

Efficacy of *Salvia hispanica* (chia seeds) supplementation in promoting weight loss in obese individuals

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Abstract

Background

Excess fat accumulation that poses a health risk to people is known as obesity. The World Health Organization estimates that over 650 million individuals worldwide suffer from obesity. Risk factors of most chronic diseases, including diabetes, heart disease, metabolic disorders, osteoarthritis, and cancer, are increased by obesity. Because of the correlation between increased body mass index (BMI) and ovarian morphological abnormalities and follicular developmental issues, infertility is highly prevalent in obese and overweight. The herbaceous species *Salvia hispanica*, commonly referred to as chia seeds, is a member of the Lamiaceae family and used both as food and medicine. Research has recently focused on its speckled chemical composition, which may help those who consume it. In addition to being a high source of soluble and insoluble dietary fibres, *Salvia hispanica* may also have anti-inflammatory and antioxidant properties that help people lose weight and reduce the negative effects of obesity.

Aim

More focus has been directed to the possible positive health effects of omega-3 and fiber-rich seeds in the combating over weight and obesity. According to preliminary research, eating white *Salvia hispanica* L. (*Salba chia*) seeds may prolong feelings of fullness and might aid in weight loss. Thus the objective of this study to explore the effects of consuming *Salvia hispanica* on body weight, BMI and waist circumference in participants who were overweight or obese, as well as its safety.

Materials and methods

50 over weight and obese subjects were included in the study. Their diet was supplemented with 30 gm of *Salvia hispanica* daily for 12 weeks and weight, BMI and waist circumference were documented and analysed before and after study period.

Results

A total of 50 over weight and obese subjects aged between 25-50 years were recruited in the study. Of the fifty subjects in our study, 35 (70%) were females and 15 (30%).

Conclusion

It showed decreases in both weight and waist circumference among the participants. These findings suggest that *Salvia hispanica* seeds could assist in weight management for overweight and obese individuals. Additional studies are necessary to determine if these effects are sustained over time.

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Introduction

Salvia hispanica L., an oilseed utilized by the Aztecs for nutritional and medicinal purposes, was dubbed "running food" due to its energy-providing properties during extended trade journeys. [1] With over 80 varieties, commonly known as *Salba chia*, this plant exhibits varying nutritional profiles. Initial clinical studies indicate that *Salba* may enhance feelings of fullness, decrease waist size, reduce post-meal blood sugar levels, and positively impact other cardiovascular disease risk factors, suggesting its potential in weight control strategies. Both forms of dietary fibre, which are found in abundance in *Salba*, are associated with a lower risk of obesity and a greater sense of satiety. It also contains a complete protein profile with all essential amino acids. Comprising 21% protein, *Salba* offers one of the most filling macronutrients. The seed's 28% fat content includes 65% alpha-linolenic acid, which is an omega-3 fatty acid and is known for its satiating properties. Furthermore, *Salba* is high in minerals like calcium, which may help in maintaining weight. [2] The seed also contains antioxidants that could help reduce inflammation. [3] Given its

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Keywords

Salba chia, overweight, obese, weight, waist circumference.

nutritional composition, Salba may promote satiety, potentially supporting weight loss and consequently improving type 2 diabetes management and cardiovascular disease risk factors.

Materials and Methods

Research Design

Research design of the current investigation was based on pre-post intervention study. In this research design, a variable of interest is measured before and after an intervention in the same participants.

The study recruited

50 participants from the local area, consisting of 35 women and 15 men between 16 and 50 years old. Potential subjects were evaluated for eligibility using predetermined inclusion and exclusion criteria.

Ethics Approval and Participant Recruitment

The institutional ethics committee granted approval for the study (letter no. CSJMU/R&D/1454/2023, dated 19/09/2023). After obtaining informed consent, participants were provided with Salba chia seed supplements to add to their regular diet. The supplement was administered at a rate of 30 gm per 1000 Kcal intake. This dosage was selected because it was similar to that used in a prior long-term randomized controlled trial by Vertommen and associates [4], which found no negative side effects.

Supplement Administration

Weekly doses of Salba chia supplements were pre-packaged in pouches for each participant. Subjects were given instructions regarding the incorporation of supplement into their daily diets and were also advised to follow a reduced-calorie diet to achieve a weight loss of 0.5-1 kg per week.

Table 1: Nutritive value of 30 g study supplement

Nutritional composition	Chia seeds powder
Energy	115 Kcal
Protein	6.9 gm

Carbohydrate	11.2 gm
Fat	10.4 gm
Dietary fibre	10.5 gm

Study Protocol

The data gathering process included taking body

Table 2: Effect of Salba Chia seeds supplementation on anthropometric parameters

Variables	Baseline	End line	Mean reduction	Mean reduction (%)	p-value
Height (cm)	163±00.00	163±00.00	0	0%	NS
Weight (kg)	79.3±13.20	77.4±12.52	1.9	-2.45%	S
BMI (kg/m ²)	29.80±4.58	29.02±4.15	0.78	-0.29%	S
Waist Circumference (cm)	97.12±3.54	96±3.27	1.12	-0.11%	S

Values denoted as mean ±SD.

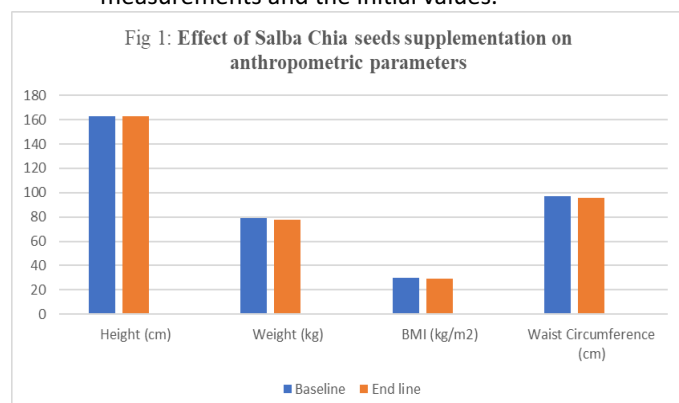
p-value <0.05=NS Not significant, >0.05=S Significant

measurements and evaluating dietary habits at the start and at regular points throughout the 3-month study duration. Body measurements which were measured before and after study included Height, Weight, Body Mass Index (BMI) as well as Waist circumference, while dietary evaluations involved collecting food intake information using proven methods such as food frequency surveys and diet recall interviews.

Results

Examination of Salba chia supplementation's impact on weight reduction showed decreases in body weight, BMI, and waist size among study participants. The average weight loss was 1.9 kg, equating to a 2.45%

decrease from initial measurements. Comparable patterns were seen for BMI, with a reduction of 0.78 kg/m² (0.29% loss), and waist size, with a decrease of 1.12 cm (0.11% reduction). A statistically meaningful difference was observed between the final measurements and the initial values.



Discussion

Given the circumstances, it's not surprising that the trial only resulted in minor, clinically insignificant weight reduction. These findings contradict those

from Nieman's [5] study on black chia seed weight loss. Participants were asked to add 30 g of chia daily to their daily diet. 30 g of Salba chia provided approximately 115 Kcal and participants may have

in body weight leads to improved overall health outcomes as indicated by several studies. [6] The current investigation did not achieve this range, indicating that participants did not experience clinically significant weight loss.

Nevertheless, current guidelines for managing overweight and obesity suggest that gradual and consistent weight reduction is considered the most beneficial and long-lasting approach for patients. Medical professionals are advised to consider any weight reduction as a positive outcome. [7] Therefore, even the minimal weight loss observed among study participants could have positive implications for their health.

Conclusion

The study findings supported the hypothesis that supplementation with Salba chia would not trigger

consumed more calories than normal. Our study aimed to facilitate weight loss by substituting dietary calories with Salba, rather than simply adding supplement calories to daily energy consumption. 5–10% reduction

unwanted side effects or induce any unfavourable reactions, which is consistent with earlier studies on this seed. Given the escalating rates and healthcare expenses linked to obesity, it is crucial to conduct additional research on Salba chia as a potential complement to calorie-restricted diets for weight reduction. In particular, future investigations should focus on whether Salba chia can contribute to sustaining weight loss over extended periods, as this area requires further exploration.

Conflict Of Interest

Declared none.

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