

## Health Aspects of Chia Seeds (*Salvia hispanica* L.) - An Overview

Jitendra Mehta<sup>1\*</sup>, Muhammad Sulaman Saeed<sup>2</sup> and Ayesha Saeed<sup>3</sup>

<sup>1</sup>School of Health & Allied Sciences, Career Point University, Kota, Rajasthan, India

<sup>2</sup>Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan

<sup>3</sup>Department of Botany, University of Education, Dera Ghazi Khan Campus,  
Sub Campus of University of Education, Lahore, Pakistan

\*Corresponding Author E-mail: [jitendra1242@gmail.com](mailto:jitendra1242@gmail.com)

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### ABSTRACT

*The chia plant has a major role in the field of medicine. It is also a well and complete diet. It is rich in fatty acids, minerals, dietary fibers, vitamins and proteins. These nutrients in chia have made it very nutritive and medicinal plant. From its roots, leaves, stems and seeds we get the different phytochemicals. Due to these chemicals, the human body combats with the problems of cardiovascular diseases, coronary heart diseases, nerve damages, bones weakening, liver problems, kidney problems and diabetes as well. Chia plant is grown in many countries of the world and is considered as a best remedy of different diseases. It is rich in unsaturated fatty acids like PUFA and MUFA etc. which stops the blood vessels blockage and blood pressure problems.*

**Keywords:** Chia seeds, Phytochemicals, Nutrition, Medicinal value, Vitamins, Minerals, Proteins, Fatty acids.

### INTRODUCTION

There are many plants present in this world which have many medicinal values and these plants or herbs are used as a cure for many chronic diseases (A de Pasquale, 1984). Chia plant has a great medicinal value and it has health benefits for mankind. The scientific name of chia plants is *Salvia hispanica* L. And it belongs to the family Lamiaceae or Mint family. It was first domesticated in Guatemala and Mexico (Ayerza, 1995). Its blossom starts in the summer period. It was early used as a food plant. It was considered as staple food crop for Aztecs and its seeds show its high

profile of the nutrients. It has high nutritional and medicinal worth. It is rich in omega-3 fatty acids. Its seeds are used as foods items and its oil is used as agents in paintings and cosmetics. Recently, Chia seeds are cultivated in the Bolivia, Ecuador, Mexico, India and Guatemala. There is presence of bioactive chemicals in the plants which have medicinal and nutritional values (Ayerza & Coates, 2005). These compounds have also aromatic characters. For a very long time, these plant compounds are utilized by humans as dyes, fragrances, pheromones, insecticides, flavors, drugs and antioxidants.

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But there has been seen a great decrease in utilization of these phytochemicals as recent advanced synthetically produced chemicals are becoming as an alternate substitute part of the treatments (Austria et al., 2008). There is also another health aspect of these phytochemicals because these phytochemicals are not harmful for the human health and are totally safe for human use but the synthetic chemicals and medicines are very harmful for human health because it have many potential side effects on human health. So, the researchers and agriculturists are trying their best to include these phytochemicals into the biopharmaceutical and agriculture industries as well. Chia seeds have a lot of importance in the remedies of different diseases as it has quality proteins and amino acids which are the best solutions of the skin, liver, stomach and many other problems. In this overview, we

shall discuss many health aspects of chia plants and its seeds (Adams, 2006).

### Nutritional Profile of the Chia Seeds

According to the researchers and scientists, seed normally is defined as little/tiny embryonic plant along with outer coatings. These are the products of the ripened ovules of the plants afterward the process of reproduction. Outer layers of seeds includes the minerals like calcium, potassium and magnesium (Ayerza & Coates, 2007). The seeds of Chia plants are enriched with vitamins like vitamin K, Vitamin E, B<sub>6</sub> and B<sub>1</sub>. These seeds are also very rich in the phytochemicals like fibers etc. And these chemicals save the seed from the oxidative pressures. These chia seeds are very rich in the linoleic acids and  $\alpha$ -linolenic acids as well. Nutritional value of the Chia seeds is given below in Table 1.

**Table 1: Nutritional Value of Chia Seeds per 100gm**

Water	5.9g
Energy	487kcal
Protein	17g
Fats	31g
Carbohydrates	42g
Total dietary fats	35g
Total saturated fats	3.35g
Total mufa	2.3g
Total pufa	23.8g
Calcium	632mg
Iron	7.80mg
Magnesium	336mg
Phosphorous	861mg
Potassium	406mg
Sodium	16mg
Zinc	4mg
Vitamin C	1.7mg
Thiamine	0.70mg
Riboflavin	0.17mg
Niacin	8.89mg
Vitamin B-12	0.00 $\mu$ g
Vitamin A	55IU
Vitamin E	0.51mg

Source: U.S. Department of Agriculture (2018)

### Health Benefits of Different Nutrients Present in the Chia Seeds

With accordance to different researches, it is obvious that the intake of saturated fats is linked with the higher risks of the coronary heart diseases and on the other hand the intake of unsaturated fats can decrease the chances of blood cholesterol high levels and may prevent from the heart and cardiovascular diseases (Bushway, 1981). It is analyzed in the laboratories after many tests that chia seeds contain unsaturated fatty acids which are rich

in the PUFA and this PUFA is very helpful in the improvement of new infant nourishment, cardiovascular diseases prevention, obesity, blood glucose increase and inflammations. Thus, the more in take of PUFA and MUFA is extremely helpful in the development of human body. These chemicals have main role in the membranous structures, nerve tissues and retinal tissues. Human's body is unable to synthesize these chemicals itself, so by the other sources it is very necessary for mankind to intake the PUFA and MUFA. These chia

seeds contain 0.00% cholesterol or may have a very little amount when we take a massive amount of chia seeds. The other nutrients are dietary fibers. Fibers have two kinds. One is soluble fiber and second one is insoluble fiber. Soluble dietary fibers are very helpful in lowering the blood glucose level after the carbohydrates consumption. These dietary fibers are good in reducing the blood cholesterol level and maintaining the insulin level by digesting properly the carbohydrates. There is a big reduction in heart, brain, limbs, stomach, liver, bladder, kidneys and many other problems (Burge et al., 2002). This fiber dissolves the cholesterol found in blood vessels by mixing with it and opens the blocked vessels. The other nutrients are tocopherols. Tocopherols are found in seeds of chia plants. These include alpha tocopherols, ascorbic acid, niacin, thiamine and many

others. These sub members of tocopherols are performing functions like anti-oxidants. They maintain the functions of body in a well manner. Higher levels of vitamin E intake has negative effects in case of adults because its higher levels may cause problems of blood agglutinations (Brenna, 2009). So, adults may avoid heavy intake of it. Other important nutrients are minerals which are found abundantly in the chia seeds. The important minerals are calcium, potassium and magnesium. These perform in body as co-enzymes or co-factors (Burge & Wooton, 2002). These systems control the glucose digestion and assimilation. In body physiological and biochemical systems, they perform their role such as glycolysis, cellular respiration and central dogma (Chicco et al., 2008).



Fig. 1: a): Chia seeds, b & c): Chia flowers, d): Chia seeds contains, e & f): Chia seeds added with foods  
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**CONCLUSION**

It is concluded from the above discussion that chia seeds are rich in phytochemicals like fatty acids, minerals and fibers etc. They have a great role in maintaining the human body functions. Proper ingestion of chia seeds can prevent the body from several diseases as it has high medicinal value.

**Future Aspects**

In future, farming communities must pressurize on the more cultivation of chia plants. Because this plant has high nutritional and medicinal values. Chia seeds are used in different disease and it has no side effects.

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