

Native Iranian Plant Flora in Traditional Medicine for Vaginitis: A Review

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ARTICLE INFO

Article History:

Received: July 25, 2025

Revised: September 6, 2025

Accepted: September 14, 2025

ePublished: September 30, 2025

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Abstract

In Iranian traditional medicine, numerous medicinal plants are utilized to treat a variety of women's health issues, including vaginitis, owing to their antiseptic, antifungal, antibacterial, and anti-inflammatory properties. This review was conducted on credible sources and traditional Iranian medicine texts, as well as information on medicinal plants from Iran, to explore medicinal plants introduced for the treatment of vaginitis. The aim of this study was to evaluate the role of these plants in the treatment of vaginitis and compare them to modern therapeutic approaches. Key medicinal plants included *Allium sativum* L., *Pistacia atlantica* Desf., *Foeniculum vulgare* Mill., *Cocos nucifera* L., *Aloe barbadensis* Mill., *Echinacea purpurea* (L.) Moench, *Artemisia absinthium* L., *Calendula officinalis* L., *Silybum marianum* (L.) Gaertn., *Berberis vulgaris* L., *Hypericum perforatum* L., *Cinnamomum zeylanicum* Blume, *Salvia officinalis* L., *Thymus vulgaris* L., *Origanum vulgare* L., *Melissa officinalis* L., *Hyssopus officinalis* L., *Mentha piperita* L., *Ziziphora tenuior* (L.) Boiss., *Punica granatum* L., *Althaea officinalis* L., *Myrtus communis* L., *Antifungal and antibacterial* (53), *Strong disinfectant* (54), *Olea europaea* L., *Nigella sativa* L., *Camellia sinensis* (L.) Kuntze, *Curcuma longa* L., *Zingiber officinale* Roscoe are also used in Iranian traditional medicine for treating vaginitis. These plants not only help alleviate symptoms but also contribute to improving the vaginal microbial environment and enhancing immune system function.

Keywords: Herbal medicine, Iranian traditional medicine, Vaginal infections, Phytotherapy

Please cite this article as follows: Rajabi E, Ayatollahi H, Jahangard S, Tagipour L. Native Iranian plant flora in traditional medicine for vaginitis: a review. Int J Basic Sci Med. 2025;10(3):149-155. doi:10.34172/ijbsm.50730.

Introduction

Women's health forms the cornerstone of family and community well-being, preventive care, healthy nutrition, and the appropriate use of natural and herbal methods can significantly improve both the physical and psychological quality of life for women. ¹⁻³ Timely prevention and treatment of women's infections play a crucial role in maintaining their health and well-being; the use of natural methods and medicinal plants can help restore vaginal microbial balance and enhance quality of life. ⁴

Vaginal infections are among the most common health issues faced by women, often arising from poor personal hygiene, unprotected sexual activity, and the overgrowth of bacteria or viruses. ⁵ Vaginitis, commonly referred to as vaginal infection, is prevalent among women and presents with symptoms such as abnormal discharge, itching, burning, and pain. This condition is typically caused by an imbalance in the natural vaginal microbiota and can have multiple etiologies, including bacteria, fungi, viruses, or parasites. ⁶ Various diseases such as bacterial vaginosis,

chlamydia, genital herpes, genital warts, candidiasis, and trichomoniasis share similar symptoms, including abnormal discharge with unusual color or odor, itching, or pain. ⁷

The symptoms of vaginitis can range from mild to severe, including burning, itching, pain during intercourse, abnormal discharge with an unpleasant odor, redness and swelling of the vaginal area, and, in some cases, light bleeding. ⁷ These symptoms typically result from the overgrowth of bacteria, fungi, parasites, or viruses in the vagina and vulva. Factors such as poor personal hygiene, a weakened immune system, improper diet, stress, overuse of antibiotics, and chemical irritants can increase the risk of developing vaginitis. ^{8,9} Diagnosis is typically based on medical history, pelvic examination, and visualization of the vagina using a speculum, with further testing such as vaginal discharge sampling and pH measurement to assist in identifying the specific type of infection. ¹⁰

Treatment of vaginal infections depends on their underlying cause. Bacterial infections are usually treated



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with antibiotics such as metronidazole or azithromycin, while fungal infections are treated with medications like fluconazole or clotrimazole. It is recommended to refrain from sexual activity until symptoms resolve completely.¹¹⁻¹³ The use of antibiotics and antifungal medications can result in side effects such as nausea, headaches, diarrhea, and localized irritation in the vagina. Prolonged or self-prescribed use of these medications may disrupt the natural vaginal microbiota and increase the risk of infection recurrence.¹⁴

Certain home remedies, such as the use of probiotics, garlic, honey, black seed, and topical tea tree oil, may help alleviate the symptoms of vaginal infections. However, it is important to consult with a gynecologist or traditional medicine practitioner before using any home treatments. Viral infections of the vagina should generally be managed under medical supervision, and home remedies are not recommended for such cases.^{15,16} In this context, Iranian traditional medicine endorses the use of medicinal plants for preventing and treating women's infections, including vaginitis. The mechanisms and effects of medicinal plants on various types of vaginitis involve antibacterial, antifungal, antiviral, and antiparasitic activities. These plants may alleviate symptoms by modulating immune responses, inhibiting inflammatory pathways, and disrupting the life cycles of pathogenic agents. In addition, many of these plants, owing to their antibacterial, antifungal, and anti-inflammatory properties, can help maintain vaginal microbial balance and reduce inflammation. Their use, however, should be guided by a traditional medicine specialist to ensure both safety and efficacy.^{17,18}

Medicinal plants contain active compounds, such as flavonoids, tannins, saponins, and phenolic compounds, which can inhibit the growth of bacteria and fungi, reduce inflammation, and help control infections. These compounds aid in maintaining microbial balance and soothing inflammation in the vaginal area^{19,20}. Given the traditional use of medicinal plants and the existing scientific evidence supporting their anti-infective properties, this review aims to evaluate the use of Iran's native plant flora and Iranian traditional medicine in the prevention and treatment of vaginitis. This study gathers and analyzes the available scientific and traditional evidence on the efficacy of medicinal plants in maintaining women's health and treating vaginal infections.

Literature Search

This study was conducted as a comprehensive review aimed at identifying and evaluating Iranian traditional medicinal plants effective in the treatment of vaginitis.

In the first phase, classical and authoritative texts of Persian medicine were reviewed, including *The Canon of Medicine* by Avicenna (Ibn Sina), *Al-Hawi fi al-Tibb* (*Comprehensive Book*) by Muhammad ibn Zakariya

al-Razi (Rhazes), *Herbal Medicine and Medicinal Plants of Iran* by Hossein Ghaffari, *Medicinal Plants of Iran* by Ahmad Zargari, *Medicinal Plants of Iran: A Comprehensive Guide to Identification and Therapeutic Applications* by Valiollah Mozaffarian, *Traditional Medicine and Pharmacy of Iran* by Hossein Lari, *Traditional Herbal Pharmacology in Iran* by Mohammad Movahedi, *Medicinal Plants of Iran* by Fatemeh Shahbazi, *Pharmacognosy and Medicinal Plants of Iran* by Saeed Kiani, and *Ancient Iranian Herbal Pharmacy* by Maryam Safavi.²¹⁻³⁰ These sources were analyzed to identify plants traditionally used for the treatment of vaginal infections and gynecological disorders.

In the second phase, a comprehensive literature search was performed in scientific databases, including PubMed, Scopus, Web of Science, Google Scholar, SID, and IranMedex to verify pharmacological and scientific evidence related to the identified plants. The search covered publications from January 1999 to September 2025.

The search strategy utilized combinations of English and Persian keywords connected by Boolean operators (AND, OR). The keywords included “vaginitis,” “vaginal infection,” “Candida,” “bacterial vaginosis,” “herbal medicine,” “medicinal plants,” “traditional medicine,” and “Iran.”

The inclusion criteria comprised studies that investigated the antibacterial, antifungal, anti-inflammatory, or wound-healing effects of medicinal plants relevant to vaginitis. Eligible studies included *in vitro*, *in vivo*, and clinical trials published in English or Persian that referenced plants cited in Iranian traditional medicine sources.

The exclusion criteria included studies lacking sufficient methodological details or quantitative results, reviews without experimental or clinical evidence, and studies unrelated to vaginal infections or native Iranian plants.

From the eligible studies, data were extracted on the scientific name, botanical family, plant part used, active compounds, study design, main findings, and potential mechanisms of action.

Finally, findings from traditional Persian medicine sources were compared and integrated with modern scientific evidence to assess and substantiate the scientific validity and therapeutic potential of Iranian medicinal plants in the treatment of vaginitis.

Medicinal Plants with Anti-Vaginitis Effects

In Iranian traditional medicine, numerous medicinal plants are recognized as effective treatments for women's infections (vaginitis). These plants, with their antibacterial, antifungal, anti-inflammatory, and healing properties, play an important role in improving vaginal health and restoring microbial balance. Some of the well-known medicinal plants in this regard include *Allium sativum* L.,

Pistacia atlantica Desf., *Foeniculum vulgare* Mill., *Cocos nucifera* L., *Aloe barbadensis* Mill., *Echinacea purpurea* (L.) Moench, *Artemisia absinthium* L., *Calendula officinalis* L., *Silybum marianum* (L.) Gaertn., *Berberis vulgaris* L., *Hypericum perforatum* L., *Cinnamomum zeylanicum* Blume, *Salvia officinalis* L., *Thymus vulgaris* L., *Origanum vulgare* L., *Melissa officinalis* L., *Hyssopus officinalis* L., *Mentha piperita* L., *Ziziphora tenuior* (L.) Boiss., *Punica granatum* L., *Althaea officinalis* L., *Myrtus communis* L., Antifungal and antibacterial (53), Strong disinfectant (54), *Olea europaea* L., *Nigella sativa* L., *Camellia sinensis* (L.) Kuntze, *Curcuma longa* L., *Zingiber officinale* Roscoe.

These plants not only serve as natural treatments for vaginal infections but are also effective in reducing inflammation and alleviating related symptoms. Specifically, the active compounds found in these plants are capable of strengthening the immune system and combating harmful microbes in the vaginal area, making them a promising option for natural treatments. Additional botanical information regarding medicinal plants effective for vaginitis is provided in Table 1. Also, Figure 1 summarizes the possible mechanisms of medicinal plants in the treatment of vaginitis.

The families Lamiaceae and Asteraceae exhibit the highest species diversity in the treatment of vaginitis within Iranian traditional medicine, serving as primary sources of plants with disinfectant, antifungal, and antibacterial properties. Vaginitis is one of the most common and complex conditions in women, caused by various factors such as microbial, fungal, viral infections, or an imbalance in the vaginal microbiota. The symptoms of this condition include burning, itching, abnormal discharge, and pain. While modern chemical treatments are typically effective, many women seek natural treatment options with fewer side effects. In this regard, Iranian traditional medicine utilizes native medicinal plants for treating vaginitis. These plants, in addition to possessing antiseptic, antifungal, and antibacterial properties, are also effective in boosting the immune system and restoring the vaginal microbiota balance. Due to Iran's unique climatic features and biodiversity, native medicinal plants have distinctive chemical compositions, granting them antiseptic, antifungal, antibacterial, and anti-inflammatory properties.^{31,32} These attributes make plants such as *Allium sativum*, *Pistacia atlantica*, *Foeniculum vulgare*, and *Cocos nucifera* useful in treating vaginitis. These plants contain active compounds such as allicin, saponins, and phenolic compounds, which have antibacterial and antifungal effects.^{31,34}

Active chemical compounds in these plants, including alkaloids, flavonoids, triterpenoids, and saponins, play a crucial role in treating vaginitis. For example, *Allium sativum* contains allicin, which effectively eliminates bacteria and fungi, while plants like *Cinnamomum verum* and *Zingiber officinale* possess phenolic compounds that

provide anti-inflammatory and antifungal benefits.^{42,43} Additionally, plants such as *Aloe vera* and *Calendula officinalis*, with their tissue-repairing properties, can aid in the regeneration of damaged vaginal tissues and soothe inflammation.^{35,38} Furthermore, *Echinacea purpurea*, through its immune-boosting effects, is particularly useful in treating vaginal infections.³⁶

Plants such as *Artemisia absinthium*, known for their antibacterial, antifungal, and antiparasitic properties, can also be effective in the treatment of vaginitis.³⁷ *Silybum marianum*, as a natural antioxidant and anti-inflammatory, has tissue-repairing properties that can help reduce vaginal inflammation.³⁹ *Hypericum perforatum*, with its anti-inflammatory and tissue-repairing effects, is also useful in alleviating vaginal inflammation.⁴¹ *Cinnamomum zeylanicum* and *Salvia officinalis* are also beneficial for treating vaginal infections due to their antifungal and antibacterial properties.^{42,43}

Plants such as *Thymus vulgaris* and *Origanum vulgare*, with their antibacterial and antifungal compounds, can effectively treat vaginal infections.^{44,45} Additionally, *Punica granatum*, with its astringent and antifungal properties, can help reduce inflammation and treat vaginal infections.⁵⁰ Soothing plants like *Althaea officinalis*, with their anti-inflammatory properties, are beneficial for relieving vaginal inflammation.⁵¹ Likewise, *Myrtus communis* with its antiseptic and antimicrobial properties plays a significant role in treating vaginal infections.⁵²

Combining different medicinal plants can enhance the effectiveness of the treatment. For instance, the combination of *Thymus vulgaris* and *Origanum vulgare* can effectively eliminate microbes and reduce inflammation due to their potent antifungal and antibacterial properties.^{44,45} Similarly, the combination of *Salvia officinalis* and *Mentha piperita* can be useful for their antibacterial and soothing effects.^{43,48}

However, despite the recognition of Iranian native medicinal plants as effective treatments for vaginitis, many of these plants still require further clinical research to confirm their therapeutic effects. Studies focusing on effective dosages, treatment durations, and optimal combinations for treating vaginitis are essential. Furthermore, research on the long-term effects and synergistic interactions between different plants could contribute to improving treatment strategies. The active compounds found in these medicinal plants, such as allicin, flavonoids, and saponins, are particularly known for their antimicrobial and antifungal properties. These compounds not only inhibit microbial growth but also play a crucial role in alleviating inflammation, thereby aiding in the treatment of vaginitis and the restoration of vaginal microbiota balance.⁶⁰⁻⁶³

Limitations

Scientific evidence on the effects of medicinal plants

Table 1. Botanical Information and Supplementary Data of Medicinal Plants Effective Against Vaginitis in Iranian Traditional Medicine

Plant Family	Common Name	Scientific Name	Traditional Therapeutic Effect	Potential Mechanism of Action on Vaginitis
Amaryllidaceae	Garlic	<i>Allium sativum</i> L.	Antiseptic, antifungal, and antibacterial. ³¹	Antimicrobial. ³¹
Anacardiaceae	Wild Pistachio	<i>Pistacia atlantica</i> Desf.	Anti-inflammatory and tissue-repairing. ³²	Antifungal, antibacterial, astringent, and tissue-repairing. ³²
Apiaceae	Fennel	<i>Foeniculum vulgare</i> Mill.	Hormone-balancing, anti-inflammatory. ³³	Antimicrobial, reduces inflammation. ³³
Arecaceae	Coconut	<i>Cocos nucifera</i> L.	Softening and antifungal. ³⁴	Antimicrobial, reduces inflammation. ³⁴
Asphodelaceae	Aloe vera	<i>Aloe barbadensis</i> Mill.	Anti-inflammatory and tissue-repairing. ³⁵	Antibacterial, reduces inflammation. ³⁵
Asteraceae	Echinacea	<i>Echinacea purpurea</i> (L.) Moench	Immune-boosting. ³⁶	Reduces inflammation, astringent, and tissue-repairing. ³⁶
Wormwood	Wormwood	<i>Artemisia absinthium</i> L.	Antibacterial, reduces inflammation. ³⁷	Antibacterial, reduces inflammation. ³⁷
Marigold	Marigold	<i>Calendula officinalis</i> L.	Antibacterial, reduces inflammation. ³⁸	Antibacterial, reduces inflammation. ³⁸
Milk Thistle	Milk Thistle	<i>Silybum marianum</i> (L.) Gaertn.	Tissue-repairing, reduces inflammation. ³⁹	Tissue-repairing, reduces inflammation. ³⁹
Berberidaceae	Barberry	<i>Berberis vulgaris</i> L.	Astringent and antibacterial. ⁴⁰	Antimicrobial. ⁴⁰
Hypericaceae	St. John's Wort	<i>Hypericum perforatum</i> L.	Anti-inflammatory and tissue-repairing. ⁴¹	Antimicrobial. ⁴¹
Lauraceae	Cinnamon	<i>Cinnamomum zeylanicum</i> Blume	Antifungal and antibacterial. ⁴²	Antifungal, reduces inflammation. ⁴²
Lamiaceae	Sage	<i>Salvia officinalis</i> L.	Anti-inflammatory and astringent. ⁴³	Antifungal, reduces inflammation. ⁴³
Thyme	Thyme	<i>Thymus vulgaris</i> L.	Antimicrobial, reduces inflammation. ⁴⁴	Antimicrobial, reduces inflammation. ⁴⁴
Oregano	Oregano	<i>Origanum vulgare</i> L.	Antifungal, antibacterial, reduces inflammation. ⁴⁵	Antifungal and antibacterial effects, reduces inflammation. ⁴⁵
Lemon Balm	Lemon Balm	<i>Melissa officinalis</i> L.	Antimicrobial, antifungal. ⁴⁶	Antimicrobial, antifungal. ⁴⁶
Hyssop	Hyssop	<i>Hyssopus officinalis</i> L.	Antimicrobial, reduces inflammation, astringent, and tissue-repairing. ⁴⁷	Antimicrobial, reduces inflammation, astringent, and tissue-repairing for vaginal tissue. ⁴⁷
Peppermint	Peppermint	<i>Mentha piperita</i> L.	Antimicrobial. ⁴⁸	Antimicrobial. ⁴⁸
Ziziphora	Horse Mint	<i>Ziziphora tenuior</i> (L.) Boiss.	Antibacterial, reduces inflammation. ⁴⁹	Antibacterial, reduces inflammation. ⁴⁹
Lythraceae	Pomegranate	<i>Punica granatum</i> L.	Astringent, antifungal. ⁵⁰	Antimicrobial, reduces inflammation. ⁵⁰
Malvaceae	Marshmallow	<i>Althaea officinalis</i> L.	Softening and anti-inflammatory. ⁵¹	Antimicrobial, reduces inflammation. ⁵¹
Myrtaceae	Myrtle	<i>Myrtus communis</i> L.	Astringent, antiseptic. ⁵²	Antimicrobial. ⁵²
Tea Tree	Tea Tree	Antifungal and antibacterial (53)	Antimicrobial. ⁵³	Antimicrobial. ⁵³
Eucalyptus	Eucalyptus	Strong disinfectant (54)	Antibacterial, reduces inflammation. ⁵⁴	Antibacterial, reduces inflammation. ⁵⁴
Oleaceae	Olive	<i>Olea europaea</i> L.	Tissue-repairing, antibacterial. ⁵⁵	Antimicrobial. ⁵⁵
Ranunculaceae	Black Cumin	<i>Nigella sativa</i> L.	Antifungal and anti-inflammatory. ⁵⁶	Antimicrobial, reduces inflammation. ⁵⁶
Theaceae	Green Tea	<i>Camellia sinensis</i> (L.) Kuntze	Antioxidant and antifungal. ⁵⁷	Antibacterial. ⁵⁷
Zingiberaceae	Turmeric	<i>Curcuma longa</i> L.	Anti-inflammatory and antifungal. ⁵⁸	Antibacterial, reduces inflammation. ⁵⁸
Zingiberaceae	Ginger	<i>Zingiber officinale</i> Roscoe	Antifungal. ⁵⁹	Antifungal. ⁵⁹

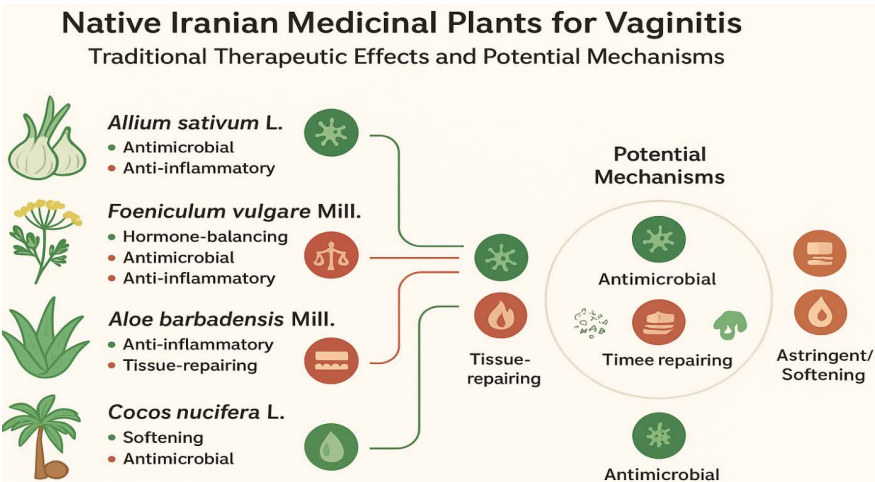


Figure 1. Mechanisms of Action of Medicinal Plants in the Management of Vaginitis

for each type of vaginitis remains limited. Variations in plant species, preparation methods, and dosages make it challenging to generalize the findings. Furthermore, there is a lack of well-designed clinical studies to confirm the safety and efficacy of these treatments.

Conclusion

Iranian traditional medicine, through the use of its native medicinal plants, has provided effective treatments for vaginitis. These plants, in addition to their antiseptic, antifungal, and antibacterial properties, also play a role in strengthening the immune system and restoring vaginal microbiota balance. The use of these plants may help reduce reliance on chemical medications and serve as a complementary option to modern treatments. Further clinical research on the effects of these plants can improve existing therapeutic methods and offer more natural and effective solutions for treating vaginitis.

Acknowledgements

The authors would like to express their gratitude to the clinical research development unit of Imam Khomeini Hospital, Urmia University of Medical Sciences, for English editing.

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Competing Interests

The authors declare no competing interests.

Ethical Approval

Ethical issues (including plagiarism, misconduct, data fabrication, falsification, double publication or submission, redundancy) have been completely observed by the authors.

Funding

The authors received no specific funding for this work.

Intelligence Use Disclosure

Authors declare no use of AI tools for preparing this manuscript. However, it has been used to improve the readability of the sentences for editing the article.

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