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SHATAVAR (*ASPARAGUS RACEMOSUS*) MEDICINAL PLANT DESCRIPTION AND ITS UTILITY FOR ANIMAL HEALTH

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SUMMARY

Asparagus racemosus (satavar, shatavari, or shatamull, shatawari) is an indigenous medicinal plant of the Liliaceae family. The eastern Mediterranean and Asia Minor are the places where shatavar first appeared. Ayurveda is a conventional system of natural medicine which has its origins in India and dates back more than 3,000 years. It is self-pollinated crop and propagated through seeds and disc. In usual circumstances, the flowering percentage ranges from 75-96%, while the berry setting percentage is 60 - 70%. Shatavar is a plant with several therapeutic benefits for human beings as well as for animals. The root of *Asparagus recemosus* may have positive benefits on mental disorders, inflammations, tumors, dyspepsia, diarrhoea, dysentery, neuropathy, hepatopathy, cough, bronchitis, hyperacidity, and several infectious diseases. The roots of *Asparagus racemosus* contain steroidal saponins (Shatavarins I–IV), which are the plant's major bioactive constituents. Protein, fat, and carbohydrates make up 22%, 6.2%, 3.2%, and 0.4% of shatavari roots, along with trace amounts of vitamin A, B, C. There are numerous alkaloids in it. Asparagin, an anticancer agent, is produced from alcohol extract. Additionally, it contains several anti-oxytocic saponins and have immunomodulatory actions are some of the pharmacological properties of *Asparagus* root powder or extract. This herb is extremely successful in treating issues with the female reproductive system, increases the lactation and cures the disease related to the teats and udder in animals.

Key words: *Asparagus racemosus*, satavar, medicinal utility, animal health, enhanced lactation

Asparagus racemosus (satavar, shatavari, or shatamull, shatawari) is an indigenous medicinal plant of the Liliaceae family that is important for its sapogenin concentration, which is the precursor with several pharmacologically potent steroids. The Sanskrit words shat, which means "100," and vri, which means "roots," are combined to form the name "shatavari." Shatavari is sometimes referred to as "woman who has a hundred partners". The Indian medical system holds *Asparagus racemosus* as a significant medicinal plant as its root juice or paste has been used to treat a wide range of ailments and used as a tonic for health (Arya *et al.*, 2020). The use of shatavari powder is widespread in Ayurvedic medicine for human beings as well as animals.

Ayurveda is a conventional system of natural medicine which has its origins in India and dates back more than 3,000 years. The harmony between the environment and your body, mind, and spirit is encouraged by ayurveda. Shatavari is a plant with several therapeutic benefits for humans, including treating disorders of the spleen, liver, and other internal organs as well as avoiding miscarriages. This herb is extremely successful in treating issues with the female reproductive system (Kumar *et al.*, 2008); as a result, it is also referred to as "women's herb" and is endowed with the ability to treat all female hormonal issues. Shatavari has a variety of beneficial effects on humans, including antidiarrhetic (Venkatesan *et al.*, 2005), antispasmodic, aphrodisiac (Sharma *et al.*, 2012), antidysenteric, demulcent, diuretic, nutritive, mucilaginous, refrigerant, stomachic qualities (Visavadiya *et al.*, 2009). It is also known to boost the immune system and safeguard the body's key organs, such as the heart, brain (Goyal and Sairam, 2002), and other organs. Due to all remarkable properties this herb is referred to as the "Queen of herbs" in Ayurveda. Due to destructive harvesting, combined with habitat destruction, and deforestation, the plant is now considered "endangered" in its natural habitat.

This paper intends to provide a brief overview of the description, propagation & cultivation, crop improvement, phytochemical constituents, medicinal use and formulations of *Asparagus racemosus* species. The majority of species are well-known for their immunomodulatory, antiparasitic, antiulcer,

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antioxidant, antidiarrheal, anti-diabetic, anti-inflammatory, anti-fertility, anti-parasitic, anti-antimicrobial, cytotoxic, nephron-protective effect etc. This herb is extremely successful in treating issues with the female reproductive system, increases the lactation and cures the disease related to the teats and udder in animals. If a farmers feeds his animals (cow and buffalo) about 2-2.5 kg fresh shatwar roots for one week, it enhances the overall health of animal as well as improves the lactation (Kirti and Arya 2019).

Origin and Distribution: The eastern Mediterranean and Asia Minor are the places where shatavari first appeared. As early as 200 BC, cultivated shatavari was considered a luxury food. Since at least 2000 years ago, shatavari has been cultivated and was originally recognized for its therapeutic qualities. *Asparagus racemosus* is widespread in the Himalayas, India, and Sri Lanka. The shatavari plant is widespread from mean sea level up to 1500m in the Himalayas from Kashmir eastward. It is found in tropical and subtropical India, including the Andaman and Nicobar Islands. The crop is grown in Kerala, Tamil Nadu, Andhra Pradesh, and northern Indian states. However, wild collections from forests are used to fulfill the majority of the industry's needs. Gardeners also grow it.

Habitat: *Asparagus racemosus* may reach heights of 1 to 2 metres and prefers to establish itself within rocky, gravelly soils at an elevation of 1300 to 1400 metres in the piedmont plains. *Asparagus racemosus*, one of several Asparagus species indigenous to India, is the most widely utilised in home-grown medicine.

Taxonomy: *Asparagus* is a vast genus with about 300 species that are found all over the world (Kumar *et al.*, 2016) and is a member of the Asparagaceae family. The family Asparagaceae and subfamily Liliaceae include the perennial herbaceous shrub *Asparagus racemosus* (Chadha, 2003). The three subgenera of the genus-*Asparagus*, *Protasparagus*, and *Myrisphyllum*-make up the majority of its taxonomic division (Clifford and Conran, 1987). One of the key medicinal plants in the Ayurvedic medical system is *Asparagus racemosus*, which belongs to the genus *Asparagus*. It is self-pollinated crop having diploid chromosome number 2n=20.

Plant Description: The Asparagus genus has more than 250 species that are distributed throughout the world, 22 of which are indigenous to India. Shatavari is a woody perennial prickly climber that grows to be 1-2 meters tall, with fascicled finger-like clustered tuberous roots and a profusion of spine-scented pine-like leaves. In the fall, it produces tiny white flowers in the form of subglobose berries with black seeds.

Floral Biology: Reproductive biology studies provide knowledge about the nature of species, adaptability, speciation, and hybridization. Any breeding programme must commence with a basic knowledge of reproductive biology. Little is known about the reproductive biology of this rare yet valuable therapeutic plant. Inflorescence of *Asparagus racemosus* is racemose type on which buds develops from bottom to top. Direction of opening of flowers on inflorescence is in three way viz. basipetal succession i.e. from top to bottom, acropetal succession i.e. bottom to top and middle to both sides. The flower structure of *Asparagus racemosus* having average length of inflorescence is 4.02 cm and average number of flowers on single inflorescence are 20. The tepals of flowers are six in number with polytepalous condition and colour of tepals is whitish green or whitish yellow or greenish yellow. Androecium has six stamens with the average length 1.5 mm. Ovary is three locular, superior. Three carpels united into one pistil and each pistil contain three locules and each locules possess two ovules. Stigma is bifid with average length 1 mm.

Asparagus racemosus is self-pollinated crop. In usual circumstances, the flowering percentage ranges from 75% to 96%, while the berry setting percentage is between 60% and 70%. Shatavari flower opening commences at 7:00 am and ends at 10:00 am, although there was no flower opening after 11:00 am. The viability upto 3hrs.

Plant Parts Used: Tuberous roots, leaves, shoots, whole plant and seeds. But mostly, antiparasitic, antiulcer (Sairam *et al.*, 2003), antioxidant, antidiarrheal, anti-diabetic, and immunomodulatory actions are some of the pharmacological properties of *Asparagus racemosus* root powder or extract.

Plant Propagation and Crop Cultivation: They can be propagated by rhizomatous disc divisions and seeds. It is cultivated in a range of soil types with adequate drainage, including red loamy to clayey, and black soil. The pH range, 6-8 is ideal for plant growth, and sandy loam to medium black soil with adequate drainage yields the greatest results. Seeds are sown in the month of April. Seed rate of 400-600g per acre. Shatavar seeds should be sown on raised beds of 30-40 cm width and of convenient length. Seedling germination starts within 8-10 days. In the months of June and July, seedlings should be transplanted, when the crop achieves a height of 45 cm. Apply well-

TABLE 1
Medicinal effects of various plant parts

Plant part	Medicinal Effects of Plant parts
Leaves	Cholinesterase, Antiparasitic
Tuberous Roots	Antiparasitic, Antiulcer, antioxidant, antidiarrheal, anti-diabetic, and immunomodulatory
Shoots	Antiinflamatory, Antidiabetic and Diuretic
Aerial Parts	Urolithiasis, Hypolipedimic, Antiasthmatic and Antifertility
Seeds	Antiparasitic
Whole Plant	Antimicrobial and Cytotoxic, Nephroprotective

(Source: Dahiya *et al.,* 2022).

decomposed FYM (Farm Yard Manure) at a rate of 80 q/acre while preparing the field. Apply N:P:K fertilizer at a rate of 24:32:40 kg/acre. Apply biopesticides like Dhatura, Chitrakmool, and cow urine to protect plants from soil-borne diseases. After transplanting, plants' roots reach maturity approximately 20–30 months. Roots get fully developed in 12 to 14 months, depending on the climate and soil conditions. When the seeds are ready, which is in the months of March to May, harvesting is carried out by Kudali.

Crop Improvement: Shatavar (*Asparagus racemosus*) is well known from ancient time to the human beings but it is utilized from the available natural resources. Due to continuous digging from the natural forest areas, its population is depleting day by day. Therefore, it is an instant need to develop the high yielding varieties for commercial cultivation. During last few decades, germplasm of shatawar was collected from the different place in India and conserved for further utilization and evaluation at different locations all over India. About 30 accessions are conserved at MAP Section, Department of Plant Breeding, CCS HAU, Hisar. In initial stage of crop improvement, new variety are developed through simple selection. Moreover, being a self-pollinated medicinal crop like ashwagandha, it may be improved through simple selection, mass selection, hybridization, pedigree and back cross (Arya *et al.,* 2025). Generally, breeders do collections from the different places and evaluate the collected genotypes as well as do further selections within the segregating populations of the collection to identify the high yielding genotypes for further testing over time and space. All the genotypes are evaluated for root yield as well as for alkaloid content.

Phytochemicals Ingredients: Shatavar plant roots consists of diverse range of molecules in which principal active components are steroidal saponins like Shatavarins (I to IV), isoflavonoids, asparagamine A (a polycyclic alkaloid), racemofuran, and the 9, 10-dihydrophenanthrene derivative racemosol. The leaves possess diosgenin and quercitin-3-glucuronide. The fruits possess two spirostanolic and furostanolicsaponins, stigmasterol, stigmasterol beta-D-glucoside, sarasapogenin, stigmasterol, and stigmasterol. The two most important steroidal saponin glycosides are shatavarin I and IV (Khan, and Subramanian, 1968; Ravikumar *et al.,* 1987; Joshi, and Dev, 1988). Roots possess trace minerals which including zinc, manganese, copper, and cobalt, as well as calcium, magnesium, potassium zinc, and selenium (Mohanta *et al.,* 2003).This plant also contains protein, fat, and carbohydrates make up 22%, 6.2%, 3.2%, and 0.4% of shatavari roots respectively (Symala 1997) along with vitamins A, B_1, B_2, C, E, Diosgenin, quercetin 3-glucourbnides. Fig. 1 depicts the major bioactives (chemical components) of Asparagus species.

Medicinal Uses: Recently, food scientists, nutritionists, dieticians, and industrialists have focused on the use of medicinal herbs to improve the functionality of everyday products. When compared to synthetic and allopathic treatments, the use of shatavari root powder has been recognized more cost effective and safe for improving customers' overall health."Root is boiled in milk and the milk is delivered to Shatavari is the most significant herb in ayurvedic medicine for dealing with problems related to women's fertility. It is used to treat infertility, loss of sexual urge, threatening miscarriage, menopausal symptoms, hyperacidity, stomach ulcer, and bronchial infection. Medicinal plants and their derivatives are invaluable source of therapeutic agents to treat various disorders. In Ayurveda, shatavari has been described as completely safe for long-term use, including during pregnancy and breastfeeding. In Ayurveda, shatavari is recognised as a rasayana, a herbal remedy that promotes normal health by enhancing cellular endurance. Almost all Ayurvedic formulations shatavari is used as ingredient, including Anuthaila, Brahma rasayana, Dhanwanthararishta, Mahathikthakakashaya, Narayana Thaila, Rasnadikashaya, Sahacharadithaila, Saraswatharishta, Shatavari panaka, Shatavari gritha, and Shatamulyadilehya (Warrier *et al.,*

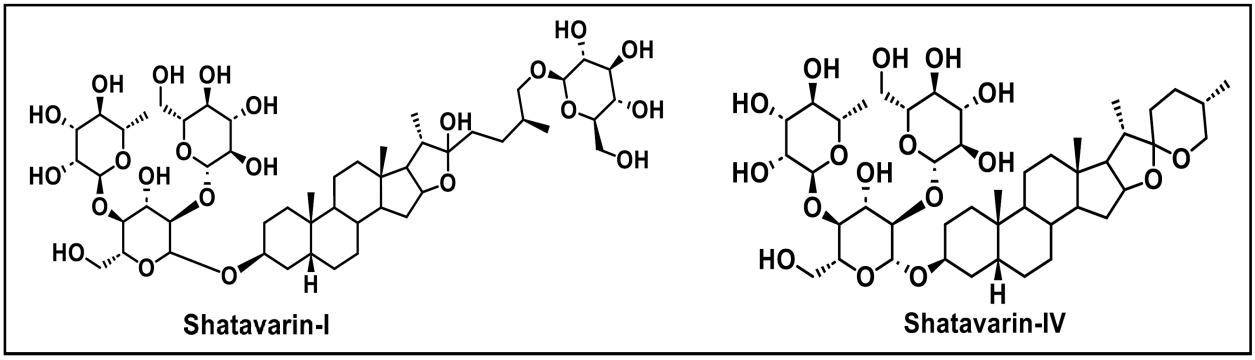

Fig. 1. Major bioactives (chemical components) of Asparagus species. (Source: Pandey *et al.,* 2026).

2001;Sairam *et al.,* 2003). It has also been recognised as one of the medications to manage AIDS symptoms. The plant has a number of traditional applications that have been validated by experimental tests. Shatavari contains number of pharmalogocal activities as summerized below.

In the memory cell carcinoma, the root extract seems to have a preventive role. The apoptotic activity of steroidal segments of *Asparagus racemosus*was investigated, and it was suggested that they might have the capacity to cause tumour cell death. The anti-cancer capabilities of shatavarin IV seem to be very significant (Mitra *et al.,* 2012). Roots powder supplementation is used to reduce total lipid concentration and peroxidation by reducing LDL and VLDL cholesterol levels by more than 40% (Choudhary and Sharma,2014). Satavari boosted antioxidant enzyme production, strengthened antioxidant defences, and minimised the damage being done by free radicals. The brain's ability to produce compounds with anti-anxiety and anti-depressant effects was enhanced by shatavari. The flavonoids, polyphenols, and saponins in shatavari give it its anti-stress qualities (Arya *et al.,* 2020). They boost the synthesis of hormones or chemicals that make one feel joyful and tranquil while decreasing the production of stress hormones (Dhingra and Kumar, 2007). Shatavar based on the plant's role as a powerful immunomodulator, *Asparagus racemosus* was assessed for anti-HIV activity. 23 different plants were used to create 92 extracts. Anti-HIV activity in a human CD4+ T-cell line was assessed. However, butanol extract demonstrated 87.2% suppression of HIV-1 at noncytotoxic dose, demonstrating the anti-HIV potential of these extracts (Sabde *et al.,* 2011). For stomach ulcers with shatavari powder may also help in preventing further ulcer development. The powdered root of *Asparagus racemosus* is effective in treating recurrent peptic ulcers. The number of gastric mucosal epithelial cells lived longer, and there was an increase in the amount of gastric fluid produced and its thickness (Mangal *et al.,* 2006). Shatavari is used by women to address diseases like polycystic ovarian syndrome (PCOS) and infertility that are caused by hormonal imbalance. In rats given castor oil to produce diarrhoea, the antidiarrheal efficacy of *Asparagus racemosus* extracts was studied. Using loperamide as a reference medication, it has been demonstrated that the ethanolic and aqueous extracts had inhibitory effect against gastrointestinal tract motility after administration of a charcoal meal and PGE2-induced enteropooling (Venkatesan *et al.,* 2005). Shatavarin IV has the most potential from the numerous experiments to reduce cell viability and mortality rate (Mitra *et al.,* 2012). Shatavar may also aid in many other situations by acting as an anti-plasmodial, anti-fungal, and neural disorder treatment; hepatoprotective; for diabetes and diabetic neuropathy; for irritable bowel syndrome (IBS); and many more. Shatavar is associated with curing and preventing a wide range of other illnesses both in human beings and animals.

CONCLUSION

Since ancient times is shatavar, which helps the body prevent ageing, boost immunity, improve mental function, and have more vigour. In animals, it was found effective to enhance lactation and to cure disease of teats and udder. It is one of the most alluring sources of potential novel medications, whose extracts have demonstrated to be effective in treating so many disease in human beings and animals. Due to destructive harvesting, combined with habitat destruction, and deforestation, the plant is now considered "endangered" in its natural habitat. Therefore, improvement in yield performance and quality of shatavar is still challenging. To achieve, high yield and quality of shatavar plant, breeding studies are necessary for further development of shatavar cultivation.

REFERENCES

Arya R. K., K. Kumar, S. Nimbal, G. K. Koli, and S. Kant, 2025: Advances in breeding techniques for genetic improvement in ashwagandha [*Withania somnifera* (L.) Dunal]. *Ekin J.* **11**(1):25-36.

Arya R. K., P. Kumar, G. S. Dahiya, J. M. Sutaliya, Ravi Kumar and A.K. Chhabra, 2020: Medicinal Garden at a Galance (Publication No. CCSHAU/PUB#21-053), MAP Section, Department of Genetics & Plant Breeding, CCS HAU, Hisar. pp 1-42.

Kirti and R. K. Arya, 2019: Utilization of medicinal plants for food, feed and fodder for animals-A review *Forage Res*., **45**(1) : pp. 23-27.

Chadha, Y.R. 2003: The wealth of India: a dictionary of Indian raw materials & industrial products, vol 1A, Revised edn. National Institute of Science Communication and Information Resources, Council of Scientific & Industrial Research, New Delhi, pp 470–471.

Choudhary, D., and D. Sharma, 2014: A phytopharmacological review on *Asparagus racemosus*. *Int J Sci Res*, **3**(7): 742-746.

Clifford, H. T. and J. G. Conran, 1987: *Asparagaceae*. In: Flora of Australia, George A.S. (Ed), Australian Government Publishing Service, Canberra, pp: 140-142.

Dahiya, L., R. Sharma, and S. Sharma, 2022: A Broad Review on Shatavari (Asparagus racemosus): Queen of All Herbs. *J Palliat Care Med* 12, 462.

Dhingra, D., and V. Kumar, 2007: Pharmacological evaluation for antidepressant-like activity of Asparagus racemosus Wild. in mice. *Pharmacologyonline*, **3**: 133-152.

Goyal, R. K. and K. Sairam, 2002: Anti-ulcer drugs from indigenous sources with emphasis on Musa sapientum, Tamrabhasma, Asparagus racemosus and Zingiberofficinale. *Indian Journal of Pharmacology*, **34**(2): 100.

Joshi, J., and S. Dev, 1988: Chemistry of Ayurvedic Crude Drugs. Part 8. Shatavari-2: Structure Elucidation of Bioactive Shatavarin-I and Other Glycosides. *ChemInform*, 19.

Khan, A. G. R. and S. S. Subramanian, 1968: Isolation of phytosterol, hyperoside from the flowers. From the fruits and roots of *Asparagus racemosus* they isolated rutin and steroidal sapogenin. *Cur Sci*. No. **10**. pp.287-289.

Kumar, M., Naik, P.K., Sarla, and V. Chhokar, 2016: Genetic Variations in *Asparagus racemosus*, an Endangered Medicinal Herb Endemic to India Using RAPD Markers. *British Biotechnology Journal*, **10**: 1-11.

Kumar, S.V., R.K. Mehla, and A.K. Dang, 2008: Use of shatavari (*Asparagus racemosus*) as a galactopoietic and therapeutic herb- a review. *Agricultural Reviews*, **29**: 132-138.

Mangal, A., D. Panda, and M. Sharma, 2006: Peptic ulcer healing properties of Shatavari (*Asparagus racemosus Willd*.).

Mitra, S. K., N. S. Prakash, and R. Sundaram, 2012: Shatavarins (containing Shatavarin IV) with anticancer activity from the roots of *Asparagus racemosus*. *Indian journal of pharmacology*, **44**(6): 732.

Mohanta, B., A. K. Chakraborty, M. Sudarshan, R.K. Dutta, and M. Baruah, 2003: Elemental profile in some common medicinal plants of India. Its correlation with traditional therapeutic usage. *Journal of Radioanalytical and Nuclear Chemistry*, **258**: 175-179.

Pandey, A. R., P. Kurkute, B. Tyagi and Amaara Pundir, 2026: A comprehensive review on role of phytoconstituents from the roots of *Asparagus racemosus* (Queen of Herbs). Phytomedicine Plus 6 (2026) 100916.

Prakash, J. 2001: Renalka syrup in the treatment of urinary tract infection. *Indian Journal of ClinPract*, **12**: 63-66.

Ravikumar, P. R., R. Soman, G. L. Chetty, R. C. Pandey, and S. Dev, 1987: Chemistry of Ayurvedic Crude Drugs. 6.(Shatavari-1)-Structure of Shatavarin-IV. *Indian Journal Of Chemistry Section B-Organic Chemistry Including Medicinal Chemistry*, **26**(11): 1012-1017.

Sabde, S., H.S. Bodiwala, A. Karmase, P.J. Deshpande, A. Kaur, N. Ahmed, S.K. Chauthe, K.G. Brahmbhatt, R.U. Phadke, D. Mitra, K.K. Bhutani, and I.P. Singh, 2011: Anti-HIV activity of Indian medicinal plants. *Journal of Natural Medicines*, **65**: 662-669.

Sairam, K., S. Priyambada, N. C. Aryya, and R. K. Goel, 2003: Gastroduodenal ulcer protective activity of *Asparagus racemosus*: an experimental, biochemical and histological study. *Journal of Ethnopharmacology*, **86**(1): 1-10.

Sharma, M., A.Sharma, and A. Kumar, 2012: Vital medicine *Asparagus racemosuswilld*. *Current Trends in Biotechnology & Pharmacy*, **6**(2).

Symala, A.P. 1997: Medicinal importance of shatavari. Book Tropical Horticulture. pp. 559-561.

Venkatesan, N., V. Thiyagarajan, S. Narayanan, A. Arul, S. Raja, S.G. Vijaya Kumar, T. Rajarajan, and J.B. Perianayagam, 2005: Anti-diarrhoeal potential of *Asparagus racemosus* wild root extracts in laboratory animals. *Journal of pharmacy & pharmaceutical sciences: a publication of the Canadian Society for Pharmaceutical Sciences, Societecanadienne des sciences pharmaceutiques*, **8**(1): 39-46.

Visavadiya, N. P., and A. V. R. L. Narasimhacharya, 2009: Asparagus root regulates cholesterol metabolism and improves antioxidant status in hypercholesteremic rats. *Evidence-Based Complementary and Alternative Medicine*, **6**(2): 219-226.

Warrier, P. K., V. P. K. Nambiar, and P. M. Ganapathy, 2001: Some important medicinal plants of the Western Ghats, India.