

Health Benefits of Chia Seeds (*Salvia hispanica* L.)Nilesh Kumar Patel¹, Dr.Harsh Bhai patel²¹M.Tech. Scholar, ²Assistant Professor

Department of Food & Nutrition Science,

College of Food Processing Technology & Bio-Energy

Anand Agricultural University, Anand, Gujarat 388110

E-Mail: Patelnilesh12@gmail.com**ABSTRACT**

Dietary interventions have been attempted to lower the risk of obesity, diabetes and CVD by the reduction of hyperglycaemia and prevention of excess caloric intake as these are very common problems prevailing in present scenario. The need of the hour is to develop such therapeutic food products which not only prevent but also cure these diseases with no adverse effects. Chia seeds (*Salvia hispanica* L.) are one of the non conventional food stuffs which are rich in macro as well as micro nutrients along with phytochemicals. But due to lack of awareness, they are yet to be harnessed in the form of nutritional and therapeutic food products. Through this article, an attempt is being made to create awareness about the nourishing and therapeutic potential of Chia seeds.

Keywords: Chia seeds (*Salvia hispanica* L.), Omega -3 fatty acids, Diabetes mellitus, CVD, Non conventional food stuffs.

1. Introduction

The nutrition transition with progressive westernization of diets and sedentary lifestyles, propelled by socio-economic and technological development as well as globalization and accelerated urbanization, has led developing countries, and particularly their urban areas, to experience arise of non-communicable diseases. Among these non-communicable diseases, CVD and diabetes as cardio metabolic risk factors (CMRF) and the metabolic syndrome (Mets) have been recognised to be directly related to nutrition. CMRF show an escalating trend in most developing countries and are becoming leading contributors to the burden of diseases, death and disability.

The need of the day is to explore such un and under explored food stuffs which are rich in nutrients and phytochemicals and could be relished by incorporating in the food products without side effects. Chia seeds (*Salvia hispanica* L.) are one of the non conventional food stuffs which are rich in macro as well as micro nutrients along with phytochemicals. But due to lack of awareness, they are yet to be harnessed in the form of nutritional and therapeutic food products.

A chia seed (*Salvia hispanica* L) is an annual herbaceous plant of the Lamiaceae (mint) family. Its origin is believed to be in Central America, where the seed (historically called "chian" or "chia") was a staple in the ancient Aztec diet. The seeds of a related plant, *Salvia columbaria* (also called "golden chia"), were used primarily by Native Americans in the south-western United States [1]. The roots of another relative, *Salvia miltiorrhiza* (danshen), are used medicinally in China [2] and other countries [3]. The oval-shaped seeds of *salvia hispanica* are approximately 1mm in diameter and are dark-brown to greyish-white in colour. According to historians, the cultivation of chia reportedly ended with the fall of the Aztec civilization; however, Chia was rediscovered in the late 1900s and is now grown commercially.

2. Nutritive Value

Chia seed is composed of protein (15% - 25%), fats (30% - 33%), carbohydrates (26% - 41%), high dietary fiber (18% - 30%), ash (4% - 5%), minerals, vitamins, and dry matter (90% - 93%). It also contains a high amount of antioxidants [4]. *Salvia hispanica* seeds are thought to be high in omega-3, 6, and 9 essential fatty acids. These oils, unsaturated fatty acids, are the essential oils that body needs to help emulsify and absorb the fat soluble vitamins, A, D, E, & K. When there are rich amounts of linoleic acid sufficiently supplied to the body through diet, linoleic and arachidonic acids can be synthesized from linoleic acid.

Organic compound found in Chia seeds such as quercetin and kaemferol contribute to anti oxidant effect. Chia is a great natural source of antioxidants, including chlorogenic acid, caffeic acid, myricetin, quercetin and flavonols. They are rich in fiber and are a good source of minerals such as iron, calcium, magnesium and potassium [5] and has an exceptionally high total anti oxidant capacity (TAC) [6]. Chia seeds also provide a healthy supply of important vitamins and minerals, including boron, calcium (five times as much as milk and in a far more absorbable form), copper, iron, magnesium, manganese, molybdenum, niacin, phosphorus, and zinc.

The chia seed oil-extraction residual meal is a good source of dietary fiber and phenolic compounds with antioxidant capacity [7]. Chia seeds contain about 25-38% oil and have the highest known percentage of alpha-linolenic fatty acid (LNA, 18:3n-3), approximately 60% [8].

3. Health Benefits

As chia seeds are good source of unsaturated fatty acids which are essential for normal glandular activity, especially of the adrenal glands and the thyroid gland. They nourish the skin cells and are essential for healthy mucus membranes and nerves. The unsaturated fatty acids function in the body by cooperating with vitamin D in making calcium available to the tissues, assisting in the assimilation of phosphorus, and stimulating the conversion of carotene into vitamin A. Fatty acids are related to normal functioning of the reproductive system. Chia seeds contain beneficial long-chain triglycerides (LCT) in the right proportion to reduce cholesterol on arterial walls.

Chia seeds are very beneficial in losing weight without starving. Along with, this it is useful in balancing blood sugar levels in the body [9]. It is the richest source of omega -3 fatty acids, even more than flax seeds. Chia seeds are so rich in antioxidant that seeds don't deteriorate & can be stored for a longer period without becoming rancid [10]. chia seeds are an excellent source of dietary fiber, and consumption of chia seeds has been shown to slow the digestion of carbohydrates, making it an ideal food for people with Type 2 diabetes, as well as anyone struggling with blood sugar problems and insulin resistance.

Research shows that regular consumption of chia seeds also helps to improve metabolism, increase lean muscle mass, and lower unhealthy cholesterol.

Chia seeds can absorb more than 12 times their weight in water. Because of this fact, the seeds can significantly prolong the body's ability to remain properly hydrated, and therefore help the body to more effectively absorb and regulate electrolytes and nutrients, while also maintaining the proper intraand extracellular fluid balance to ensure healthy cell function.

A correlation between high-saturated fatty acids (SFA) and low polyunsaturated fatty acid (PUFA) intake and diseases such as cardiovascular diseases, diabetes, and metabolic syndrome were widely reported [11]. Besides, the additive effect of α -linolenic acid (ALA) and n-3 long-chain PUFA was observed to exhibit cardio-protective effects in women [12], which led to consequent human clinical studies of chia on disease risk factors. To date, four clinical trials have been carried out. Among these trials, only that of Nieman et al. [13] showed no health benefits from chia seed. This difference could be due to the treatment durations employed and also the actual biochemical components of the dietary chia seed used in the various studies. Nevertheless, later studies [11] demonstrated the benefits of chia to human health.

Another health benefit that chia seeds provide is that they can improve digestive and other gastrointestinal problems. When chia seeds are combined with water, a gelatinous substance known as a hydrophilic colloid forms. Such colloids are essential for maintaining the health and integrity of the mucosa lining the gastrointestinal (GI) tract. This lining in people who suffer from GI problems such as impaired digestion, heartburn, chronic flatulence, and inflammation of the intestinal tract is almost always damaged to some degree. Regularly consuming chia seeds can help to repair such damage and alleviate related GI disorders. Chia seed is great superfood for all people, including individuals exhibiting food allergies, food sensitivities, or food and chemical hypersensitivity. One study found no evidence of allergic response to chia, even among individuals having peanut and tree nut allergies.

So foods possessing properties which would be helpful for people suffering from common problems of the third world like Obesity, Diabetes and related problems of Cardiovascular & other degenerative diseases.

4. References

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