chia seeds, and the results have recently been evaluated in a number of publications. Omega-3 fatty acids make about 60% of its high lipid content (40%). Human high-density lipoprotein (HDL), which guards against heart attacks and strokes, is increased by omega-3 fatty acids. In addition, chia seeds are rich in vitamins, minerals, and antioxidants, and they also include high biological value protein (15–25%), carbs (26–41%), fibre (18–30%), and ash (4-5%).

USDA's National Nutrient Database states that a 28-gram serving of chia seeds has 5.6 g of protein, 8.4 g of fat, 13.07 g of carbohydrates, 11.2 g of fibre, and 131 calories of energy without the presence of sugar. Chia seeds have over 80% fibre, which makes up the majority of their carbohydrate composition. In fact, one ounce (28 g) of chia seeds has 11 g of fibre, which is a substantial amount of the daily fibre intake that is advised for both men and women (25 and 38 g respectively). 95 percent of the fibres are insoluble. There is evidence linking insoluble fibres to a lower incidence of diabetes. Similar to soluble fibres, some insoluble fibres can ferment in the gut to facilitate the production of short-chain fatty acids and enhance colon health. In water or other liquids, the fibres in chia seeds may absorb up to 10–12 times their own weight, transforming the seeds into a gel-like substance. The high concentration of heart-healthy omega-3 fatty acids in chia seeds is one of its distinctive qualities. Alpha linolenic acid (ALA), an omega-3 fatty acid, makes up over 75% of the lipids in chia seeds, whereas omega-6 fatty acids make up around 20%. Even more so than flaxseeds, chia seeds are the most well-known plant-based source of omega-3 fatty acids. Due to overconsumption of omega-6-rich oils, the significance of the ratio of omega-6 to omega-3 in the diet has been shown time and time again. This ratio is commonly reported at 15–17/1.

Chia seeds encourage a lower ratio of omega-6 to omega-3 fatty acids since they are a rich source of omega-3. A ratio of 2.5-4/1 may reduce the risk of a number of chronic illnesses, including cancer, heart disease, inflammatory disorders, and early mortality. The omega-3 fatty acids in fish or fish oil (EPA and DHA) are far more powerful than those in chia seeds (ALA), gramme for gramme. Before ALA can be used by the body, it must be transformed into the active forms, EPA and DHA, and this process is frequently ineffective.

Chia seeds contain 19% protein, which is similar to other seeds, but greater than most cereals and grains. A high protein diet has been related with greater fullness after meals and reduced food consumption. Chia seeds are a fantastic plant-based source of protein because they offer high-quality protein that includes all of the necessary amino acids. They are not, however, advised to be children's only source of protein. Those who are gluten sensitive can enjoy them because they are also gluten-free.

Although chia seeds are a poor source of vitamins, they are a good source of numerous minerals, the most common of which are mentioned below.

- **Manganese:** Found in whole grains and seeds, manganese is necessary for growth, development, and metabolism.
- **Phosphorus:** Typically present in diets high in protein, phosphorus supports tissue upkeep and bone health.
- **Copper:** An essential element for heart health that is frequently deficient in diets.
- **Selenium:** A vital antioxidant mineral that is involved in several bodily functions.
- **Iron:** An essential component of haemoglobin in red blood cells, iron aids in the transport of oxygen throughout the body. Chia seeds may not absorb phytic acid efficiently due to their high content.
- **Magnesium:** Frequently lacking in the Western diet, magnesium is essential for several bodily functions.
- **Calcium:** The most prevalent mineral in the human body, calcium is necessary for healthy bones, muscles and neurones.

Chia seeds contain phytic acid, which may decrease the absorption of some nutrients including iron and zinc. Numerous beneficial plant components can be found in chia seeds.

- **Chlorogenic Acid:** An antioxidant that may reduce blood pressure.
- **Caffeic Acid:** This compound may aid in the body's battle against inflammation and is found in large quantities in plant-based meals.
- **Quercetin:** A potent antioxidant that may lower the risk of osteoporosis, heart disease, and some types of cancer.
- **Kaempferol:** An antioxidant that has been linked to a lower incidence of chronic illnesses including cancer.

Consumption of Chia Seeds

A daily intake of 30.8 g of fibre is recommended for males under 50 and 25.2 g for women under 50, according to the United States (U.S.) dietary recommendations for 2015–2020.For persons over 50, the recommended daily intake for males is 28 g, and for women, it is 32.4%. The majority of individuals only take in half of that amount. A plant-based diet that includes more fruits, vegetables, nuts, seeds, and unprocessed grains is the simplest method to boost your consumption of fibre. The 10 g of fibre in just one ounce of chia seeds is about half the amount that a woman over 50 should have each day.

Conclusion

Chia seeds are a great source of heart-healthy omega-3 fatty acids, fibre, antioxidants, and minerals. They have been connected to improvements in diabetes and heart disease risk factors, as well as advantages for gut health and digestion. Chia seeds deserve their reputation as a superfood since they are quite simple to include in a balanced diet.

References

1. *Adams JD, Wall M, Garcia C (2005) Salvia columbariae contains tanshinones. Evid. Based. Complement Alternat Med 2:107–110*
2. *Adams JD, Wang R, Yang J, Lien EJ (2006) Preclinical and clinical examinations of Salvia miltiorrhiza and its tanshinones in ischemic conditions. Chin Med 1:3*
3. *Ahmed M, Hamed R, Ali M, Hassan A, Babiker E (2006) Proximate composition, antinutritional factors and protein fractions of guar gum seeds as influenced by processing treatments. Pak J Nutr 5(5):340–345*
4. *Ali NM, Yeap SK, Ho WY, Beh BK, Tan SW, Tan SG (2012) The Promising Future of Chia Salvia hispanica L. J Biom Biotechnol. doi:10.1155/2012/171956 Alonso-Calderon A, Chávez-Bravo E, Rivera A, Montalvo-Paquini C, Arroyo-Tapia L (2013) ABCDLKF'K;GL';LKG*
5. *Armstrong D (2004) Application for approval of whole chia (Salvia hispanica L.) seed and ground whole seed as novel food ingredient.*

6. *Northern Ireland, R Ayerza R, Coates W (2001) Chia seeds: new source of omega-3 fatty acids, natural antioxidants, and dietetic fiber. Southwest Center for Natural Products Research & Commercialization. Office of Arid Lands Studies, Tucson*

7. *Ayerza R, Coates W (2002) Dietary levels of chia: influence on hen weight, egg production and sensory quality, for two strains of hens. Br Poult Sci 43:283–290*

8. *Ayerza R, Coates W (2004) Composition of chia (Salvia hispanica) grown in six tropical and subtropical ecosystems of South America. Trop Sci 44(3):131–135*

9. *Ayerza R, Coates W (2005) Chia: Rediscovering an ancient crop of the Aztecs. University of Arizona, Tucson*

10. *Brenna JT, SalemJr N, Sinclair AJ, Cunnane SC (2009) α- Linolenic acid supplementation and conversion to n-3 long-chain polyunsaturated fatty acids in humans. Prostaglandins Leukotrienes Essent. Fatty Acids 80:85–91*

11. *Bresson JL, Flynn A, Heinonen M, et al (2009) Opinion on the safety of Chia seeds (Salvia hispanica L.) and ground whole Chia seeds, as a food ingredient. J Eur Food Safety Authority 996:1–26*

12. *Cahill J (2003) Ethnobotany of chia, Salvia hispanica L. (Lamiaceae). Econ Bot 57:604–618*

13. *Campos MRS, Gonzalez FP, Guerrero LC, Ancona DB (2013) Angiotensin I-Converting Enzyme Inhibitory Peptides of Chia (Salvia hispanica) Produced by Enzymatic Hydrolysis. Inter J Food Sci Article ID 158482 8 pages. doi:10.1155/2013/158482*

14. *Hansel B, Nicolle C, Lalanne F, Tondu F, Lassel T, Donazzolo Y, Ferrières J, Krempf M, Schlienger JL, Verges B, Chapman MJ, Brucket E (2007) Effect of low-fat, fermented milk enriched with plant sterols on serum lipid profile and oxidative stress inmoderate hypercholesterolemia. Am J Clinical Nutr 86(3): 790–796*

15. *Hentry HS, Mittleman M, McCrohan PR (1990) Introduccion de la chia y la goma de tragacanto en los Estados Unidos. In: Janick OJ, Simon JE (eds) Avances en Cosechas Nuevas. Prensa de la Madera, Portland OH, pp. 252–256*

16. *USDA (2000) Dietary guidelines for Americans. 5th edn. Home and Garden Bull. No. 232, 11*

17. *USDA (2011) National Nutrient Database for Standard Reference, Release 24. Nutrient Data Laboratory Home Page. US. Department of Agriculture, Agricultural Research Service*.

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