

A Brief review of medicinal properties of *Asparagus racemosus* (Shatawari)

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ABSTRACT

Asparagus racemosus (Shatawari) is recommended in Ayurvedic texts for prevention and treatment of gastric ulcers, dyspepsia and as a galactagogue. *A. racemosus* has also been used successfully by some Ayurvedic practitioners for nervous disorders, inflammation, liver diseases and certain infectious diseases. It is also useful in treatment of epilepsy, kidney disorders, chronic fevers, excessive heat, stomach ulcers and liver cancer, increases milk secretion in nursing mothers and regulates sexual behaviors. Due to multiple uses demand of *Asparagus racemosus* on rise so plant became endangered. So proper agro –technique and other technologies are required to fulfill the demand

Key words: - *Asparagus racemosus*, medicinally important, endangered, galactagogue, Bioactive principle.

INTRODUCTION

Asparagus racemosus Wild. (family Asparagaceae; Liliaceae), is commonly called Satavari, Satawar or Satmuli in Hindi; Satavari in Sanskrit; Shatamuli in Bengali; Shatawari or Shatmuli in Marathi; Satawari in Gujarati; Toala-gaddalu or Pili-gaddalu in Telegu; Shimaishadavari or Inli-chedi in Tamil; Chatawali in Malayalam; Majjigegadde or Aheruballi in Kannada; Kairuwa in Kumaon; Narbodh or atmooli in Madhya Pradesh; and Norkanto or Satawar in Rajasthan.

The plant grows throughout the tropical and subtropical parts of India up to an altitude of 1500m. The plant is a spinous under-shrub, with tuberous, short rootstock bearing numerous succulent tuberous roots (30–100 cm long and 1–2 cm thick) that are silvery white or ash colored externally and white internally. These roots are the part that finds use in various medicinal preparations^{1,2,3}. The stem is woody, climbing, whitish grey or brown colored with small spines. The plant flowers during February–March leaving a mild fragrance in its surrounding and by the end of April, fruits can be seen with attractive red berries. *Asparagus racemosus* is a plant used in traditional Indian medicine (Ayurveda)⁴. The root is used to make medicine.

Shatawari (*Asparagus racemosus*) is a climbing plant which grows in low forest areas throughout India. The name "Shatawari" translates to "**a woman who possesses 100 husbands**", referring to the Shatawar rejuvenation effect in female reproductive organs. A much branched spinous under-shrub with tuberous, short rootstock bearing numerous fusiform, succulent roots. Shatawari has been mentioned in Ayurvedic texts like the Charak Samhita and Susruta Samhita, and Astanga Samgraha^{5,6}. In the Kashyap Samhita, has evidently stated that shatawari promotes maternal health and noted its meticulous use as a galactagogue (enhances breast milk secretion in lactating mothers). Shatawari actually literally means "having a 100 spouses" and ayurvedic texts accurately claim that shatawari strengthens a woman to the point where she is being capable of producing thousands of healthy ova. Ayurveda has called Shatawari the Queen of herbs and is the primary herb recommended for female health. Among the three Ayurveda Doshas of 'Vata', 'Pitta' and 'Kapha', Shatawari efficiently helps in

balancing 'Pitta Dosha'. Shatavari's rasas are sweet "madhura" and also in nature bitter "tikta". It is a natural coolant.

Cultivation

Soils: The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. Black, well drained and fertile soil is good for cultivation.

Climate: crop responses well to tropical and hot climate. Temperature required 25-40 °C

Irrigation: The tamarind is adapted to semiarid regions of the tropics and can withstand drought conditions quite well. They require minimum irrigation so avoid over-watering..

Fertilization: one ploughing, three harrowings and then apply 20-25 tons of farm yard manure.

Harvest: raised beds -1x3 m in the month of May or June Seed one kg for one hectare area. Apply 50 gram urea in the bed after 20-25 days. Seedlings become ready within 6-8 weeks for transplantation in the main field. Transplanting- Size of pit-45x45x45) spacing-row to row-1.5m and plant to plant-1.0m Fill the pits with 20-30 gram lindane or carbaryl and 5 kgs of FYM at the time of transplanting.. Generally shatavari crop does not affect with pest and diseases.

Harvesting: first harvesting 1.5-2 years after transplanting, which continues for 10-15 years. Male and female plants must be grown if seed is required.

Bioactive principle of *Asparagus racemosus*

The major bioactive constituents of *Asparagus* are a group of steroidal saponins (Shatawari I-IV). This plant also contains vitamins A, B₁, B₂, C, E, Mg, P, Ca, Fe, and folic acid. Other primary chemical constituents of *Asparagus racemosus* are essential oils, asparagine, arginine, tyrosine, flavonoids (kaempferol, quercetin, and rutin), resin, and tannin.

Medicinal uses

Asparagus racemosus is mainly known for its phytoestrogenic properties. With an increasing realization that hormone replacement therapy with synthetic oestrogens is neither as safe nor as effective as previously envisaged, the interest in plant-derived oestrogens has increased tremendously making *Asparagus racemosus* particularly important. The plant has been shown to aid in the treatment of neurodegenerative disorders and in alcohol abstinence-induced withdrawal symptoms. In Ayurveda, *Asparagus racemosus* has been described as a *rasayana* herb and has been used extensively as an adaptogen to increase the non-specific resistance of organisms against a variety of stresses. Besides use in the treatment of diarrhoea and dysentery, the plant also has potent antioxidant, immunostimulant, anti-dyspepsia and antitussive effects.

Asparagus root possesses aphrodisiac, demulcent, general tonic, diuretic, anti-inflammatory, antiseptic, anti-oxidant and antispasmodic properties. Regular use of asparagus root treats infertility, impotence, leucorrhoea, menopause syndromes, hyperacidity, and certain infectious diseases such as herpes and syphilis.

It is also useful in treatment of epilepsy, kidney disorders, chronic fevers, excessive heat, stomach ulcers and liver cancer, increases milk secretion in nursing mothers and regulates sexual behaviors.

Asparagus racemosus cleanses, nourishes, and strengthens the female reproductive organs and so, it is traditionally used for PMS, amenorrhoea, dysmenorrhoea, menopause and pelvic inflammatory disease (PID) like endometriosis. *Asparagus racemosus* is considered as the most potent female health tonic.

Asparagus racemosus also supports deeper tissue and builds blood, helping in treating infertility, prevents miscarriage and acts as a post-partum tonic as it increases lactation, regularizes the uterus and balances hormones, probably due to phyto-estrogens. *A. racemosus* is also suggested for its soothing agent upon systemic dryness which is part of the natural aging process. It endorses positive emotions that calming fresh sensitivity and the sizzling emotions such as irritability, anger, jealousy, resentment, and

hatred. It also helps with pain, restless sleep, disturbing dreams, and those who have weak emotional and physical heart.

Asparagus racemosus possesses a strong rejuvenating, fostering, and stabilizing action on excessive air, gas, dryness and agitation in the body and mind; for this action, the root infusion is traditionally used in treating nervousness, anorexia, insomnia, hyperactive children, and slow growing of humans.

According to Ayurvedic Indian Herbal system; *Asparagus racemosus* is conceivably the best known as a female rejuvenative, used for stimulation of milk production in lactating women, useful for childlessness, decreased libido, threatened miscarriage, menopause, leucorrhoea and has the capability to balance pH in the cervical area, and as a good remedy for impotence and general sexual weakness.

Asparagus racemosus is prescribed for stomach ulcers, hyperacidity and diarrhea, dry and irritated membranes of the vagina and in the upper respiratory tract. It is beneficial in treating bronchitis as well.

***Asparagus racemosus* as Feed Supplement:**

Asparagus racemosus may constitute a very important component of as feed supplement in the animal diets because of their higher availability of nutrients. Crude protein, crude fiber, ether extract, nitrogen free extract and ash content have been analyzed and found that this herb is very rich in nitrogen free extract and minerals like Ca, Mg, Fe, Cu, Zinc etc.

***Asparagus racemosus* as an Antioxidant:**

Antioxidants are intimately involved in the prevention of cellular damage – the common pathway for cancer, aging, and a variety of diseases. *Asparagus racemosus* possess antioxidant properties. Methanolic extract (100mg/kg BW p. o.) given to orally for 15 days and it increase the antioxidant defense, that is, enzymes superoxidase dimutase, catalase and ascorbic acid, increase significantly whereas a significantly decrease in lipid peroxidation⁷. The anti oxidant properties was found due to presence of Isoflavons specially racemofuran, asparagamine A and racemosol⁸.

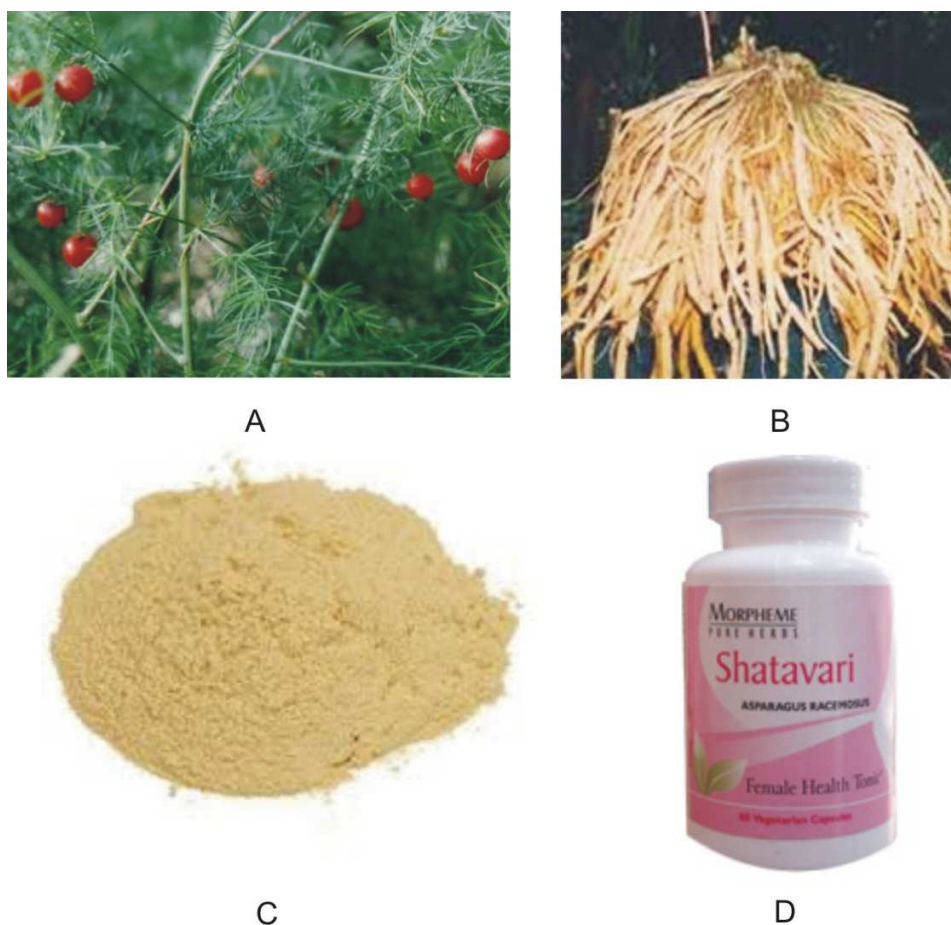
Need of time:

Due to its multiple uses, the demand for *Asparagus racemosus* is constantly on the rise; however, the supply is rather erratic and inadequate. Destructive harvesting, combined with habitat destruction in the form of deforestation has aggravated the problem. The plant is now considered 'endangered' in its natural habitat. Therefore, the need for conservation of this plant is crucial.

To overcome these prevalent problems, the availability of genetically superior and uniform planting material is essential. This can be obtained by a combination of various biotechnological tools involving chemoprofiling, tissue culture and use of molecular markers. Along with the application of these methods, proper agro-techniques and adequate marketing opportunities would encourage cultivation of *Asparagus racemosus* and thereby contribute to its conservation.

There are also several gaps in the existing literature with regard to the pharmacological actions of *Asparagus racemosus*. These include an incomplete understanding about the interaction/synergy between *Asparagus racemosus* and other plant constituents in polyherbal formulations; lack of information regarding the mode of action of the various constituents of *Asparagus racemosus*, etc.

This article aims to evaluate the biological activities, pharmacological applications and clinical studies of *Asparagus racemosus* in an attempt to provide a direction for further research.

Fig. 1

**A. *Asparagus racemosus* Plant with fruits, B. *Asparagus racemosus* Roots
C. *Asparagus racemosus* root powder, D. *Asparagus racemosus* Product**

CONCLUSION

Shatavari or Satmuli is a very important medicinal plant, which is used, in many (allopathically) incurable diseases in Ayurveda and also in Himalayan traditional medicine system. Traditionally this plant is used as a reproductive tonic. It is also used traditionally for treating gonorrhoea, piles, diabetes, increasing lactation, anthelmintic (pertaining to a substance capable of destroying or eliminating parasitic worms, esp. human intestinal helminthes), rheumatism, cough, diarrhea, dysentery, gastric troubles and headache. The Western world has now to accept these traditional treatments after analyzing the chemistry of this plant. Here the most important thing to notice is that we have many traditional herbs and therapies which can cure many incurable diseases, but these traditional medicines are vanishing very rapidly because our government doesn't have any serious program for promoting these medicines.

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