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Healthy Seeds: Chia Seeds

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Chia plant, Salvia hispanica L., is a member of the Lamiaceae family and is native to Mexico. Chia seeds are oil seeds and one of the foods with excellent nutritional value, outstanding omega-3 fatty acid quality, gluten-free protein, and a high level of antioxidants that protect the seeds from microbial and chemical deterioration. Chia seeds can be consumed raw or added to beverages and cereal based foods. Due to its invaluable health benefits, chia is now acknowledged as a nutraceutical and is utilized as an antioxidant, anti-inflammatory, anti-hypertensive, antiarrhythmic, and antithrombotic.

Chia plant and seeds

The chia plant grows to a height of approximately 1 m, and its simple leaves have an acute apex, an oval-elliptical shape, and a length of 4 to 8 cm by 3 to 5 cm wide. A chia seed has a quasi-oval shape, measuring between 1 and 2 mm in length, 0.8 to 1.3 mm in diameter, and 0.8 to 1.4 mm in breadth. Its peel is smooth and shiny, and seed color can be black, brown, grey, black spotted, or white. The primary cell layer that protrudes from the mature chia seeds' epidermal cells is immediately ruptured when the mucilage inside it comes into contact with water, increasing the size of the seed and giving it a distinctive gel appearance.

Nutritional benefits

Chia is an oilseed that contains a wealth of nutrients, including lipids, carbs, proteins, dietary fiber, vitamins A, B, K, E, and D, minerals, and antioxidants. Utilizing chia seeds as a nutritional supplement has several benefits, such as strengthening bones and muscles, supporting the digestive system, encouraging healthy skin, lowering the risk of diabetes and heart disease, and more.

Chia seeds' lower concentration of saturated fatty acids (palmitic and stearic acids), adequate concentration of linoleic acid omega 6 (18–20%), and higher concentration of alpha-linolenic acid omega 3 (55–60%) make chia oil a preferred and alluring option for healthy food and cosmetic applications.

According to heavy metal analysis, chia seed has been found to be free from mycotoxins and to have safe levels of heavy metals, not exceeding the maximum metal levels for food safety. Chia seeds' lack of gluten is another important characteristic (Bueno *et al.*, 2010). Chia seeds have an oil content of up to 39% and up to 68% -linolenic acid, which is the highest known concentration.

Value-Addition

The chia seeds are ground into meal and then processed into biscuits, bread, muffins and cakes. By adding only, a small amount of roasted chia seeds which have a pleasant nut like flavour, during milling of wheat, enhances the flavour of a significant quantity.

After processing of chia seeds, chia flour can be kept for a long time and can be utilized as a high-energy food. Chianpinolli is a common method for making flour by roasting and grinding the seeds. The processed Chia seeds can be used to make tamales, tortillas, and a number of other Chiantoles, which are traditional Aztec beverages.

In water, the seeds swell significantly and produce thick mucilage. The gelatinous substance is used to flavor fruit juices and create a refreshing mint beverage. The seeds are frequently added to orange, lime, or citrus juice in Mexico after being soaked for 30 minutes or so until a gel forms. Additionally, gruel and pudding are made from gelled seeds. Salads, sandwiches, soups, and other dishes all contain sprouted seeds. Store-bought chia seeds can be added to pasta and other prepared foods as well as used as a nutty topping for cereals, yoghurt, salads, and other prepared foods.

Because of the fast-paced nature of modern living and rising urbanization, there is a growing need for quick food products, which are becoming more and more popular and taking up valuable shelf space in both homes and supermarkets. Chia seeds are suitable for use in a variety of industries, including baking, dairy, meat, oil, beverage, extrusion, snacking, and packaging. The majority of research has been done on the baking industry, with a smaller amount on the

dairy, extrusion, beverage, snack, and packaging industries. Chia seeds have the potential to be useful in the food business due to their high gum and mucilage content. The baking sector is the main user of the seeds. This is due to the baked goods' greater carbohydrate content relative to other necessary nutrients. Bread, spaghetti, biscuits, and cakes are a few items that have chia seeds in them. Additionally, chia seeds can be added to snacks, drinks, and other goods.

Chia oil

Chia is currently consumed as seeds and oil, both of which have similar benefits. Rich in polyunsaturated fatty acid, the oil contains α-linoleic acid, which is the biological precursor to eicosatetraenoic acid and docosahexaenoic acid. Numerous investigations have been conducted to determine the connection between chia seed oil and health issues. Chia seed and its oil have been shown in numerous trials to be beneficial for a number of conditions, including high cholesterol, diabetes, obesity and weight loss, bowel function management, low cognitive function, and cardiovascular disease. This indicates that the food, pharmaceutical, and nutraceutical industries have a lot of promise for chia.

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