

EFFICACY OF YASHTIMADHU (GLYCYRRHIZA GLABRA) IN INFERTILITY: A REVIEW

Sujata K. Shamkuwar¹, Yogita Shrivastava², Pratibha Baghel³

1. Department of Prasuti Tantra Evam Stree Roga, Faculty of Ayurveda, Government Ayurved College, Jabalpur, India.
2. Department of Kaumarbhritya, DMAMCHRC, Wanadongri, Nagpur, India.
3. Department of Sharir kriya, Faculty of Ayurveda, Government Ayurved College, Jabalpur, India.

Abstract

Infertility is a growing reproductive health concern globally, affecting approximately 10-15% of couples of reproductive age group. Herbal medicines have emerged as complementary therapies for infertility management. *Yashtimadhu* (*Glycyrrhiza glabra*), commonly known as licorice, is a well-known Ayurvedic herb with *Rasayana* (rejuvenative), *Balya* (strength-promoting), and *Shukrala* (spermatogenic) properties. This review focuses on the efficacy of *Yashtimadhu* in improving fertility outcomes, its pharmacological actions, mechanisms, and available scientific evidence.

Key words- *Rasayana*, *Balya*, *Shukrala*, *Yashtimadhu*, infertility.

Introduction

Infertility is defined as the inability to conceive after one year of unprotected intercourse¹. Various factors such as hormonal imbalance, oxidative stress, endometrial receptivity issues, and poor spermatogenesis contribute to infertility in both males and females². *Ayurvedic* literature describes numerous herbs for improving fertility, among which *Yashtimadhu* plays a significant role due to its multifaceted therapeutic actions³.

Ayurvedic Perspective of *Yashtimadhu* in Infertility

In Ayurveda, *Yashtimadhu* is categorised with *Snigdha* and *Guru Guna* with *Madhura Rasa*, *Sheeta Virya*, and *Madhura Vipaka*. It has *Shukrala* (reproductive fluid enhancer), *Balya* (strength promoter), and *Rasayana* (rejuvenator) property⁴.

These properties make it suitable for the management of infertility, particularly where depletion of *Shukra Dhatu* (reproductive tissue) and hormonal disturbances are involved.

Pharmacological Actions Relevant to Infertility

1. Phytoestrogenic Activity:

Yashtimadhu contains active constituents like glycyrrhizin and flavonoids that exhibit oestrogen-like activity, which helps in regulating the menstrual cycle and improving ovulation in females⁵.

2. Antioxidant Effect:

Oxidative stress affects both male and female fertility. *Yashtimadhu* exhibits potent antioxidant action that helps in scavenging free radicals, thereby protecting gametes and reproductive tissues⁶.

3. Anti-inflammatory and Immunomodulatory Actions:

It helps in reducing inflammation of reproductive organs and enhancing endometrial receptivity, which is crucial for implantation⁷.

4. Androgen Modulation:

In males, *Yashtimadhu* improves testosterone levels and enhances spermatogenesis by improving Sertoli cell function⁸.

Experimental and Clinical Studies

1. Effect on Female Infertility:

A study by Toshiro et al. showed that glycyrrhizin helps in normalizing ovarian function by acting on the hypothalamic-pituitary-ovarian axis⁹. Another animal study demonstrated improved estrous cycle regularity and ovulation rate after *Yashtimadhu* administration¹⁰.

2. Effect on Male Infertility:

Goyal et al. conducted an experimental study on rats where administration of *Glycyrrhiza glabra* extract significantly increased sperm count, motility, and testosterone levels¹¹. Similar effects were observed by Al-Dabbas et al., showing improved spermatogenesis and reduced oxidative stress markers¹².

3. Antioxidant and Anti-inflammatory Effects:

A study by Sharma et al. found that *Yashtimadhu* significantly reduced malondialdehyde (MDA) levels and increased superoxide dismutase (SOD) activity in reproductive tissues of experimental animals¹³.

Mechanism of Action

The probable mechanisms through which *Yashtimadhu* improves fertility include:

Modulation of oestrogen and androgen levels.

Enhancement of gonadotropin-releasing hormone (GnRH) secretion.

Reduction in oxidative stress.

Immunomodulation and endometrial receptivity improvement.

It stimulates Spermatogenesis via increased action of testosterone and FSH¹⁴⁻¹⁵.

Safety and Dosage

Yashtimadhu is generally safe when used in therapeutic doses (3-6 grams/day powder form or standardized extract as per manufacturer guidelines). However, prolonged high doses may cause sodium retention and hypertension due to mineralocorticoid-like effects¹⁶.

Conclusion

Yashtimadhu shows significant potential in the management of infertility due to its phytoestrogenic, antioxidant, anti-inflammatory, and gonadotropic-modulating properties. Both experimental and limited clinical studies support its role in enhancing fertility parameters. However, more large-scale randomized controlled clinical trials in humans are needed to establish standardized dosage and long-term safety.

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