



An Integrative Review of Herbal and Complementary Therapies in the Management of Vaginal Infections

Prerna Chaturvedi*

Chameli Devi Institute of Pharmacy, Indore, Madhya Pradesh, India

Article info

Received: 28/11/2025

Revised: 25/12/2025

Accepted: 17/01/2026

© IJPLS

www.ijplsjournal.com

Abstract

Vaginal infections represent one of the most prevalent gynecological conditions affecting women across all age groups, with vulvovaginal candidiasis being the most frequently reported fungal etiology. *Candida albicans*, a commensal organism of the vaginal microbiota, may become pathogenic under conditions such as immune suppression, hormonal imbalance, antibiotic overuse, and lifestyle factors, leading to recurrent and persistent infections. Although conventional antifungal and antibacterial therapies remain the cornerstone of treatment, their repeated use is often associated with adverse effects, resistance development, and high recurrence rates. Consequently, interest has grown in herbal and complementary therapeutic approaches that offer multi-targeted, safer, and culturally accepted alternatives.

Traditional systems of medicine, including Ayurveda, Unani, and ethnomedicine, describe numerous botanicals with antifungal, anti-inflammatory, immunomodulatory, and probiotic-supporting properties. This review critically examines the etiology and classification of vaginal infections, limitations of conventional therapy, ethnopharmacological evidence, experimental and clinical studies on herbal interventions, and lifestyle-based supportive measures for vaginal health. Emphasis is placed on herbal formulations, single-plant remedies, and integrative strategies that promote vaginal comfort, microbial balance, and long-term wellness.

Keywords: Vaginal infection, Vaginitis, *Candida albicans*, Herbal medicine, Ethnopharmacology

Introduction

Vaginal infections, collectively referred to as vaginitis, constitute a major public health concern due to their high prevalence, recurrent nature, and impact on women's quality of life. Vaginitis is characterized by inflammation of the vaginal mucosa and vulva, presenting clinically with abnormal vaginal discharge, pruritus, burning sensation, erythema, and dyspareunia [1–3]. Diagnostic evaluation typically involves assessment of vaginal secretions, pH measurement, microscopy, and microbiological tests [4].

Among infectious etiologies, vulvovaginal candidiasis (VVC) accounts for a significant proportion, with *Candida albicans* responsible for

nearly 85–95% of cases [5]. Epidemiological data suggest that approximately 75% of women experience at least one episode of VVC during their lifetime, with recurrent infections occurring in nearly 5–8% of cases [6,7]. Other forms of vaginitis include bacterial vaginosis, trichomoniasis, viral infections, and non-infectious inflammatory conditions.

*Corresponding Author

E.mail: prernachaturvedi12@gmail.com

While conventional pharmacotherapy provides rapid symptomatic relief, its limitations—such as drug resistance, recurrence, and systemic side effects—have driven growing interest in herbal and integrative therapeutic approaches. Traditional medicinal systems worldwide have long utilized botanicals for managing gynecological disorders, including vaginal infections. This review synthesizes existing knowledge on herbal interventions and complementary strategies for maintaining vaginal health.

Table 1: Global Prevalence and Risk Factors of Vaginal Infections

Condition	Approximate Prevalence	Major Risk Factors
Vulvovaginal candidiasis	70–75% lifetime incidence	Antibiotics, diabetes, pregnancy
Recurrent VVC	5–8% women	Immunosuppression, hormonal imbalance
Bacterial vaginosis	20–30% reproductive age	Sexual activity, douching
Trichomoniasis	~156 million cases/year	Unprotected intercourse
Non-infectious vaginitis	Variable	Soaps, detergents, estrogen deficiency

Classification of Vaginitis

Vulvovaginal Candidiasis (Yeast Infection)

Yeast infections are primarily caused by *Candida* species, particularly *C. albicans*. Clinical manifestations include thick, curd-like vaginal discharge, vulvar erythema, pruritus, and burning sensation [8,9].

Bacterial Vaginosis

Bacterial vaginosis results from disruption of normal vaginal flora and overgrowth of anaerobic bacteria. It is characterized by thin, greyish discharge with a fishy odor and elevated vaginal pH [10].

Sexually Transmitted Vaginal Infections

These include infections caused by *Trichomonas vaginalis*, *Chlamydia trachomatis*, herpes simplex

virus, and human papillomavirus (HPV). Symptoms vary from asymptomatic infection to severe inflammation, discharge, and genital lesions [11–13].

Non-infectious Vaginitis

Non-infectious vaginitis arises from chemical irritation, allergic reactions, or hormonal changes and is commonly associated with vaginal sprays, soaps, detergents, spermicides, or estrogen deficiency [14].

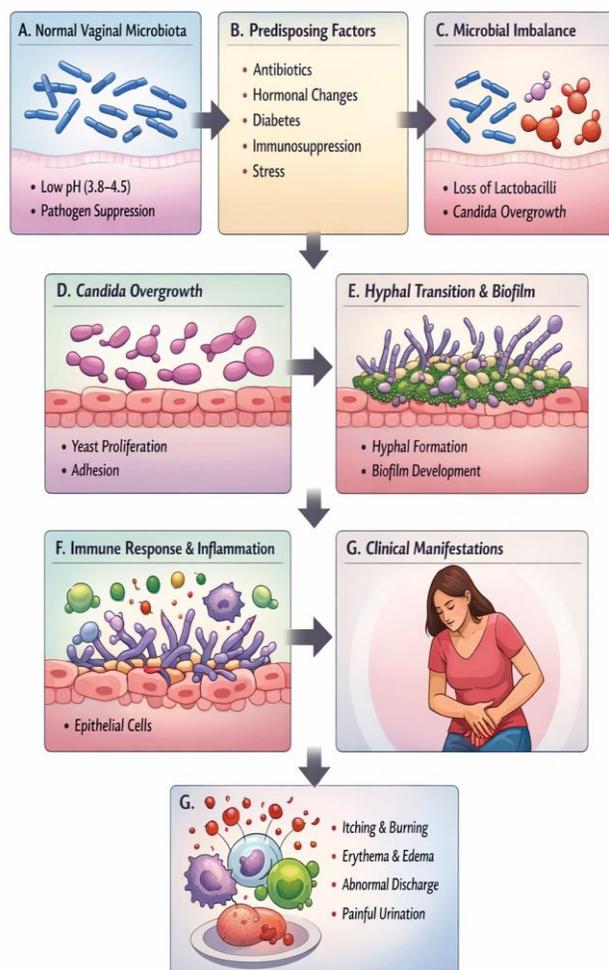


Fig. 1: Pathogenesis of Vaginal Candidiasis

Conventional (Allopathic) Management and Its Limitations

Standard treatment of vaginal infections includes antifungal agents such as clotrimazole, fluconazole, itraconazole, and nystatin, and antibacterial agents such as metronidazole and

clindamycin [15,16]. Although effective, repeated exposure to these agents can result in: Antifungal resistance, Disruption of normal vaginal microbiota, Adverse gastrointestinal and hepatic effects and High recurrence rates in recurrent vulvovaginal candidiasis (RVVC)

These drawbacks underscore the need for safer, multi-mechanistic alternatives, particularly for long-term management [17].

Table 2: Common Allopathic Drugs Used in Vaginal Infections

Drug Class	Examples	Limitations
Azole antifungals	Clotrimazole, Fluconazole	Resistance, recurrence
Polynes	Nystatin	Limited spectrum
Antibiotics	Metronidazole, Clindamycin	Flora disruption
Corticosteroids	Hydrocortisone	Mucosal thinning

Ethnopharmacological Evidence in Gynecological Disorders

Ethnomedicinal surveys from India and other regions document extensive use of medicinal plants for gynecological ailments. Studies by Behera [18], Dwivedi et al. [19,20], Shukla et al. [21], Nath et al. [22], and others report over 300 plant species traditionally used to manage leucorrhea, vaginitis, menstrual disorders, and infertility. These studies highlight not only therapeutic potential but also the importance of conservation and scientific validation of traditional knowledge.

Table 3: Ethnomedicinal Surveys Reporting Herbal Use in Gynecological Disorders

Author (Year)	Region	No. of Plants	Major Applications
Behera (2006)	Odisha, India	24	Vaginitis, leucorrhea
Dwivedi et al. (2008)	Madhya Pradesh	80	Menstrual & vaginal disorders
Shukla et al. (2008)	Chhattisgarh	30+	Gynecological ailments
Nath et al. (2010)	MP- Betul, Chhindwara	127	Female reproductive disorders

Sadeghia & Mahmood (2014)	Iran	80	Vaginal infections
---------------------------	------	----	--------------------

Vaginal Candidiasis: Clinical and Herbal Perspectives

Vaginal candidiasis represents a major therapeutic challenge due to its recurrent nature. Several clinical studies have explored herbal alternatives:

- *Nigella sativa* suppositories showed comparable efficacy to clotrimazole [23].
- *Zataria multiflora* vaginal cream demonstrated significant antifungal activity [24].
- Garlic-based and thyme-based formulations reduced symptoms and fungal load [25].
- Myrtle (*Myrtus communis*) capsules and creams exhibited antifungal efficacy [26,27].

These findings support the role of botanicals as adjuncts or alternatives in candidiasis management.

Herbal Formulations for Vaginal Infections

Polyherbal formulations have gained attention due to synergistic effects. Studies report successful formulation and evaluation of herbal tablets and creams containing *Achyranthes aspera*, *Clitoria ternatea*, and other medicinal plants, demonstrating antifungal and anti-inflammatory activity with acceptable safety profiles [28–30].

Herbal Approach to Vaginal Health and Microbial Balance

Medicinal plants commonly used in vaginal health include *Aloe vera*, *Asparagus racemosus*, *Saraca indica*, *Ficus racemosa*, *Vitex negundo*, and *Emblica officinalis* [31–34]. These plants exhibit antifungal, immunomodulatory, wound-healing, and estrogen-modulating properties, supporting both symptom relief and mucosal restoration.

Integrative and Lifestyle-Based Supportive Measures

Maintenance of vaginal health extends beyond pharmacotherapy. Probiotics, dietary regulation, stress management, hygiene practices, and avoidance of irritants play critical roles in preventing recurrence [35–37]. Herbal teas, topical applications, and immunomodulatory

botanicals such as *Echinacea* and *Calendula* may further support resilience.

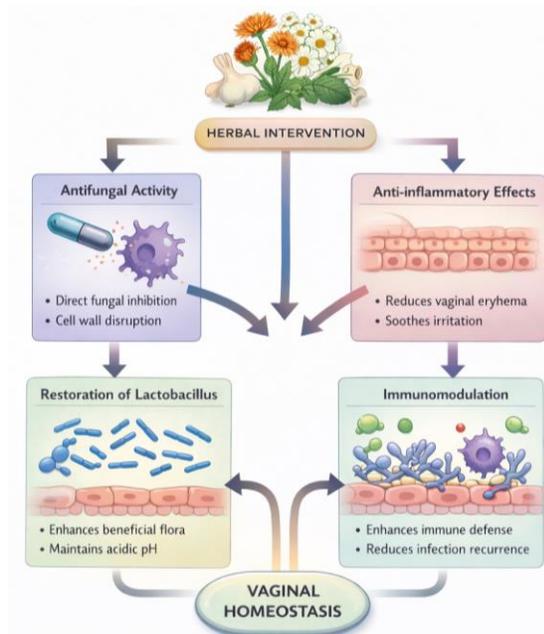


Fig. 2: Mechanism of Herbal action against Vaginal Infections

Table 4: Clinical Studies on Herbal Therapies in Vaginal Candidiasis

Study	Herbal Intervention	Comparator	Outcome
Sovizi (2007)	<i>Nigella sativa</i> suppository	Clotrimazole	Comparable efficacy
Fouladi et al. (2009)	<i>Zataria multiflora</i> cream	Clotrimazole	Reduced symptoms
Bahadoran et al. (2011)	Garlic + Thyme cream	Clotrimazole	Similar antifungal action
Farshbaf-Khalili (2016)	Garlic + <i>Zataria</i>	Clotrimazole	Faster symptom relief
Askari et al. (2020)	Myrtle + Oak gall	Placebo	Significant improvement

Table 5: Medicinal Plants with Anticandidal Activity

Plant	Family	Major Activity
<i>Calendula officinalis</i>	Asteraceae	Anti-inflammatory
<i>Achyranthes aspera</i>	Amaranthaceae	Antifungal
<i>Allium sativum</i>	Amaryllidaceae	Broad antimicrobial
<i>Myrtus communis</i>	Myrtaceae	Antifungal
<i>Nigella sativa</i>	Ranunculaceae	Anticandidal
<i>Aloe vera</i>	Asphodelaceae	Healing & soothing

Table 6: Herbal Formulations Developed for Vaginal Infections

Formulation Type	Herbal Ingredients	Study Outcome
Vaginal cream	<i>Achyranthes aspera</i>	Reduced fungal load
Herbal tablet	<i>Clitoria ternatea</i>	Symptom improvement
Polyherbal mix	Multiple roots & leaves	Safe & effective
Suppository	Myrtle, Oak gall	Clinical efficacy

Table 7: Herbal and Lifestyle Measures Supporting Vaginal Health

Category	Examples	Benefit
Probiotics	Yogurt, Lactobacillus	Flora balance
Topical herbs	Aloe, Calendula	Soothing
Hygiene	Cotton underwear	Moisture control
Diet	Low sugar intake	Reduced Candida growth
Stress control	Yoga, meditation	Immune support

Safety Considerations and Best Practices

While herbal medicines are generally perceived as safe, inappropriate use may lead to irritation or

interactions. Standardization, dosage regulation, patch testing, and professional consultation are essential for safe application [38].

Conclusion

Herbal medicine offers a promising, holistic, and culturally relevant approach to the management of vaginal infections. Supported by ethnopharmacological knowledge, experimental evidence, and emerging clinical data, botanicals provide multi-targeted benefits including antifungal activity, immune modulation, mucosal healing, and microbiota balance. Integrating herbal therapies with conventional medicine and lifestyle-based self-care practices can enhance therapeutic outcomes, reduce recurrence, and improve women's quality of life. Future research should focus on well-designed clinical trials, standardization of formulations, and mechanistic studies to firmly establish herbal medicines as evidence-based interventions in gynecological care.

References

1. Sobel JD. Vulvovaginitis in healthy women. *Compr Ther*. 1999;25(6-7):335-46.
2. Anderson MR, Klink K, Cohrssen A. Evaluation of vaginal complaints. *JAMA*. 2004;291(11):1368-79.
3. Linhares IM, Giraldo PC, Baracat EC. New findings about vaginal bacterial flora. *Rev Assoc Med Bras*. 2010;56(3):370-4.
4. Amsel R, et al. Nonspecific vaginitis. *Am J Med*. 1983;74(1):14-22.
5. Fidel PL Jr. Immunity to *Candida*. *Trends Microbiol*. 2004;12(5):221-7.
6. Sobel JD. Recurrent vulvovaginal candidiasis. *Am J Obstet Gynecol*. 2016;214(1):15-21.
7. Foxman B, et al. Prevalence of recurrent VVC. *J Womens Health*. 2013;22(9):719-25.
8. Willems HME, et al. Pathogenesis of VVC. *Mycoses*. 2020;63(4):287-99.
9. Achkar JM, Fries BC. *Candida* infections of the genitourinary tract. *Clin Microbiol Rev*. 2010;23(2):253-73.
10. Schwebke JR, Desmond RA. BV clinical features. *Clin Infect Dis*. 2007;44(2):213-9.
11. Workowski KA, Bolan GA. STD treatment guidelines. *MMWR Recomm Rep*. 2015;64(RR-03):1-137.
12. Sena AC, et al. Trichomoniasis epidemiology. *Clin Infect Dis*. 2014;59(6):800-7.
13. Johnston C, Corey L. HSV infection. *N Engl J Med*. 2016;375:666-74.
14. Mac Bride MB, et al. Noninfectious vaginitis. *Clin Obstet Gynecol*. 2010;53(1):43-52.
15. Pappas PG, et al. Clinical practice guidelines for candidiasis. *Clin Infect Dis*. 2016;62(4):e1-50.
16. Sobel JD, et al. Maintenance fluconazole therapy. *N Engl J Med*. 2004;351:876-83.
17. Donders GGG. Lower genital tract infections. *Best Pract Res Clin Obstet Gynaecol*. 2007;21(3):381-400.
18. Behera KK. Ethnomedicinal plants for gynecological disorders. *J Ethnopharmacol*. 2006;107:317-25.
19. Dwivedi SN, et al. Ethnomedicinal uses of plants. *Ethnobot Leaflet*. 2008;12:132-41.
20. Dwivedi SN, et al. Herbal remedies for gynecological diseases. *Indian J Tradit Knowl*. 2010;9(1):135-9.
21. Shukla R, et al. Indigenous medicine for gynecological problems. *Ethnobot Res Appl*. 2008;6:129-34.
22. Nath V, et al. Ethnomedicinal plants of MP. *Indian J Tradit Knowl*. 2010;9(2):253-7.
23. Sovizi R. *Nigella sativa* vs clotrimazole. *J Med Plants*. 2007;6(21):37-44.
24. Fouladi Z, et al. *Zataria multiflora* in VVC. *Iran J Pharm Res*. 2009;8(4):267-71.
25. Bahadoran P, et al. Garlic and thyme in vaginitis. *Iran J Nurs Midwifery Res*. 2011;16(4):343-8.
26. Roozbahani R, et al. Myrtle capsule in candidiasis. *J Obstet Gynaecol Res*. 2013;39(1):256-61.

27. Janani L, et al. Myrtle vs clotrimazole. Complement Ther Clin Pract. 2013;19(3):146-9.
28. Shriwas D, et al. Herbal tablet for vaginal infection. Int J Pharm Sci Res. 2019;10(3):1421-7.
29. Shriwas D, et al. Herbal cream formulation. J Drug Deliv Ther. 2019;9(4):223-8.
30. Khan A, et al. Toxicological profile of polyherbal formulation. J Ethnopharmacol. 2016;194:41-50.
31. Nadkarni KM. Indian Materia Medica. Mumbai: Popular Prakashan; 2009.
32. Sharma PV. Dravyaguna Vijnana. Varanasi: Chaukhambha; 2011.
33. Van Andel T, et al. Medicinal plants for uterine disorders. J Ethnopharmacol. 2014;158:191-205.
34. Ballabh B, Chaurasia OP. Herbal remedies in gynecology. J Ethnopharmacol. 2011;135:102-7.
35. Reid G, et al. Probiotics in vaginal health. FEMS Immunol Med Microbiol. 2003;35:1-10.
36. Brotman RM. Vaginal microbiome. Nat Rev Microbiol. 2011;9:619-29.
37. Petrova MI, et al. Vaginal lactobacilli. Microbiol Mol Biol Rev. 2015;79(4):460-92.
38. WHO. Guidelines on safety monitoring of herbal medicines. Geneva: WHO; 2004.

Cite this article as:

Chaturvedi P. (2026). An Integrative Review of Herbal and Complementary Therapies in the Management of Vaginal Infections. *Int. J. of Pharm. & Life Sci.*, 17(1):1-6.

Source of Support: Nil

Conflict of Interest: Not declared

For reprints contact: ijplsjournal@gmail.com