

Plant Profile: *Withania somnifera* L.

Ashwagandha

Scientific name *Withania Somnifera* L..

Family Solanaceae

Common names: Ayurvedic Name: Ksirini, Ksheerini, Rajadan, Rajnya, Rajadanah HINDI: Khirni, Khhini, Rayan BENGALI: Ksheerni, Rajni GUJRATI: Rayan MALAYALAM: Krini and Palamunpala KANNADA: Hale, Hannu TAMIL: Kanupala, Kaattuppala, Ulakkaippalai, Palai TELUGU:;Patla, Pola, Kirni ENGLISH: Obtuse leaved Mimuspas

Habitate This tree is found in central India and Deccan Peninsula, and cultivated throughout India.

Plant Description

It is a small, woody shrub in the Solanaceae family that grows about two feet in height. It can be found growing in Africa, the Mediterranean, and India. An erect, evergreen, tomentose shrub, 30-150 cm high, found throughout the drier parts of India in waste places and on bunds. Roots are stout fleshy, whitish brown; leaves simple ovate, glabrous, those in the floral region smaller and opposite; flowers inconspicuous, greenish or lubrid-yellow, in axillary, umbellate cymes; berries small, globose, orange-red when mature, enclosed in the persistent calyx; seeds yellow, reniform. The roots are the main portions of the plant used therapeutically. The bright red fruit is harvested in the late fall and seeds are dried for planting in the following spring. Parts used: Whole plant, roots, leaves, stem, green berries, fruits, seeds, bark are used.

Chemical Composition:

The biologically active chemical constituents of *Withania somnifera* (WS) include alkaloids (isopelletierine, anaferine, cuseohygrine, anahygrine, etc.), steroidal lactones (withanolides, withaferins) and saponins. Sitoindosides and acylsterylglucosides in Ashwagandha are anti-stress agents. Active principles of Ashwagandha, for instance the sitoindosides VII-X and Withaferin-A,

Medicinal Uses

Centuries of Ayurvedic medical experience using *Withania somnifera* have revealed it to have pharmacological value as an adaptogen, antibiotic, aboritifacient, aphrosidiac, astringent, antiinflammatory, deobstruent, diuretic, narcotic, sedative, and tonic. Ashwagandha has been found to: Provide potent antioxidant protection.

Anti-inflammatory Activity

Withaferin A exhibits fairly potent anti-arthritic and anti-inflammatory activities. Anti-inflammatory activity has been attributed to biologically active steroids, of which Withaferin A is a major component.

Anti-Stress Activity

Researchers using *Withania somnifera* discovered the animals given the herb an hour before the foot shock experienced a significantly reduced level of stress. This research confirms the theory that Ashwagandha has a significant anti-stress adaptogenic effect.

Antibacterial Activity

The antibiotic activity of the roots as well as leaves has recently been shown experimentally. Withaferin A in concentration of 10 μ g/ml inhibited the growth of various Gram-positive bacteria, acid-fast and aerobic bacilli, and pathogenic fungi. It was active against *Micrococcus pyogenes* var *aureus* and partially inhibited the activity of *Bacillus subtilis*.

Anti-oxidant Activity

The active principles of WS, sitoindosides VII-X and withaferin A (glycowithanolides), have been tested for antioxidant activity using the major free-radical scavenging enzymes, superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPX) levels in the rat brain frontal cortex and striatum.

Antiparkinsonian properties

Withania significantly inhibited haloperidol or reserpine-induced catalepsy and provide hope for treatment of Parkinson's disease

Anti ageing property

Anti convulsing activity

