



## *Asparagus Racemosus*: A Therapeutic Herb

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### Abstract

*Asparagus racemosus* has been successfully used as herbal medicine and also served as food. All the parts of this plant have therapeutic importance for treatment of stomach ulcer, liver disorders, inflammation, stress-related immune disorders, dyspepsia, can also act as galactagogue and decreases apoptosis. Its water and alcohol based extracts act as strong antioxidant, immunity booster and also have antitussive effects. It regulates blood fat and cholesterol levels. Its bioactive moieties like phytochemicals (saponins and flavonoids) used in various pharmacological activities. This mini review is enlightening the importance and its pragmatic approaches to cure many diseases.

**Keywords:** *Asparagus racemosus*; Extracts; Bioactive moieties

### Introduction

*Asparagus racemosus* is a perennial plant, horizontal root stock, thick roots and extended young shoot eaten as vegetable. It is also known by the name of Shatavari, an Indian herb. The word Shatavari means “the one who owns hundred husbands or can be acceptable to numerous”. It is very important for female reproductive system and even considered as tonic to solve issues related to reproduction system [1]. This plant is mainly grown in tropical and subtropical regions of India and Himalayas. This plant also cultivated in Australia, Sri Lanka, tropical Africa and Indonesia [2]. *Asparagus* belongs to family Asparagaceae [3]. *Asparagus racemosus* is a woody stem plant having needle-like leaves and a white small flower [4]. *Asparagus* is derived from two Greek words “Stalk” and “Shoot”. Approximately there are 200 species in the world of *Asparagus*. It is usually grown in Indian region. Some of its species like *Asparagus gonaclades*, *Asparagus odsendens* are used in natural medicine. *Asparagus racemosus* root has bitter-sweet taste, palliative, stomachic, cooling, binding, aphrodisiac, nervine tonic, galactagogue, diuretic, rejuvenating, carminative, antiseptic and as tonic. There are many beneficial effects of *A. racemosus* root in treatment of many diseases like nervous breakdown, diarrhea, inflammation, liver problem, cough, bronchitis and many other

contagious diseases [3]. Their shoots are also very beneficial. They contain aldehyde, ketones vanillin, asparaguic acid; thiazole and its methyl and ethyl ester are used in giving flavors. Their flower and mature fruits on dry basis contain 2.5% rutin and quercetin. Diosgenin and quercetin 3-glucuronide are present in leaves. Bark of *Asparagus racemosus* performed antibacterial and antifungal activity. Approximately 3% protein, 5.4% saponins, 52.8% carbohydrates, 18% crude fiber, 4.1% inorganic matter and 5% oil are present in powdered roots. In ancient time people of Rome and Greece used *Asparagus* because of their diuretic property. It helps to wash out kidney and prevent the formation of stones in kidney. It is also very beneficial for increase the production of urine and cellular activity of kidney [5].

Herbalism is a wonderfully simple and astoundingly complex therapy of healing in tune with nature and It is also known as ecological healing because it works within the context of humanity’s shared ecological and evolutionary heritage with the plant kingdom [6]. Herbs have got commercial successes and also have been used from a long time ago in cosmetics, food and teas and most importantly in medicines known as phytomedicine or phytotherapy [7]. According to estimate of World Health Organization (WHO) 80

percent of the population of some Asian and African countries uses herbal medicines with special concern of some primary health care aspects. No doubt that there are thousands of herbs are available in every corner of whole world but each herb has its own specialty to cure the diseases that's why it is also known as Ayurvedic rasayana. It helpful in delaying ageing process and increase durability, impart immunity, nervous system health, prevent from tumors, neuropathy, dyspepsia, inflammation and hepatopathy [8,9].

*A. racemosus* belongs to family Liliaceae and commonly known as Satamuli, Satawar, Satavari and it also grown throughout India in at low altitudes. *Asparagus racemosus* is phytoestrogens rich plant species and highest bioactive constituents of asparagus are a group of steroidal saponins. This plant also contains vitamins A, B1, B2, C and E along with minerals including Mg, Ca, P, Fe, and folic acid. Other primary chemical constituents of *Asparagus* are essential oils, asparagine, flavonoids, arginine, tyrosine (kaempferol, quercetin, and rutin), tannin, and resin [10,11].

### Pharmacological Activities

Mixture of *A. racemosus* and additional herbal ingredients in the form of Rica lax tablet have shown the effective role in increasing the milk production in females complaining of insufficient secretion of milk. Reason of increase in milk secretion was drug therapy not any psychological problem. *A. racemosus* is used in different form e.g. powdered form of *A. racemosus* is utilized in Ayurveda for dyspepsia while Juice of fresh root of *A. racemosus* has positive effect observed in patient of duodenal ulcers. In Ayurveda *A. racemosus* has been detected safe in pregnancy and lactation for long term use. Rats interacted with ethanol extract of *A. racemosus* at doses 800 and 1600mg/kg fairly reduced the serum amount of calcium, phosphorus, urea and keratin [12]. Aphrodisiac originates from Greek word. In current time this term has been applied for substances that increase sexual activity and are productive in treating sexual dysfunction. *A. Africanus* roots extract signified antifertility activities of 60% with aqueous and 40% with ethanol respectively given by gavages to rats at a dose of 300mg kg<sup>-1</sup> of body weight. *A. pubescens* Bak roots have an antifertility effect because of delaying the oestrous cycle and disturbing hormone secretion [13]. *A. racemosus* has significant role in antiulcerogenic agent. It causes inhibitory effect on the secretion of gastric hydrochloric acid and cover up gastric mucosal damage [14]. Methanol extract of the roots of *Asparagus racemosus* have antibacterial influence against *Shigella flexneri*, *Shigella sonnei*, *Shigella dysenteriae*, *Escherichia coli*, *Vibrio cholerae*, *Salmonella typhimurium*, *Bacillus subtilis*, *Pseudomonas putida* and *Staphylococcus aureus* [15] and also effect the spectrum of inhibition on *Staphylococcus wernerii*, *Proteus mirabilis*, *Pseudomonas aeruginosa*. Histopathological study of hepatic tissues engaged with diethyl nitrosamine (DEN) and

aqueous extract of the roots of *A. racemosus* ceased the influence of hepatocarcinogenesis [16]. Steroidal components of the *A. racemosus* were checked for the apoptotic activity and believed to have the capacity to tumor cell death [17].

*Asparagus racemosus* is equally effective as ranitidine and have negative effect on the releasing of gastric juice and acidity of stomach [14]. *A. racemosus* also heal the wounds of chronic ulcer of stomach stimulated by ethanoic acid within 10 days. Also heal the mucosa, their secretion and their longevity, so it will protect the stomach against acid and pepsin severities [9]. The dry root extract of *A. racemosus* is used as effective drug against many system upsetting causes. It is identified from the researches that dried roots tincture is use to control AIDS symptoms. *A. racemosus* is successfully used by homeopathic practitioner against nervous disorder, inflammation and certain infectious diseases. The roots are known as tonic and effective agent to treat against ulcer and empowering the mucosal wall [12]. *A. racemosus* has been found effective to cure intra-abdominal infection that can be fatal and may leads to trauma and bowel surgery. Oral administration of *A. racemosus* in the form of roots powder also reported to exhibit the Immunomodulating property. It has been found with improved phagocytic activity of the polymorphs and macrophages. So, protection offered by *A. racemosus* against sepsis by altering macrophages, function representing its possible immunomodulatory property [12]. Top of Form Alcoholic extract from *Asparagus racemosus* roots shown to have diuretic effects in rats and hypoglycemic effects in rabbits, but there is no discovery of anticancer and antifertility effect in rats and rabbits. On other hand it also shows anti-amoebic effect in rats [18,19].

### Conclusion

*Asparagus racemosus* is used in many medicines and have prodigious traditional importance. *Asparagus racemosus* is also used in natural form of medicines like Unani, Sidha, Ayurveda. By many experiments and scientific study traditional practices are proven. This plant has great potential in healthcare and trade. Appreciable work has been done to explore the biological activity and medicative application of plant, still there square measure accessible in numerous prospects of pharmacological application that has to be explored. These plants have many medicinal properties like antioxidant, anti-HIV, hepato-protective, cardiac, antibacterial etc. There are many studies that are reported by extraction of plants. *Asparagus racemosus* is safest in therapeutic dosage and it is used during the pregnancy with a care. By using biotechnological approaches like micro propagation and callus culture stability can be achieved. Furthermore, the optimization of environmental conditions and the development of appropriate agro techniques would enhance the quality of overall production,

thereby assuring of high quality and having phytochemical in optimum yields. Farmer would encourage to take in commercial cultivation of *A. racemosus* thus restrain the misuse of this plant

in the wild and thereby commendation the conservation process (Figure 1&2).



Figure 1: *Asparagus racemosus*.



Figure 2: A plant, flower, dried stem, powder extract.

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