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## Nutritional Aspects of Chiya Seeds

Review

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### ABSTRACT

*Chiya seeds are super nutritional foods, which can be included in the diet and will have great impact for the persons who consume it in diet routine. It has humungous health benefits. The abundance of medicinal properties and health benefits such as, for weight loss, to treat type II diabetes, for nourishment of eye of chiya seed are reviewed. The nutritional properties and important beneficial components present in chiya seeds are also reviewed.*

**Keywords:** *Chiya seed, Health, diet, Nutrition.*

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### INTRODUCTION

An important population behavior is a strong tendency to use foods, nutritional supplements or diets that have reporting of weight loss (Vaughan RA et al., 2014). Often, studies show a discrete weight loss or only in abdominal region, however the data that becomes popular relates only to weight loss without the details of the magnitude. Indeed, a review of literature showed the presence of diverse nutritional supplements with a potential property of weight loss, but none showed reduction bigger than 2 kg (Leidy HJ, 2014). It is well known that dietary fiber may promote weight loss, enhance in lipid profile and blood glucose and reduce blood pressure. These fibers can lead to weight loss by delaying gastric emptying and increasing secretion of intestinal hormones which promote satiety. Chia (*Salvia hispanica* L.) is a source of dietary fiber that has been analyzed in recent years. Studies show that eating chia seeds can reduce systolic blood pressure, postprandial blood glucose and inflammation, and increases  $\alpha$ -linolenic acid and plasma concentrations of eicosapentaenoic acid. There are a lot of health benefits for chiya seeds (Rubilar., 2010).

Flax (*Linum usitatissimum*, family Linaceae) is cultivated in more than 50 countries; however, Canada is its major producer (Kasote et al., 2013). Nowadays, flax seed plays a major role in the field of diet and disease research because of its benefits to health and disease prevention properties. The main component of flax seed is oil (36-40%); Flax seed oil's major constituent is LNA (57%) (Ghule et al., 2013). Flax seed is an important source of fiber and protein, 30% and 20%, respectively and is rich in phenolic compounds, known as lignans, responsible for its antioxidant activities (Rubilar., 2010). Furthermore, flax seed has been associated with improving the nutritional value by increasing the concentration of omega-3 fatty acids in different animals and foods, fish ruminant and dairy goat. There has been a growing interest in the use of chia, perilla, and flax seeds in the diet since these oilseeds have become more popular functional food because of their reported benefits in

cardiovascular diseases, cancer, neurological, and hormonal disorders and also for their antioxidant activities((Vuksan V.et.al,2008). Due to the high intake of these oilseeds and the fact that there are few studies in the literature on their composition and antioxidant capacity, the aim of this study was to characterize the chemical composition, antioxidant capacity, and fatty acid composition of chia, perilla, and flax seeds(Vuksan V.et.al.,20110).

### **CHIA SEEDS FOR EYE HEALTH**

Chia exhibits a very favorable Omega3 to Omega6 ratio of 3 to 1. Because chia contains very high levels of Essential Fatty Acids (EFAs) and antioxidants, Researchers recommends it for all around ocular, retinal and macular health. It is very beneficial for healthy tear production, the macula and retina, and the lens system of the eye(Lattimer JM.et.al., 2010). Chia also contains an extremely high percentage of the Omega3, ALA (alpha-linolenic acid). Resarchers recommends chia as an importantcomponent of his Holistic Treatment Program for pati ents with Macular Degeneration, dry eye, and to help minimize Diabetic R Etinopathy(Babio N.et.al., 2010).

### **CHIA SEEDS FOR DIABETIC CONTROL AND WEIGHT LOSS**

Chia is a nutritional super food bullet, with an even higher antioxidant (ORAC) value than blueberries. The high fiber content keeps you feeling full and satiated; you therefore tend to eat less. It is also an excellent appetite suppressant. The fiber in chia slows down the conversion of carbohydrates to sugar, and the conversion of sugar to fat(Whelton SP.et.al., 2005). This provides benefits to both dieters and diabetics, because it helps your blood sugar level become stabilized, making your insulin more efficient at doing its job. The major cause of Type 2 diabetes is insulin inefficiency and insulin resistance. In addition, because chia contains a balanced blend of protein, complex carbohydrates, healthy fats and fiber, it helps boost energy and metabolism, promotes lean muscle mass, lowers blood cholesterol, and stabilizes blood sugar (Anderson JW.et.al., 2009). One ounce of chia has a Glycemic Index of 1.0, and contains soluble and insoluble fiber. Because of the high levels of fiber and healthy oils, chia is a great addition to a detoxification program(Vuksan V.et.al., 2007).

#### **Lose Weight Easily, Without Starving**

The Chia Seed is a dieter's dream come true. The tiny, healthy seeds can be made to taste like whatever you want, and their unique gelling action keeps you feeling full for hours. Hunger is a main enemy of real weight loss, and you don't want to fight it with jittery expensive pills. When a chia seed is exposed to water, it forms a coating of gel, increasing its size and weight. Since the gel made of water, it has no calories. It is also difficult to remove from the seed, meaning that it helps your body think it is full, without adding calories ((Lattimer JM.et.al., 2012).

#### **Balance Blood Sugar, Lower risk of Diabetes**

Keeping balanced levels of blood sugar is important for both health and energy. Blood sugar may spike after meals, especially if you eat high-starchy foods or sweets. This can lead to 'slumps' in your day where you feel tired and out of energy. By balancing your blood sugar, you not only lower your risk for type 2 diabetes, but you also ensure steady, constant energy throughout your day. But how does the Chia Seed help with this? Both the gelling action of the seed, and its unique combination of soluble and insoluble fibre combine to slow down your body's conversion of starches into sugars (Lattimer JM.et.al., 2012). If you eat chia with a meal, it will help you turn your food into constant, steady energy rather than a series of ups and downs that wear you out. With the copious over-processed foods and white flour on the market today, rich sources of fibre are harder to come by. These foods of convenience have contributed to the rise of diverticulitis. Irregularity is a big factor in this risky condition. To help ensure regularity, you need plenty of soluble and insoluble fibre in your diet. If you don't want to eat celery and whole-grain everything...or piles of bran flakes, the Chia Seed is here to help. Each seed is coated with soluble fibres which aid its gelling action. The exterior of the seed is protected by insoluble

fibre. The insoluble fibre is unable to be digested (it does not contribute any calories, or break down) so instead, it helps keep food moving smoothly

### **Rich in essential fatty acids**

One serving (2 ounces) of chia seeds contains approximately 11 grams of fat. Of these, 1 gram is saturated fat, while the remainder is comprised of essential polyunsaturated and monounsaturated fats, including omega 3 and omega 6 fatty acids. In fact, according to a 2005 study published in the Nutrition Research journal, chia seeds are the greatest plant based sources of alpha -linolenic acid (ALA). ALA is an essential omega 3 fatty acid that has been known to prevent cancer, lower the risk of cardiovascular diseases, reduce cortisol levels and much more. Moreover, chia seeds and other foods that contain optimum omega 3/omega 6 balances are known to improve brain function, since our brains are built from the same fats (Leidy HJ,2014). It has certain medicinal properties. Modification of the immune response by pharmacological agents is most effective in therapy (Sreeremya.S, 2016).

### **Excellent source of protein and energy**

According to chia experts, chia seeds consist of at least 20 percent protein. This protein is high quality; the amino acid score for chia seeds is 91 out of a possible 100, which dwarfs the scores of other protein packed seeds such as flax seed. This perfect amino acid profile makes chia seeds an excellent 'complete' protein source for vegetarians, as well as a potent energy source for bodybuilders and athletes (Tonial, I. B, 2010). Chia was once called the "Indian Running Food" due to its significant energy boosting properties. Help treat diabetes. Several studies have confirmed the long held belief that chia seeds can help treat diabetes. One January 2009 study published in the British Journal of Nutrition, for instance, found that chia could normalize insulin resistance in diabetic rats while reducing the fat and cholesterol in their blood (Vuksan V.et.al., 2010). These findings reinforce the results of an earlier 2007 study for the Diabetes Care journal, which concluded that chia improved "major and emerging cardiovascular risk factors in type 2 diabetes" in 20 patients (Ruiz, M. R,2005). These impressive results are often attributed to the fact that chia seeds form a gel when ingested, which slows the catabolism of carbohydrates, allowing the digestive system to process sugar in a more gradual and stable manner (Jin F.et.al., 2010)

### **Chia Seeds: Storage**

Chia seeds can easily be stored dry for 4-5 years without deterioration in flavor, odor or nutritional value

### **Applications**

There are two varieties of Chia seed available, black seed and white seed. Derivatives such as milled Chia seed, Chia seed flour and Chia seed bran are also available. Adding Chia seed to your food can give it an excellent nutritional profile – without compromising the taste. No other whole grain compares nutritionally.

### **CONCLUSION**

This study revealed that the seeds evaluated, chia, golden flax, brown flax, white perilla, and brown perilla are excellent sources of alpha-linolenic acid (LNA), which is a precursor of long chain PUFA metabolically synthesized in the human body. These seeds can be used in natura as flours and/or oils to enrich food products with LNA and thus change the n-6-to- n-3 ratio in the diet. Among the flax and perilla species, the gold and white species had higher levels of omega-3 and -6, while both brown flax and perilla seeds showed higher antioxidant capacity and chia showed a higher content of fatty acids and intermediate antioxidant capacity.

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