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# "A Comparative Review of *Tukhm Malanga* and Chia Seeds in the Gastrointestinal Disorders"

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**Abstract**

*Tukhm Malanga* (basil seeds) and chia seeds have gained significant attention in both traditional and modern healthcare systems for their therapeutic effects on gastrointestinal disorders. This review explores and compares the pharmacological properties, traditional uses, and clinical efficacy of these mucilaginous seeds in promoting digestive health. Drawing from classical Unani literature and contemporary biomedical research, the paper highlights the role of *Tukhm Malanga* in treating conditions such as constipation, hyperacidity, and irritable bowel syndrome, emphasizing its cooling and laxative properties. Chia seeds, rich in omega-3 fatty acids and soluble fiber, are examined for their potential as prebiotics and their impact on gut motility and microbiota balance. The comparative analysis underscores similarities in their mucilage content and digestive benefits, while also noting differences in nutritional composition and cultural usage. This synthesis aims to bridge traditional Unani wisdom with modern scientific understanding, offering insights into integrative approaches for managing gastrointestinal disorders.

**Keywords**: *Tukhm Malanga*, Basil Seeds, Chia Seeds, Gastrointestinal Disorders, Unani Medicine, Traditional Medicine.

## Introduction

Nutraceutical and functional foods play a crucial role in mitigating various lifestyle-related diseases, including diabetes, obesity, and cardiovascular diseases. Nowadays, considerable interest in products of plant origin has arisen due to the presence of numerous health-promoting constituents. In particular, an immense interest has shifted toward medicinal seeds because of their rich biochemistry and phytochemistry, and prophylactic properties[1]. Thus, they are considered as wonder foods/new gold or super nutrients and termed as super seeds, the seeds of the 21st century.

Basil seeds vs chia seeds may seem similar at first glance, but these tiny seeds come from different plants and offer unique nutritional and functional benefits for beverages. Every seed has unique qualities that can improve drinks' flavor, texture, and health benefits in various ways.

**Chia (***Salvia hispanica*), derived from the word “chian,” which means oily, is one such superseed belonging to the flowering herbaceous plant of the family Lamiaceae[2]. The seed is flat, oval-shaped shaped and white to brownish in color and contains high proportions of the essential fatty acid, α-linolenic acid, which is associated with maintaining healthy cholesterol levels, brain development, and the immune system. Besides a rich fatty acid profile, it contains a significant amount of dietary fiber, and the seed exudes a mucilaginous polysaccharide when placed in an aqueous medium,[3] which promotes digestion. Therefore, both chia seeds and their mucilage are nutrient-rich food sources [4].

**Basil (***Ocimum basilicum*), a mucilaginous herbaceous plant native to the Mediterranean region, is another herbaceous member of the mint family (Lamiaceae). Basil seeds, black ellipsoidal seeds, are often regarded as 'the king of herbs,'[5].

The Indian system of medicine uses basil seeds to treat stomachache, vomiting, and urinary problems.[6]

**Nutritional & physicochemical profile relevant to digestion**

The nutritional composition of ***Tukhm malanga*** contains approximately 15–20% protein, 25–35% lipids, and 40–45% dietary fibre, depending on the plant variety and environmental conditions[7]. The majority of their lipid fraction consists of unsaturated fatty acids, including linoleic (omega-6) and α-linolenic (omega-3) acids, which support anti-inflammatory and mucosal health functions. The seeds are also a good source of essential minerals such as calcium, magnesium, potassium, and iron—nutrients that are best for maintaining electrolyte balance and gastrointestinal motility [8].

**Physicochemical properties**

One of the distinct characteristics of ***tukhm malanga*** is its high mucilage content, which can be responsible for up to 20% of the seed's weight. The seed's outermost part immediately absorbs water when it's made hydrated, and its polysaccharide matrix swells to create a thick gel. A majority of this mucilage consists of complex carbohydrates, including galacturonic acid, glucomannan, xylose, and arabinose [8]. The physiological effects of the seeds on digestion are primarily due to their water-holding capacity and viscosity, which enhance stool hydration, facilitate intestinal transit, and provide a protective layer to the gastrointestinal mucosa.

**Nutritional and functional composition of chia seeds**

**Chia seeds** are attributed a high nutritive value, particularly due to their high content of dietary fibre and fat. Chia seeds have around 30–34 g of dietary fiber, with the insoluble fraction (IDF) constituting about 85–93%, and soluble dietary fiber (SDF) representing roughly 7–15%.[10,11]. Chia seeds contain around 30-34 g of dietary fiber, of which the insoluble fraction (IDF) accounts for roughly 85-93% and the soluble dietary fiber (SDF) is approximately 7-15%. 10,11. Chia seeds contain more nutritional fibre than dried fruits, grains, and nuts. The fatty acid profile is very interesting. It is characterised by high levels of polyunsaturated fatty acids, primarily α-linolenic acid (ALA), which makes up around 60% of all fatty acids. Lower concentrations of linoleic, oleic, and palmitic acids are present. Compared to flaxseed, chia seeds have more omega-3 acids. The beneficial ratio of omega-6 to omega-3 acids, which is roughly 0.3:0.35, must also be emphasized[12-17]. Chia seeds are a rich source of plant-based protein, contributing roughly 18–24% of their total mass[18]. Amino acid analysis shows that chia seeds contain all 10 essential amino acids, with notably high levels of arginine, leucine, phenylalanine, valine, and lysine. Their protein content is also abundant in non-essential amino acids, particularly glutamic acid, aspartic acid, alanine, serine, and glycine [13'18'19]. It is important to note that chia seeds are naturally gluten-free, making them safe for consumption by individuals with celiac disease[20]. Furthermore, chia seeds are rich in essential minerals, particularly phosphorus (860–919 mg/100 g), calcium (456–631 mg/100 g), potassium (407–726 mg/100 g), and magnesium (335–449 mg/100 g). They also contain notable amounts of vitamins, especially vitamin B1 (0.6 mg/100 g), vitamin B2 (0.2 mg/100 g), and niacin (8.8 mg/100 g)[18'21].

**Mechanisms of Action of *tukhm malanga* on Digestive Health:**

**Bulk-forming and stool-softening effects**

***Tukhm malanga*** can absorb up to 30 times its weight in water when hydrated, forming a thick gel. This mucilage enhances intestinal motility and supports easier defecation by increasing the bulk and moisture content of the stool[5'8].

**Viscosity and gastric emptying**.

In addition to extending satiety and regulating postprandial glycemia, the viscous gel slows gastric emptying and nutrient absorption. This system promotes metabolic control and digestive comfort[7].

*Tukhm Malanga* (basil seeds) have several digestive health-promoting properties, such as modulating prebiotics, protecting mucosa, and regulating stool. Their mucilage-rich composition supports intestinal motility and hydration, while the bioactive compounds provide antioxidant and anti-inflammatory benefits. Robust clinical validation is still lacking, despite promising findings from preclinical trials and traditional use. Standardised randomised controlled trials evaluating stool metrics, microbiome alterations, and long-term safety should be the main emphasis of future research. Basil seeds may be marketed as a functional food and nutraceutical for digestive health with further investigation[22].

**Chia Seeds against Digestive Health**

Chia seeds are known for their positive effects on digestive health due to their high fibre content. The soluble fiber in chia seeds forms a gel-like mass in the stomach, supporting digestion and helping prevent constipation. Additionally, chia seeds have been shown to promote a healthy gut microbiome, which is essential for overall digestive health [23]. Chia seeds support digestive health owing to their high levels of fiber, essential nutrients, and beneficial bioactive compounds. Here are several ways chia seeds support digestive health.

**High Fiber Content**: Chia seeds are an excellent source of dietary fiber, with about 10 grams of fiber per ounce (28 grams). This fiber is predominantly soluble, which helps in several ways[24]. **Improves Bowel Regularity.** The soluble fiber absorbs water, forming a gel-like substance that adds bulk to stool and promotes regular bowel movements, reducing the risk of constipation[24].

**Feeds Gut Bacteria**: Soluble fiber functions as a prebiotic, nourishing beneficial gut bacteria and supporting a balanced, healthy microbiome. A healthy gut microbiome is crucial for overall digestive health and can help prevent various gastrointestinal disorders[25].

**Water Absorption:** Chia seeds can absorb up to 12 times their weight in water, forming a gel-like consistency. This gel can help[26].

**Ease Digestion**. The gel-forming property of chia seeds can ease the passage of food through the digestive tract, aiding digestion and absorption of nutrients[26].

**Hydrate the colon:** By retaining water, chia seeds help keep the colon hydrated, which facilitates smoother bowel movements[26].

**Antioxidant Properties:** Chia seeds are rich in antioxidants that help shield digestive tract cells from oxidative stress and related damage. This can reduce the risk of gastrointestinal diseases and support overall gut health[27].

**Potential Benefits for Weight Management**

Chia seeds may support weight management because their high fiber and protein content increase satiety and help lower overall calorie consumption. Maintaining a healthy weight is important for digestive health, as excess weight can put pressure on the digestive organs and exacerbate conditions like gastroesophageal reflux disease (GERD)[28].

**Methodology:** A comprehensive literature search was conducted using PubMed, Google Scholar.

**Conclusion:**

In summary, both ***Tukhm Malanga*** **(basil seeds)** and **chia seeds** demonstrate promising roles in the management of gastrointestinal disorders due to their rich fiber content, mucilaginous properties, and bioactive compounds. While chia seeds are widely recognized in modern nutrition for improving bowel regularity, enhancing satiety, and supporting gut microbiota, *Tukhm Malanga* offers comparable benefits with additional soothing effects on gastric irritation and inflammation.

Overall, both seeds can serve as **functional foods** in gastrointestinal health, but their choice may depend on the specific disorder, cultural dietary practices, and individual tolerance. Integrating either or both into daily nutrition provides a natural, safe, and cost-effective adjunct to conventional therapies, highlighting the importance of traditional remedies alongside modern dietary approaches.

*Tukhm Malanga* (basil seeds) is an affordable traditional remedy that aligns well with modern nutritional science. Its natural mucilaginous properties help relieve constipation, acidity, and bloating, supporting overall digestive health. In Unani medicine, it has long been valued for its cooling and soothing effects on the stomach. Modern research now confirms its benefits, citing its high fiber, plant protein, and micronutrient content. Together, traditional wisdom and scientific evidence highlight its continued importance as a simple, effective aid for gastrointestinal wellness.

**Conflicts of Interest:** The authors declare no conflict of interest.

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