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Herbal Remedies for Bloating Based on Iranian Traditional Medicine: A Review

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A B S T R A C T

Objective: This study aims to identify the key medicinal plants used in the treatment of bloating in Iranian traditional medicine and to compare traditional knowledge with findings from contemporary research studies.

Methodology: This research was conducted as a document review. The sources included authoritative texts on Iranian traditional medicine, reference books on herbal medicine, and online scientific databases. After gathering the relevant data, the therapeutic properties of the plants reported in traditional texts were compared with the findings from recent preclinical studies and experimental research.

Results: Based on the reviewed sources, plants commonly used in Iranian traditional medicine for the treatment of bloating include *Matricaria chamomilla L., Cinnamomum verum J. Presl, Zingiber officinale Roscoe, Foeniculum vulgare Mill., Mentha piperita L., Elettaria cardamomum (L.) Maton, Cuminum cyminum L., Nigella sativa L., Rosmarinus officinalis L., Thymus vulgaris L., Camellia sinensis (L.) Kuntze, Valeriana officinalis L., Curcuma longa L., Pimpinella anisum L., Hibiscus sabdariffa L., Melissa officinalis L., Citrus limon (L.) Osbeck, Trachyspermum copticum (L.) Sprague, Taraxacum officinale F.H. Wigg., Coriandrum sativum L., Artemisia absinthium L., Angelica sinensis (Oliv.) Diels, Anethum graveolens L., Rosa damascena Mill., Nigella sativa L., Cichorium intybus L., Ocimum basilicum L.* The Lamiaceae and Apiaceae families exhibit the highest frequency in the data, suggesting that further research should prioritize these families. Additionally, the leaf is the most commonly used plant part in medicinal herbs, while tea and decoction are the most prevalent preparation methods.

Conclusion: The available evidence suggests that the medicinal plants identified in Iranian traditional medicine may serve as natural or complementary options for the treatment and alleviation of bloating.

Keywords: Gastrointestinal Diseases, Bloating, Iranian Traditional Medicine, Medicinal Plants, Herbal Medicine, Phytotherapy

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Introduction

Bloating is a common digestive issue experienced by many individuals throughout their lives [1]. It refers to the accumulation of gas in the digestive system, often accompanied by symptoms such as abdominal pain, distention, swelling, and a sensation of heaviness in the abdominal region [2]. Bloating can arise from various factors, including digestive disorders, intestinal issues, improper diet, stress, and chronic diseases [3]. In addition to the physical discomfort it causes, bloating can negatively impact an individual's quality of life and may lead to social and psychological challenges [4].

Bloating specifically denotes the abnormal accumulation of gas in the gastrointestinal system, which results from disruptions in digestion or the absorption of gases produced in the intestines [4]. This condition is typically caused by increased gas production in the intestines, disturbances in the normal motility of the intestines, or impaired gas absorption by the digestive system [5].

To manage bloating, herbal remedies such as peppermint, turmeric, and ginger are often utilized for their ability to reduce

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gas production and inflammation. Pharmaceutical treatments, including simethicone, probiotics, and antacids, are also commonly used to alleviate symptoms and improve digestive function [6]. However, these pharmaceutical options may lead to side effects such as temporary bloating, diarrhea, constipation, or allergic reactions. Prolonged use of certain medications can result in digestive disturbances and electrolyte imbalances [7].

Iranian traditional medicine, with its long-standing history of addressing diseases particularly digestive disorders plays a vital role in promoting health [8]. In this tradition, medicinal plants are considered a cornerstone of therapeutic practice, with many digestive issues, including bloating, being treated using these plant-based remedies [8]. Experts in Iranian traditional medicine recommend specific plants, each with unique therapeutic properties, tailored to treat different digestive disorders. These plants not only aid digestion but also have the potential to strengthen other bodily systems.

In recent decades, scientific research has increasingly explored the therapeutic effects of medicinal plants in treating various health conditions [9]. Many studies have confirmed the beneficial impacts of herbal remedies on digestive issues such as bloating [10]. Specifically, plants like chamomile, cinnamon, ginger, and peppermint commonly recommended in Iranian traditional medicine for treating bloating have demonstrated anti-bloating and soothing effects in modern scientific studies [11]. These findings provide valuable support for the therapeutic methods used in Iranian traditional medicine [11].

This study investigates the use of medicinal plants in traditional Iranian medicine for the treatment of bloating, with the aim of validating their effectiveness by comparing the findings with recent scientific research. Unlike many existing studies that address the broader use of medicinal herbs for digestive issues, this research specifically focuses on the treatment of bloating within the context of traditional Iranian medicine. Furthermore, comparing these herbs with current scientific evidence could provide more accurate, well-documented information for their clinical application in the treatment of bloating. Additionally, this study aims to highlight the potential advantages of traditional medicinal plants as complementary or alternative treatments, with fewer side effects compared to synthetic pharmaceutical drugs. The primary objective of this review is to examine the most significant medicinal plants used in the treatment of bloating according to Iranian traditional medicine and compare these with findings from recent scientific research.

Methodology

This study was conducted in two phases with the objective of identifying medicinal plants effective in the treatment of bloating, based on both traditional medicine sources and contemporary scientific research.

The study was divided into two parts: one focusing on the review of traditional medicine sources and the other involving a comparative analysis of scientific literature and recent studies.

Phase One: Review of Traditional Medicine Sources

In this phase, authoritative sources from Iranian traditional medicine were examined to identify medicinal plants used in the treatment of bloating. These sources included well-established books and scholarly articles that specifically address digestive disorders, particularly bloating. The medicinal plants identified in these sources were collected, categorized, and documented [12–19].

Phase Two: Search in Scientific Databases

An extensive search was conducted in reputable scientific databases, including PubMed, Scopus, and SID. Using keywords related to traditional medicine and bloating, relevant peer-reviewed articles were retrieved. These articles included clinical and preclinical studies that investigated the effects of medicinal plants on bloating. The studies were carefully reviewed and analyzed for relevance and quality.

Data Extraction and Analysis

After data collection, the quality of the selected studies was assessed based on established scientific criteria. Studies that met the appropriate scientific standards were included in the analysis. The results of these studies were then compared with the plants identified in Iranian traditional medicine to assess their alignment and efficacy in treating bloating. Finally, a list of medicinal plants effective in treating bloating was compiled, and evidence-based recommendations for the clinical use of these plants were provided. This study aims to serve as a reference for future research and the practical application of medicinal plants in the management of bloating.

Results

A review of traditional medicine texts revealed that several plants are commonly used in the treatment of bloating. These plants include *Matricaria chamomilla L., Cinnamomum verum J. Presl, Zingiber officinale Roscoe, Foeniculum vulgare Mill., Mentha piperita L., Elettaria cardamomum (L.) Maton, Cuminum cyminum L., Nigella sativa L., Rosmarinus officinalis*

L., Thymus vulgaris L., Camellia sinensis (L.) Kuntze, Valeriana officinalis L., Curcuma longa L., Pimpinella anisum L., Hibiscus sabdariffa L., Melissa officinalis L., Citrus limon (L.) Osbeck, Trachyspermum copticum (L.) Sprague, Taraxacum officinale F.H. Wigg., Coriandrum sativum L., Artemisia absinthium L., Angelica sinensis (Oliv.) Diels, Anethum graveolens L., Rosa damascena Mill., Nigella sativa L., Cichorium intybus L., Ocimum basilicum L.

Detailed information about the anti-bloating medicinal plants identified in Iranian traditional medicine, along with their botanical properties, is provided in Table 1

Table 1: Anti-Bloating Medicinal Plants Based on Iranian Traditional Medicine Sources

Common Name	Scientific Name	Plant Family	Used Part	Traditional Use
Chamomile	*Matricaria chamomilla* L.	Asteraceae	Flower	Tea, Decoction
Cinnamon	*Cinnamomum verum* J. Presl	Lauraceae	Bark	Infusion, Added to Food
Ginger	*Zingiber officinale* Roscoe	Zingiberaceae	Root	Infusion, Powder in Food
Fennel	*Foeniculum vulgare* Mill.	Apiaceae	Fruit, Leaf	Tea, Decoction
Peppermint	*Mentha piperita* L.	Lamiaceae	Leaf	Tea, Decoction
Green Cardamom	*Elettaria cardamomum* (L.) Maton	Zingiberaceae	Fruit	Added to Tea and Infusions
Cumin	*Cuminum cyminum* L.	Apiaceae	Seed	Decoction, Added to Food
Black Cumin	*Nigella sativa* L.	Ranunculaceae	Seed	Decoction, Powder in Food
Rosemary	*Rosmarinus officinalis* L.	Lamiaceae	Leaf	Tea, Added to Food
Thyme	*Thymus vulgaris* L.	Lamiaceae	Leaf, Flower	Tea, Added to Food
Green Tea	*Camellia sinensis* (L.) Kuntze	Theaceae	Leaf	Infusion
Valerian	*Valeriana officinalis* L.	Valerianaceae	Root	Tea, Decoction
Turmeric	*Curcuma longa* L.	Zingiberaceae	Root	Added to Food, Tea
Star Anise	*Pimpinella anisum* L.	Umbelliferae	Fruit	Tea, Decoction
Hibiscus	*Hibiscus sabdariffa* L.	Malvaceae	Flower	Tea
Lemon Balm	*Melissa officinalis* L.	Lamiaceae	Leaf	Tea
Lemon	*Citrus limon* (L.) Osbeck	Rutaceae	Fruit, Peel	Juice, Added to Tea
Ajwain	*Trachyspermum copticum* (L.) Sprague	Apiaceae	Seed	Decoction, Added to Food

Dandelion	*Taraxacum officinale* F.H. Wigg.	Asteraceae	Leaf, Root	Tea, Decoction
Coriander	*Coriandrum sativum* L.	Apiaceae	Seed, Leaf	Tea, Added to Food
Wormwood	*Artemisia absinthium* L.	Asteraceae	Leaf, Flower	Tea, Decoction
Chinese Angelica	*Angelica sinensis* (Oliv.) Diels	Apiaceae	Root	Tea, Decoction
Dill	*Anethum graveolens* L.	Apiaceae	Leaf, Seed	Tea, Added to Food
Rose	*Rosa damascena* Mill.	Rosaceae	Flower	Tea, Essential Oil
Black Seed	*Nigella sativa* L.	Ranunculaceae	Seed	Powder, Tea
Chicory	*Cichorium intybus* L.	Asteraceae	Root, Leaf	Tea, Decoction
Basil Seed	*Ocimum basilicum* L.	Lamiaceae	Seed	Soaked in Water, Tea

Analysis:

The Lamiaceae and Apiaceae families are the most prevalent, each appearing 6 times on the list. Following them, Asteraceae ranks third with 5 occurrences.

Other families, such as Zingiberaceae, appear 3 times, while Ranunculaceae, Lauraceae, Theaceae, and others are represented only once or twice.

This distribution suggests that further research could focus on the Lamiaceae and Apiaceae families, as they contain the highest number of medicinal plants in this dataset.

The leaf is the most commonly used part of the plant, making it the predominant plant part in medicinal herbs. Following the leaf, the seed and root are the next most frequently used parts.

In addition, various combinations of plant parts such as fruit and leaf, leaf and flower, and root and leaf are also noted in some plants.

This analysis suggests that the leaf plays a central role in herbal treatments, while the seed and root are also significant contributors to medicinal applications.

Tea and decoction are the most commonly used preparation method. Following these, decoctions added to food and infusions added to food are the next most frequent methods.

Specific preparations such as tea and essential oil, as well as powder and tea, occur less frequently.

This suggests that the majority of plants are used in the form of tea or decoction for therapeutic purposes, while combinations like decoctions with food or adding herbs to tea and infusions are also common practices.

Discussion

Bloating is a prevalent digestive disorder characterized by a sensation of fullness and the accumulation of gas within the stomach and intestines. It typically results from functional disturbances of the digestive system, such as functional dyspepsia and irritable bowel syndrome (IBS). Conventional treatments for these conditions often come with side effects, leading to a growing interest in natural alternatives and herbal remedies. Medicinal plants such as chamomile, ginger, cumin, peppermint, black seed, and others are frequently recommended for their anti-bloating and anti-inflammatory properties.

Several studies have demonstrated the effectiveness of these plants in reducing bloating and alleviating gastrointestinal symptoms. For example, a review study found that chamomile (*Matricaria recutita*) can improve digestion and prevent bloating [20]. This herb, with its anti-inflammatory and soothing properties, has been shown to reduce gastrointestinal symptoms such as bloating and discomfort. Similarly, research on cinnamon oil has revealed its efficacy in significantly reducing gastrointestinal symptoms in patients with functional dyspepsia when compared to a placebo (sesame oil) [21]. These findings suggest that medicinal plants with anti-bloating and anti-inflammatory effects can offer a safe and effective approach to managing digestive disorders.

Furthermore, studies involving supplements containing ginger and artichoke have shown significant improvement in symptoms of functional dyspepsia following 14 days of treatment. This herbal combination, particularly effective in alleviating nausea, bloating, epigastric pain, and a sensation of fullness, provides a promising treatment option for the condition [22]. Additionally, a combination of fennel and rose has been found to be more effective than polyethylene glycol (PEG 4000) in treating constipation in the elderly, enhancing their quality of life with fewer side effects [23].

Regarding bloating treatment, spearmint essential oil (*Mentha spicata*) has proven to be an effective remedy. Known for its anti-bloating and anti-pain properties, this oil is beneficial in managing bloating caused by digestive issues, cesarean section recovery, and menstrual pain. It has also been shown to reduce discomfort during colonoscopy and is useful for irritable bowel syndrome (IBS) [24]. Additionally, research indicates that cumin (*Cuminum cyminum*) extract significantly reduces symptoms of IBS, including abdominal pain, bloating, and incomplete bowel movements [25]. This evidence further supports the use of medicinal plants such as cumin and peppermint as natural remedies for bloating and related digestive disorders.

Research has also highlighted the effectiveness of herbal formulas containing *Melissa officinalis*, *Pimpinella anisum*, and *Rosa damascena* (MPR) in improving the severity of symptoms associated with IBS with constipation (IBS-C) and in enhancing overall quality of life [26]. Moreover, a combination of curcumin (*Curcuma longa*) and boswellia (*Boswellia serrata*) extracts, when combined with a low FODMAP diet (LFD), has significantly reduced abdominal bloating, abdominal pain, and indican levels in patients with small intestinal dysbiosis [27]. These studies underscore the potential of medicinal plants with anti-bloating and anti-inflammatory properties in alleviating symptoms caused by gastrointestinal disorders.

The use of *Pimpinella anisum* powder has also shown significant benefits in reducing symptoms of postprandial distress syndrome (PDS), with the therapeutic effects remaining stable throughout the study period [28]. Additionally, a study demonstrated that a supplement containing probiotics, digestive enzymes, and *Melissa officinalis* extract effectively improved symptoms of IBS and abdominal bloating [29]. While no significant difference was observed between the treatment and placebo groups, the results indicated a greater tendency toward improvement in the supplement group, highlighting the potential of these treatments in alleviating digestive symptoms [30-34].

Finally, several studies have provided evidence that herbal combinations can effectively reduce symptoms of IBS and functional dyspepsia (FD). For example, a combination of *Cichorium intybus*, *Trigonella foenum-graecum*, and *Foeniculum vulgare* has been shown to be effective in controlling symptoms of ulcerative colitis (UC) [35], and *Ocimum basilicum* extract has significantly reduced symptoms of functional dyspepsia, particularly in young women with gastrointestinal motility disorders [36].

Despite the positive evidence available, this study has certain limitations that may influence the final results. First, the limited number of reputable clinical studies included in the review may introduce bias into the findings. Second, cultural and geographical differences in the use of medicinal plants, as well as variations in the methodologies of preclinical and clinical studies, could pose challenges when comparing herbs used in traditional medicine with scientific findings. Furthermore, many of the medicinal plants discussed in this study require additional extensive clinical trials, with larger sample sizes and long-term follow-up, to confirm their efficacy and long-term safety.

Future research should focus on investigating the long-term effects of medicinal plants in the treatment of bloating, with an emphasis on evaluating their safety in specific populations, such as children and the elderly. Additionally, exploring the combination of medicinal plants with modern treatments, such as probiotics, could contribute to the development of more effective therapeutic strategies. Moreover, research into the impact of medicinal plants on the gut microbiome may provide valuable insights into their therapeutic mechanisms, potentially leading to improved digestive health.

Conclusion

The evidence from these studies suggests that medicinal plants can serve as effective, safe, and complementary treatments for digestive disorders such as bloating and functional dyspepsia. While the results have generally been positive, further studies and more rigorous clinical trials are necessary to establish the optimal dosages, treatment durations, and long-term effects of these plants in managing gastrointestinal disorders. Continued research in this area will help refine our understanding of these natural remedies and their potential role in clinical practice.

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Competing interests

The authors have no competing interests to declare that are relevant to the content of this article.

Ethics approval

This study was performed in line with the principles of the Declaration of Helsinki.

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Author contributions

MHA: Conceptualization, the original draft writing, investigation, writing including reviewing and editing and investigation and formal analysis; AH: Conceptualization, supervision, and project administration; AH and MHA Conceptualization, the original draft writing, investigation, writing including reviewing and editing.

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