



Shatavari: A Drug Review

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ABSTRACT

Shatavari- *Asparagus racemosus* is one of the most important herbal drug used by Ayurvedic vaidya's since ancient days. The drug is having wide range of therapeutic activity and mentioned as a rasayan by ancient Ayurvedic Text. In Ayurveda, it is considered as a female tonic. The main part used is a root. Shatavari has also been successfully used by several ayurvedic practitioner for nervous disorder, acid peptic disease, certain infectious disease. In spite of being a rejuvenating herb, it is beneficial in female infertility, as it increases libido, cures inflammation of sexual organs and even moistens, dry tissues of the sexual organ, enhances folliculogenesis and ovulation. It prepares the womb for conception, prevents miscarriages, acts as post partum tonic by increasing lactation and normalizing the uterus and the changing hormones. Various scientific studies have proved that this drug worked as a potent antitussive, antineoplastic galactagogue, anti-diarrheal and as immunomodulant. The present article includes phytochemistry, pharmacology, therapeutic uses mentioned in both modern sciences as well as in ancient Ayurvedic text. The article includes the detailed study of shatavari, so that it can highlight future research potential of this famous and commercially useful drug.

Keywords: Shatavari, *Asparagus racemosus*, Rasayan, galactagogue, female tonic

I. INTRODUCTION

Ayurveda is gaining popularity world wide. The Ayurveda is totally natural remedy and its major base is herbal medicine. There are several popular herbal drugs mentioned in ayurvedic text and shatavari is one of the most popular drug from Ayurveda, Shatavari means "who possesses a hundred husbands or acceptable to many" it is considered both a general tonic and a female reproductive tonic in Ayurveda. This amazing herb is known as "queen of herbs" because it promotes love and devotion. The drug is having wide range

of therapeutic activity, it is considered as a rejuvenative for female, like *Withaniasomnifera* for male. The plant is easily available all over India. The drug is useful in several female reproductive system disorders.

Asparagus racemosus prevents aging, anti-tumor, useful in nervous tonic and acts as anti-inflammatory agent. Ancient Ayurvedic text claimed special use of this drug as a galactagogue. Shatavari is one of the most effective herbal drugs. The major advantage of this drug is that it can be used both as a single drug as well as in poly-herbal combination.

Nirukti

Shatavari- "Shatainavarantiiti"
which means it has multiple roots

Scientific classification^[14]

Kingdom- Plantae
Order - Asparagales
Family - Asparagaceae (liliaceae)
Genus - *Asparagus*
Species - *Racemosus* L.
Latin Name - *Asparagus racemosus* L.

Synonymous[6]

Shatavari, Vara, Narayani, Shatvha, Keshika, Laghuparnika, Shatvirya, Madhura, Shatpatrika, Vrukshya, Dipya

Vernacular names

Sanskrit - Shatavari, Shatamuli, Shatveeraya, Attirasa
Hindi - Shatavari
Bengali - Shatamuli
Marathi - Shatavari
Gujarati - Satawari
Tamil - Shadavari
Telugu - Toala-gaddalu
Kannada- Majjigegadde

Gana

- Vayasthapan, Balya, Madhurskandha^[1]
- Vidharigandhadi, Kantakpanchmula, Pittashamnam^[2]

Raspanchak^[3]

- Guna - Guru, Snigdha
- Ras - Madhur, tikta
- Vipak - Madhur
- Virya - Sheet

Samanya Karma^[7]

Rasayani, Medhangnivardhak, Netra, Atisarjit, Shukrastanyakar, Balya, Vrishya, Grahanijit

Parts used^[3]

Root

Plant description^[3]

Shatavari is available throughout India specially Himalayan region upto 4000 feet. It is a

woody climber which grows to a height of 1-2 meter. The leaves are like pine needles, small and uniform and have tiny white flowers. Flowers are arranged in the form of spikes. The roots are tuberous, succulent, finger shaped and form clusters. The fruits are a berry with a diameter of 0.4-0.6cm, pea like appearance and contains seeds.

Habitat^[13,3]

It is common in low altitudes in shade throughout India, Asia, Australia and Africa. The plant grows throughout the tropical and sub tropical parts of India upto an altitudes of 1500 meter.

Types of Shatavari^[3]

Two types of shatavari are described as below:-

- Shatavari- *Asparagus racemosus*
- Mahashatavari- *Asparagus sarmentosa* Linn.

Phytochemical properties^[14]

Sr. No.	Part used	Phytochemicals derived from different parts of plant
1.	Root	Rutin, Asparagamine A, 9,10-dihydro-1,5-methoxy-Quercetin3 glucouronides, 8-methyl-2,7-phenenthrenediol, Racemofuran, Shatavarin I-IV, Immunoside, Racemosal, \$-trihydroisoflavine 7-O-beta-D-glucopyranoside, Sterols, Alkaloid, Tannins, Carbohydrates, Flavonoids, isoflavones, Lactones, Amino acids, rutin.
2.	Stem	Sarsasapogenin and KaempferolThiophenes, thiazole, aldehyde, ketone, Gamma linoleinic acids, Undecanylecetamoate.
3.	Leaves	Vanillin, Asparagusic acid, methyl/ethyl esters
4.	Flowers	Diosgenin, quereetin-3-glucuronide
5.	Fruits	Quercetin, Rutin, Hyperoside, Racemoside A, B, and C Sarsasapogenin, the aglycone of Racemosides A.

Pharmacological action

Immunomodulatory activities^[14]

Shatavari dried root powder has a positive effect on the immune system. As a result, the inflammatory reaction is reduced. It stimulates the immune system to combat infections, tumors, and immunological weaknesses (such as AIDS). It could aid in the production of more protective antibodies against certain vaccinations, as well as a more effective cell-mediated immune response for protection against bacterial, viral and other illnesses. Several researchers have investigated the role of Shatavari root extract in enhancing humoral and cell-mediated immune responses, resulting in increased protection against infections.

Gastrointestinal effects^[12]

The powdered dried root of *A. racemosus* is used in Ayurveda for dyspepsia. Oral administration of powdered dried root of *A. racemosus* has been found to promote gastric emptying in healthy volunteers. Its action is reported to be comparable with that of the synthetic dopamine antagonist metoclopramide. In Ayurveda, *A. racemosus* has also been mentioned for the treatment of ulcerative disorders of stomach and ParinamaShool, a clinical entity akin to the duodenal ulcer diseases. The juice of fresh root of *A. racemosus* has been shown to have definite curative effect in patients of duodenal ulcers.

Galactagogue Effect^[12,13,14]

A. racemosus is termed as *stanya* i.e. galactogogues in Ayurveda. It has been investigated by a number of researchers and they found that its roots and root extracts can improve lactational inadequacy in lactating mothers. Ayurveda explains that *A. racemosus* can be used in increased milk secretion. In humans and other animals, the impact of *Shatavari* on milk production and secretion has been examined. *Shatavari* was found to raise plasma prolactin levels in buffaloes, resulting in enhanced milk output. The galactagogue impact of two distinct preparations of *Shatavari*, namely milk and aqueous decoctions, was examined in rats. Both preparations resulted in a considerable increase in milk supply as well as a significant rise in pup weight growth. *Shatavari* has been shown to enhance plasma prolactin levels and mother and infant body weight in humans, indicating a galactagogue action.

Antioxidant activity^[14]

The antioxidant effect of *Shatavari* crude extract and purified aqueous fraction has been proven. The extract protected against oxidative damage by preventing lipid peroxidation, protein oxidation, and depletion of protein thiols and the antioxidant enzyme superoxide dismutase. When compared to the crude extract, the purified aqueous fraction containing polysaccharides proved to be a powerful antioxidant. The antioxidant activity of the crude extract was more efficient in suppressing protein oxidation than the purified fraction against lipid peroxidation. Radiation-induced loss of protein thiols and inactivation of superoxide dismutase were both protected by the crude and purified extracts.

Antineoplastic Activity^[14]

In breast cell cancer, the root extract was found to have a protective effect. The apoptotic activity of steroidal components of *Shatavari* was researched, and it was concluded that they had the ability to kill tumour cells. The anticancer activities of *shatavarins* (including *Shatavari IV*) extracted from the roots of *Shatavari* were tested using the MTT assay with MCF-7 (human breast cancer), HT-29 (Human Colon Adenocarcinoma), and A-498 (human colon adenocarcinoma) (human kidney carcinoma). The extract (including *Shatavari IV*) appeared to have substantial anti-cancer action, according to the findings of the experiments.

Antidepressant activity^[13]

A. racemosus worked as an adaptogenic agent means as an antidepressant agent. Adaptogenic drugs are those which are useful as anti-stress agents by promoting non-specific resistance of the body. *A. racemosus* was evaluated as an antidepressant effect in rats where methanolic extract of roots of *A. racemosus* in various doses of 100, 200 and 400 mg/kg daily for 7 days and then subjected to tests like forced swim test (FST) and learned helplessness test (LH). The results indicated that immobility in FST and increased avoidance response in LH indicating antidepressant agent in behavioral experiments. So *Shatavari* can work as a significant antidepressant agent and its effect is mediated through serotonergic, noradrenergic systems.

Effect on uterus^[14]

Shatavari is regarded as a feminine tonic in Ayurveda. Despite being a rejuvenating herb, it aids female infertility by raising libido, curing inflammation of the sexual organs and even moistening dry tissues of the sexual organs, enhancing folliculogenesis and ovulation, preparing the womb for conception, preventing miscarriages, and acting as a postpartum tonic by improving breastfeeding, regulating the uterus, and modifying hormones. It's also recommended for leucorrhoea and menorrhagia.

Antibortifacient^[12]

This activity is due to *Shatavarin-1*, which blocks even oxytocin-induced contractions in rat, guinea pig and rabbit uteri in vivo and in situ in a dose-dependent manner. The researchers also confirmed that the in vivo effect of *shatavarin IV* i.e. *Saponin A4* on the uterine muscles is just like the estrogen. Its *rasayana* as well as antioxidant activity helps in modulating various immune processes and also prevents lipid peroxides at the placental level. The polycyclic alkaloid *asparagamine A* is also reported to have an antioxidant action, showing an antibortifacient effect.

II. DISCUSSION

Shatavari is a very useful drug from Ayurveda stream. Several studies are conducted on this plant showing its utility as a promising therapeutic agent in alternative therapies. Phytochemicals and pharmacology of this drug provide useful scientific data to promote this as an important Ayurvedic drug in several ailments. The

review can add information of this drug as an evidence based drug.

III. CONCLUSION

Asparagus racemosus, generally known as shatavari in Indian traditional system, is a significant medicinal plant. Review of shatavari from the Ayurvedic texts focus on the importance as well as wide range of therapeutic uses in Asian text. Shatavari extracts are complex mixtures that contain multiple components and therefore unless proper investigations are conducted, there would be no method to connect a particular constituent to a specific action within the biological system. Detailed documentation and cataloguing of this plant is need of hour. This will be helpful for promoting this plant in a more scientific way as a useful medicinal drug.

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