

ROLE OF SHATAVARI (ASPARAGUS RACEMOSUS WILLD.) IN ESTROGEN AND PROGESTERONE MODULATION: A REVIEW OF AYURVEDIC AND SCIENTIFIC LITERATURE

Dr. Adhishree B. Prajapati^{1*}, Dr. Payal Patel², Dr. Dipa Mehta³

^{*1}Assistant Professor, Department of Dravya Guna, Manjushree Research Institute of Ayurveda Science, Gandhinagar, Gujarat.

²Associate Professor, Department of Dravya Guna, Manjushree Research Institute of Ayurveda Science, Gandhinagar, Gujarat.

³Professor, Department of Dravya Guna, Manjushree Research Institute of Ayurveda Science, Gandhinagar, Gujarat.

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***Corresponding Author**

Dr. Adhishree B. Prajapati

Assistant Professor, Department of
Dravya Guna, Manjushree Research
Institute of Ayurveda Science,
Gandhinagar, Gujarat.



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ABSTRACT

Shatavari (*Asparagus racemosus* Willd.) is a well-known Ayurvedic Rasayana traditionally used for the support of reproductive health and hormonal balance in women. In this review, classical Ayurvedic concepts are combined with modern scientific evidence to examine its role in estrogen and progesterone modulation. It is believed that the therapeutic effects of Ayurveda are obtained by providing nourishment to Rasa and Artava Dhatu, regulation of Vata and Pitta Doshas and rejuvenative (Rasayana) action. Recent studies have shown that Shatavari contains steroidal saponins and phytoestrogenic compounds that interact with estrogen and progesterone receptors, thereby promoting endocrine homeostasis without directly increasing hormone levels. Adaptogenic, antioxidant and anti-inflammatory properties further support ovarian function, stress regulation and reproductive health. The emerging clinical evidence is encouraging, but larger, long-

term studies are needed to establish its efficacy and safety in evidence-based women's healthcare.

KEYWORDS: *Shatavari, Asparagus racemosus, Estrogen modulation, Progesterone regulation, Ayurveda, Female reproductive health.*

INTRODUCTION

Shatavari (*Asparagus racemosus* Willd.) originated in Ayurveda, the traditional system of Indian medicine, and is native to India and the Himalayan region. Its use was first documented in classical Ayurvedic scriptures, including the *Charaka Samhita* and *Sushruta Samhita*. It is one of the most important medicinal plants described in Ayurveda and is widely recognized as the "**Queen of Herbs**" for its beneficial effects on female reproductive health. The Sanskrit name *Shatavari*, meaning "one who possesses a hundred husbands," symbolizes fertility, reproductive strength, and vitality. It is classified as a **Rasayana** (rejuvenative) herb that nourishes **Rasa Dhatu** and **Artava Dhatu**, balances **Vata** and **Pitta Doshas**, and promotes female reproductive health throughout different stages of life.^[1,2]

Ayurveda explains female reproductive physiology through the concepts of **Doshas, Dhatus, Agni, Srotas**, and **Ojas**. Functions analogous to estrogen and progesterone—including menstrual regularity, ovulation, implantation, fertility, and maintenance of pregnancy—are reflected in the proper functioning of **Artava Dhatu** and **Artavavaha Srotas**. Hormonal imbalance is considered to arise from disturbances in **Vata** and **Pitta Doshas**, impaired **Agni**, and depletion of **Rasa** and **Artava Dhatu**, leading to menstrual disorders, infertility, recurrent pregnancy loss, and menopausal symptoms.^[3,4,5]

Modern pharmacological studies indicate that Shatavari does not directly increase estrogen or progesterone concentrations. Instead, it functions as an **adaptogenic endocrine modulator**, containing steroidal saponins (shatavarins), diosgenin, sarsaponin, protodioscin, and other phytoestrogenic compounds capable of interacting with estrogen and progesterone receptors. These bioactive constituents contribute to endocrine homeostasis, ovarian function, and stress adaptation rather than acting as exogenous hormones.^[6,7]

Considering the increasing prevalence of endocrine disorders and growing interest in evidence-based herbal medicine, an integrated review of classical Ayurvedic principles and contemporary scientific findings is essential to understand the role of Shatavari in estrogen and progesterone regulation. This review summarizes the available evidence regarding its phytochemistry, pharmacological actions, clinical efficacy, and therapeutic potential in female reproductive health.

MATERIALS AND METHODS

This review was prepared by collecting information from classical Ayurvedic texts and scientific literature. Databases including PubMed, Google Scholar, Scopus, Science Direct, and Springer Link were searched using keywords such as *Asparagus racemosus*, Shatavari, estrogen, progesterone, phytoestrogen, and female reproductive health. Clinical trials, experimental studies, molecular studies, and review articles published in English were included. Classical Ayurvedic references such as the *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, and *Bhavaprakasha Nighantu* were also reviewed.

RESULTS / RESEARCH FINDINGS

1. Ayurvedic Evidence

Classical Ayurvedic literature identifies Shatavari as a **Rasayana**, **Balya**, **Stanyajanana**, **Garbhasthapana**, and **Vrishya** herb primarily acting on the female reproductive system. It nourishes **Rasa** and **Artava Dhatus**, balances **Vata** and **Pitta Doshas**,^[2] and supports fertility, conception, pregnancy, and lactation. *Asparagus racemosus* (family Asparagaceae) also known by the name Shatavari is one of the well-known drugs in Ayurveda, effective in treating madhur rasam, madhur vipakam, seet-veeryam, som rogam, chronic fever and internal heat.^[8,9]

In Phytochemical properties, several investigators have identified the major bioactive constituents of *Asparagus racemosus*, including: Shatavarins I–IV, Diosgenin, Sarsaponin, Protodioscin, Flavonoids and Polyphenols. These compounds exhibit phytoestrogenic (mimics estrogen activity to support hormonal balance), antioxidant, anti-inflammatory, and adaptogenic activities.^[6,10]

In estrogen modulation, experimental studies indicate that phytoestrogenic steroidal saponins bind weakly to estrogen receptors (ER α and ER β), exerting selective estrogen-like activity without markedly increasing circulating estrogen concentrations. These effects may help alleviate menopausal symptoms, improve reproductive tissue health, and support ovarian function.^[11]

Ayurvedic Perspective on Estrogen Modulation by Shatavari (*Asparagus racemosus* Willd.)

In Ayurveda, the female reproductive physiology is explained with the help of coordinated functions of Doshas, Dhatus, Agni, Srotas and Ojas. Artava Dhatu and Artavavaha Srotas are

the structural and functional basis of female reproductive health. Physiological processes such as estrogenic activity like follicular development, menstrual cyclicity, tissue nourishment and fertility are dependent on adequate nourishment of Rasa Dhatu, effective Agni and balanced state of Vata and Pitta Doshas.^[3] Any disturbance in these factors can interfere in the formation of Artava and can cause menstrual irregularities, anovulation, infertility and menopausal manifestations.^[4,5]

Shatavari (*Asparagus racemosus* Willd.), a renowned **Rasayana**, possesses **Madhura Rasa**, **Guru-Snigdha Guna**, **Sheeta Virya**, and **Madhura Vipaka**, which collectively nourish **Rasa** and **Artava Dhatus** while pacifying aggravated **Vata** and **Pitta Doshas**, thereby supporting female reproductive health.^[3,4,5]

Shatavari is believed to exert its effects through phytoestrogenic activity of its steroidal saponins (Shatavarins), which have affinity for estrogen receptors and may modulate gonadotropin levels, in addition to antioxidant and anti-inflammatory actions.^[16] Its root extract contains various phytoconstituents, including Shatavarins, which are steroidal saponins in structure and have affinity towards estrogen receptors and exhibit estrogen-like activity, which helps in regulating overall hormonal regulation.^[17]

Modern pharmacological investigations have identified steroidal saponins (shatavarins), diosgenin, flavonoids, and other phytoestrogenic constituents in Shatavari.^[6,12,15] These phytochemicals exhibit mild affinity for estrogen receptors and appear to modulate estrogenic signaling rather than directly increasing circulating estrogen concentrations.^[6,12] In addition, the adaptogenic properties of Shatavari may regulate the **hypothalamic-pituitary-adrenal (HPA) axis**, reducing stress-induced suppression of ovarian function and contributing to endocrine homeostasis.^[6,13]

Mahajan et al. (2025) performed a randomized, double-blind, placebo-controlled clinical trial of standardized Shatavari root extract in perimenopausal women. Chronic pain showed significant improvement within eight weeks.^[14]

- Vasomotor symptoms
- Mood
- Perceived stress
- Quality of life
- Selected hormonal parameters

The treatment was well tolerated and no serious adverse events occurred.^[14]

The authors concluded that Shatavari is a promising botanical intervention for perimenopausal symptom management, but larger long term clinical studies are required.^[14] Hence the Ayurvedic concepts of Artava-poshana, Rasayana Chikitsa and Dosha Samyata provide a rationale for interpretation of the estrogen modulating effects of Shatavari in the modern pharmacological and clinical studies.

Ayurvedic Perspective on Progesterone Regulation by Shatavari (*Asparagus racemosus* Willd.)

Although **progesterone** is not explicitly described in Ayurvedic literature, its physiological functions closely correspond to the maintenance of **Artava Dhatu**, **Garbhashaya** (uterus), **Beeja** (ovum), and the normal activity of **Apana Vata**, which governs ovulation, implantation, menstruation, and pregnancy.³ Adequate nourishment of **Rasa** and **Artava Dhatus**, together with balanced **Vata**, **Pitta**, and **Kapha Doshas**, is essential for successful conception, endometrial receptivity, fetal nourishment, and maintenance of pregnancy.^[4,5]

As a **Stree Rasayana**, Shatavari strengthens reproductive tissues through its **Brimhana** (nourishing) and **Snigdha** (unctuous) properties, while its **Sheeta Virya** alleviates aggravated **Pitta**, thereby creating a favorable uterine environment for conception and gestation as mentioned in Agnivesha, *Charaka Samhita*, Chikitsa Sthana 1 and in Vagbhata, *Ashtanga Hridaya*, Uttara Tantra 39.^[3,5]

Experimental and phytochemical studies have identified steroidal saponins—including **shatavarins**, **diosgenin**, **sarsaponin**, and **protodioscin**—as the principal bioactive constituents of Shatavari.^[6,12,15] Molecular and preclinical investigations suggest that these compounds may exhibit affinity for progesterone receptors and support endogenous steroidogenesis, although direct clinical evidence remains limited.^[6,12] Furthermore, the adaptogenic activity of Shatavari may regulate the **HPA axis**, thereby reducing cortisol-mediated inhibition of the hypothalamic-pituitary-ovarian axis and indirectly supporting physiological progesterone production and luteal function.^[6,13] Shatavari's steroidal saponins improve progesterone emission and mimic hormonal properties, which ultimately help in hormonal regulation. In healthy women, Ashwagandha (*Withania somnifera* (L). Dunal) accompanies Shatavari with its adaptogenic and stress-modulating properties.^[18]

Thus, the Ayurvedic concepts of **Garbhasthapana**, **Artava-poshana**, **Rasayana Chikitsa**, and **Dosha Samyata** provide a scientific rationale for the traditional use of Shatavari in infertility, recurrent pregnancy loss, menstrual disorders, luteal phase insufficiency, and reproductive aging.

DISCUSSION

Both Ayurvedic literature and modern biomedical research findings show tremendous convergence on the therapeutic role of Shatavari in female reproductive health. Ayurveda explains its action through Artava-poshana, Rasayana Chikitsa and Dosha Samyata, while modern science explains these effects through phytoestrogenic steroidal saponins, adaptogenic activity, antioxidant mechanisms and endocrine modulation.

Shatavari does not appear to have a direct effect on increasing circulating estrogen or progesterone levels as does hormone replacement therapy. Instead it works as a selective hormonal modulator, it interacts with hormone receptors and helps maintain normal endocrine physiology. The adaptogenic action on the HPA axis adds to hormonal homeostasis by reducing the stress-induced inhibition of ovarian function. Shatavari helps regulate levels of estrogen and progesterone through interrelated physiological pathways.^[18]

Its effectivity in improving perimenopausal symptoms, mood, and stress with a good safety profile is supported by clinical data especially the randomized controlled trial by Mahajan et al. (2025). However, present evidence is limited by relatively small numbers of human studies, heterogeneous preparations and short intervention periods. Thus, large multicenter randomized controlled trials and mechanistic studies are necessary to establish standardized therapeutic protocols and confirm long-term safety.

CONCLUSION

Shatavari (*Asparagus racemosus* Willd.) scientifically promising an ayurvedic medicinal plant has great potential in maintaining female hormonal balance. The classical Ayurvedic concepts on its nourishing role on Artava Dhatu, balancing Vata and Pitta Doshas and promoting reproductive health are increasingly supported by pharmacological and clinical evidence. Current evidence indicates that its phytoestrogenic steroidal saponins and adaptogenic and antioxidant effects, rather than direct stimulation of hormones, are contributing to the endocrine homeostasis. Emerging clinical data show a favorable safety profile with benefits on perimenopausal symptoms and reproductive health. Nevertheless,

well-designed clinical trials, mechanistic studies and long-term safety studies are needed to establish its efficacy and to use it in evidence-based complementary healthcare.

REFERENCES

1. Brinckmann, J., & Williams, M. (2022). Herb profile: Shatavari (*Asparagus racemosus*). *HerbalGram*, (133): 6–17.
2. Sharma, P. V. (Ed. & Trans.). (2013). *Sushruta Samhita* (Vols. I–III). Varanasi: Chaukhambha Vishvabharati.
3. Sharma, P. V. (Ed. & Trans.). (2014). *Charaka Samhita of Agnivesha* (Vols. I–II). Varanasi: Chaukhambha Orientalia.
4. Murthy, K. R. Srikantha (Trans.). (2016). *Ashtanga Hridayam of Vagbhata* (Vols. I–III). Varanasi: Chaukhambha Krishnadas Academy.
5. Chuneekar, K. C., & Pandey, G. S. (Eds.). (2018). *Bhavaprakasha Nighantu* (Guduchyadi Varga). Varanasi: Chaukhambha Bharati Academy.
6. Alok, S., Jain, S. K., Verma, A., Kumar, M., Mahor, A., & Sabharwal, M. (2013). Plant profile, phytochemistry and pharmacology of *Asparagus racemosus* (Shatavari): A review. *Asian Pacific Journal of Tropical Disease*, 3(3): 242–251.
7. Singh GK, Garabadu D, Muruganandam AV, Joshi VK, Krishnamurthy S. Experimental and pharmacological evaluation of *Asparagus racemosus*: A review. *J Ethnopharmacol.*, 2011.
8. Gogte VM. Ayurvedic pharmacology and therapeutic uses of medicinal plants. Mumbai: SPARC; 2000.
9. Frawley D. Ayurvedic healing-a comprehensive guide. Delhi: Motilal Banarsidass Publishers Private Limited; 1997.
10. Fabricant, D. S., & Farnsworth, N. R. (2001). The value of plants used in traditional medicine for drug discovery. *Environmental Health Perspectives*, 109(Suppl 1): 69–75.
11. <https://superpower.com/guides/supplements-that-increase-estrogen>
12. Hayes, P. Y., Jahidin, A. H., Lehmann, R., Penman, K., Kitching, W., & De Voss, J. J. (2008). Steroidal saponins from the roots of *Asparagus racemosus*. *Phytochemistry*, 69(3): 796–804.
13. Bopana, N., & Saxena, S. (2007). *Asparagus racemosus*—Ethnopharmacological evaluation and conservation needs. *Journal of Ethnopharmacology*, 110(1): 1–15.
14. Mahajan, S., Avad, P., & Langade, J. (2025). Efficacy and safety of Shatavari (*Asparagus racemosus*) root extract for perimenopause: A randomized, double-blind, placebo-

- controlled study. *International Journal of Women's Health*, 17: 4057–4073.
15. Goyal, R. K., Singh, J., & Lal, H. (2003). *Asparagus racemosus*—An update. *Indian Journal of Medical Sciences*, 57(9): 408–414.
16. MartinKAMansonJE. Approach to the patient with menopausal symptoms. *J Clin Endocrinol Metab.*, 2008; 93(12): 4567–75. 10.1210/jc.2008-1272
17. Ademola, J., Ajgaonkar, A., Debnath, T., Debnath, K., & Langade, J. (2025). *Efficacy and safety of Shatavari root extract (Asparagus racemosus) for menopausal symptoms: A randomized, double-blind, three-arm, placebo-controlled study. Frontiers in Reproductive Health*, 7: 1654503.
18. Ademola, J., Mahajan, S., Srivathsan, M., & Langade, D. (2026). *Effects of Shatavari (Asparagus racemosus) root extract on sexual wellness in women: Findings from a prospective, randomized, double-blind, three-arm, parallel-group, placebo-controlled study. International Journal of Women's Health*, 18: 561213.