



# Nutritional, Preventive, and Therapeutic Potential of *Ma-ul-Shae'er* (Barley Water) in the Unani System of Medicine: A Holistic Viewpoint

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## Abstract

*In the Unani methodology of managing diseases, Ilaj-bil-Ghiza (dietotherapy) serves as a foundational principle. The initial course of treatment for any ailment entails prescribing specific diets or regulating the quality and quantity of food intake. In recent times, there has been a heightened public awareness regarding the health advantages of functional foods and nutraceuticals for disease prevention and overall well-being. Unani medicine provides a methodical classification of food, taking into consideration its nutritional and medicinal characteristics. The Unani treatment system employs diverse approaches to classify diets, with Ghiza Dawai and Dawa Ghizai aligning with the concept of "Let food be your medicine," attributed to Hippocrates, the pioneer of medicine. This approach prioritizes disease prevention as its main focus. In light of this perspective, the present paper provides an in-depth examination of the nutritional, preventive, and therapeutic properties of Ma-ul-Shae'er (Barley water) within the context of the Unani System of Medicine. It aims to explore how Ma-ul-Shae'er can contribute to promoting health and preventing illnesses according to the principles of the Unani tradition.*

**Keywords:** Unani System of Medicine, Ghiza, Ghiza Dawai, Ma-ul-Shae'er, Barley water

## INTRODUCTION

Originating in Greece and later refined by Arab scholars, the Unani System of Medicine adopts a holistic approach to health and disease management. It highlights six fundamental prerequisites (*Asbab-e-Sitta-e-Zaroriyah*) designed to enhance well-being and prevent illnesses, placing a significant emphasis on the role of nutrition [1, 2]. In this system, the body's *Tabiyat* (physique) is considered the primary healing force, with physicians acting as assistants. A notable strength of this approach lies in its ability to tailor diets for individuals, considering factors such as temperament, seasons, climate, and age [3–5].

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Within the Unani methodology for managing diseases, *Ilaj-bil-Ghiza* (dietotherapy) is a cornerstone principle. The primary approach to treating any disease entails the prescription of specific diets or the regulation of the quality and quantity of food [1, 6, 7]. In recent times, there has been an increasing public awareness of the health advantages associated with functional foods and

nutraceuticals, aimed at preventing diseases and improving overall well-being [8–10]. Unani medicine offers a distinct classification of food based on its nutritional and medicinal value [3].

The Unani system of treatment employs various methods to classify diets. The ensuing categorization is grounded in the nutritional and medicinal facets of the diet.

### ***GHIZA DAWAI (DIET CUM DRUG)***

#### ***Dawa Ghizai (Drug cum Diet)***

*Ghiza Dawai* and *Dawa Ghizai* follow the principle of "Let food be your medicine," a concept credited to Hippocrates, the founding figure of medicine. This strategy primarily emphasizes the prevention of diseases.

*Ghiza Dawai* refers to substances that are primarily used as part of one's diet but also possess pharmacological properties. These foods, such as wheat, gram, eggs, fish, certain vegetables, and fruits, contribute to a person's general health due to their medicinal properties.

Therapeutic purposes are served by substances in *Dawa Ghizai*, notwithstanding the presence of nutritional elements. For instance, barley water, lemon juice, peppermint decoction, various spices, *sikanjabeen* (a mixture of honey and vinegar), and similar items fall into this category. Nutraceuticals belong to this group, which encompasses bioactive components found in dietary sources that can aid in preventing and/or treating diseases and disorders. Many research studies have explored the potential effects of naturally occurring food substances, which contain phytochemicals known for their antioxidant, antihypertensive, antidiabetic, anti-inflammatory, antimicrobial, anticarcinogenic, and immunomodulatory properties, among others [3–7].

In light of the aforementioned context, the present paper provides an extensive examination of the nutritional, preventive, and therapeutic potential of *Ma-ul-Shae'er* (barley water) within the framework of the Unani System of Medicine.

Barley, a foundational grain deeply ingrained in global diets, has played a crucial role in human nutrition and agriculture for centuries [11, 12]. Apart from its historical importance, barley provides a wide array of health benefits. Rich in essential nutrients, barley contains vitamins, minerals, and antioxidants that contribute to overall wellbeing [13, 14].

As the world's fourth most important cereal crop, trailing only wheat, rice, and maize, barley holds a distinct position in agricultural practices worldwide. Its versatility is highlighted by its availability at a reasonable cost, making it an accessible and economical dietary choice.

One standout feature of barley is its remarkable dietary fiber content, surpassing that of other cereals. This high-fiber content is particularly noteworthy for its potential benefits in addressing metabolic syndrome and promoting digestive health [15, 16].

Interestingly, despite its nutritional merits, the utilization of barley varies across different regions. Within the United States, barley functions predominantly as animal feed (65%) and plays a substantial role in malt and alcohol production (30%). Conversely, in 1991, the European Union exhibited a minimal use of barley as food (0.3%). Notably, other nations, including Morocco (61%), China (62%), India (73%), and Ethiopia (79%), have historically relied more heavily on barley as a direct source of human food [15]. The multifaceted attributes of barley, spanning its nutritional richness, affordability, and historical significance, make it a valuable and versatile grain with the potential to address diverse dietary and agricultural needs across the globe.

### **CHEMICAL CONSTITUENTS**

Barley (*Hordeum vulgare*) is a cereal grain rich in various chemical constituents. It is primarily composed of carbohydrates, including both simple sugars and complex starch [16]. Barley contains relatively higher protein content (8%–15%) as compared to other grains and offers various amino acids. Being a superb dietary fiber source, particularly in terms of  $\beta$ -glucans, barley is linked to advantages such as ability to lower cholesterol levels. Barley also supplies vitamins such as vitamin B1, B2, B3, B5, B6, and B9, in addition to vitamin E [17]. Essential minerals found in barley include potassium, magnesium, phosphorus, iron, and zinc. The grain also boasts phytochemicals like phenolic compounds and antioxidants, as well as unsaturated fats, phytosterols, and flavonoids [18–20].  $\beta$ -glucans in barley contribute to its cholesterol-lowering and blood sugar-regulating properties, while its insoluble fiber promotes digestive health [17].

### METHOD OF PREPARATION

The segment on "*Ilaj-bil-giza*" in various classical Unani books references *Ma-ul-shaeer* (Barley water) [22–27]. The consensus among many Unani physicians is that barley water stands out as the most effective *Ghizae Dawaae* [6, 7]. *Ma-ul-Shae'er*, or barley water, is prepared by soaking whole barley grains for four hours and subsequently boiling them in a quantity of water equivalent to twenty times their volume. This process is continued until the water attains a reddish hue [6, 22, 23]. According to the principles of *Buqrat* (Hippocrates), barley water is deemed a highly suitable dietary option for conditions marked by a hot temperament. It is recognized for its ability to eliminate morbid matter, cleanse the system, and is appreciated for being easily absorbable, palatable, moderate, thirst-quenching, and easily digestible [6, 24].

### PHARMACOLOGICAL ACTIONS

Unani physicians widely recognize *Ma-ul-Shae'er* (Barley water) as a potent *Ghizae Dawaae*. Hippocrates has outlined ten specific pharmacological actions associated with it, which encompass [25–29]:

- It possesses a cooling effect (*barid mizaj*) in temperament;
- It induces a gentle flow (*nuzj*) in bodily humors;
- It counteracts humors prone to inflammation (*Akhlate Muharriqa*);
- It expels unhealthy substances (morbid material);
- It exhibits exceptional permeability and aids in digestion;
- It offers a delightful taste;
- It provides nutrition in a balanced manner;
- It quenches thirst effectively;
- It does not incite disturbance in deranged humors;
- It does not cause flatulence.

### THERAPEUTIC USES

*Ma-ul-Shae'er* (Barley water) finds application in various medical conditions [26–34] such as:

- Diabetes,
- Chest pain,
- Pleurisy,
- Lung ulcers,
- Dry and chronic cough,
- Stomach issues,
- Colonic disorders, and
- Various inflammatory and infectious conditions.

It also serves as a diuretic, anti-inflammatory, astringent, appetizer, and more.

### HEALTH BENEFITS OF BARLEY WATER [27, 34–40]

#### Rich Source of Dietary Fiber

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Barley is abundant in dietary fiber, particularly  $\beta$ -glucans. Soluble fibers, associated with enhanced digestive health, lower cholesterol levels, and improved glycemic control, have been linked to *Ma-ul-Shae'er* (Barley water). The consumption of *Ma-ul-Shae'er* (Barley water) can contribute to the upkeep of a healthy digestive system.

### **Weight Control**

The abundant fiber in *Ma-ul-Shae'er* (Barley water) generates a sense of fullness, aiding in averting overeating and supporting weight management endeavours. Additionally, it plays a role in stabilizing blood sugar levels, minimizing the likelihood of sudden food cravings.

### **Cardiovascular Wellness**

Consistent intake of *Ma-ul-Shae'er* (Barley water) has been linked to a decreased likelihood of heart disease. It contains soluble fibers that contribute to the reduction of low-density lipoprotein (LDL) or bad cholesterol levels, thereby promoting cardiovascular health. Additionally, it contains antioxidants that combat free radicals and reduce the risk of oxidative stress-related heart issues.

### **Improved Hydration**

Barley water is an excellent hydrating beverage, especially when served chilled on a hot day. Maintaining adequate hydration is essential for various bodily functions, such as temperature regulation, digestion, and transport of nutrients.

### **Detoxification**

Barley water possesses gentle diuretic properties that assist in eliminating toxins from the body, contributing to the promotion of kidney health. It may also aid in reducing the risk of urinary tract infections.

### **Skin Health**

The antioxidants present in *Ma-ul-Shae'er* (Barley water) contribute to healthier and more youthful-looking skin. They protect the skin from damage caused by ultraviolet (UV) radiation and pollution, helping maintain skin elasticity and reducing the appearance of wrinkles.

### **Abundant in Vitamins and Minerals**

Barley serves as a valuable reservoir of essential vitamins and minerals, encompassing B-vitamins, iron, magnesium, and phosphorus. These nutrients are pivotal in supporting energy metabolism, immune function, and bone health.

## **RESEARCH FINDINGS ON BARLEY**

Barley emerges as an outstanding supplier of complex carbohydrates, constituting approximately 80% of the grain weight [41]. Additionally, barley is rich in  $\beta$ -glucans, significant contributors to dietary fiber—a fundamental element in the human diet (Newman and Newman 1991, Granfeldt et al. 1994). Starch, making up the most substantial portion in barley, accounts for up to 65% of the kernel's dry weight and serves as a valuable source of energy [42].

Hairston et al. proposed that obesity and related disorders are closely tied to lifestyle. Their study demonstrated that soluble fiber, specifically  $\beta$ -glucan found abundantly in barley compared to other whole grains, aids in reducing visceral adipose tissue (fat) [43].  $\beta$ -glucan forms a gel-like substance, prolonging food absorption and delaying gastric emptying, thereby reducing appetite and curbing food intake [44]. This soluble fiber, along with insoluble fiber, also contributes to lowering blood cholesterol levels [45]. The presence of insoluble fiber enhances bowel function by accelerating intestinal movement and increasing stool volume [46]. Short-chain carbohydrates such as acetate, propionate, and butyrate in barley positively influence gut microbiota, improving symptoms of gut disorders such as irritable bowel syndrome (IBS), Crohn's disease, and ulcerative colitis [44–47]. Barley's insoluble fiber content also helps in reducing the risk of gallstones. Tsai et al. pointed out that 80% of gallstones are

cholesterol stones, and both soluble and insoluble fiber contribute to cholesterol reduction. Their study suggested that long-term barley consumption could potentially help avoid gallstone surgery [48, 49]. Health Canada in July 2012 has confirmed the scientific evidence supporting the therapeutic claim connecting barley grain products to lower blood cholesterol. This claim is pertinent and widely applicable to the Canadian population, as about 40% of Canadian adults aged 20–79 years have elevated total cholesterol levels (>5.2 mmol/L), increasing their risk of heart disease. Health Canada affirmed that the therapeutic claim statements mentioned were substantiated for barley grain products when specific conditions for the endorsed food were met [50-52].

## DISCUSSION AND CONCLUSION

In our dynamic world, we observe continuous transformations across various aspects, such as our environment, food sources, population, and the expansion of scientific knowledge. Within our personal spheres, both our physical bodies and our personalities undergo changes, leading to shifts in our individual needs and aspirations. For maintaining a state of well-being, it is crucial to strike a harmonious balance amidst these ongoing life alterations.

Therefore, given this ever-changing reality, our exploration of food, nutrition, and healthcare should primarily emphasize on the promotion of health. While different perspectives and definitions of health and disease may exist, a fundamental pillar for promoting health and averting disease consistently remains the consumption of wholesome food and the nutritional sustenance it offers.

The documented pharmacological effects of *Ma-ul-Shae'er* (barley water) encompasses a range of activities including antibacterial, antispasmodic, astringent, antidiarrheal, antidiabetic, anticarcinogenic, mutagenic, antioxidant, analgesic, antifungal, hepatoprotective, immunomodulatory, and nephroprotective properties. Ongoing research suggests even more potential applications for this natural remedy in various health conditions.

The present paper offers valuable insights into the pharmacological actions and applications of *Ma-ul-Shae'er* (barley water) within the Unani System of Medicine, highlighting its continued relevance in contemporary healthcare. Despite being a potent example of nature's therapeutic gifts to humanity, there is a lack of consistent standards for its clinical application. Therefore, it is imperative that this ancient therapy undergoes additional clinical trials to receive scientific validation for broader acceptance, allowing humanity to fully access its remarkable benefits.

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