Withania somnifera (L.) Dunal (Pharmacology Activity)

M. Akram¹, E. Mohiuddin², Abdul Hannan³, Khan Usmanghani³,  
¹Department of Basic Medical Sciences, ²Department of Surgery and Allied Sciences, ³Department of Pre-clinical Sciences, Faculty of Eastern Medicine, Hamdard University.

ABSTRACT

Withania somnifera has a long medicinal history dating back 5000 years. Ashwagandha or Withania Somnifera is a very significant herbal drug in Unani system of medicine. This meticulous herb was used to treat a variety of infectious diseases as well as tremors and inflammation especially osteoarthritis, rheumatoid arthritis, and gout. Ashwagandha or Withania Somnifera is a stunning delicate plant inhabitant to Indian subcontinent. Defined by green leaves, branched limbs, and topped by seeded yellow flowers. Ashwagandha or Withania Somnifera is an eye-catching in look and of very importance in Ayurveda or Indian System of Medication. Ashwagandha or Withania Somnifera has a vast history, about 5000 years, as a holistic herb used to treat a variety of ailments.

BOTANICAL AND PHYSICAL CHARACTERISTICS

An evergreen shrub growing to 1 m to 0.5 m. It is in leaf all the year. The flowers are hermaphrodite (have both male and female organs). The plant prefers light (sandy), medium (loamy), and heavy (clay) soils and requires well-drained soil. It can not grow in shade. It requires moist soil.

Active constituents: withaferin A and withanolide D. Anapherine (alkaloid), anahygrine (alkaloid), beta-sisterol, chlorogenic acid (in leaf only), cysteine (in fruit), cuscohygrine (alkaloid), iron, pseudotropine (alkaloid), scopoletin, somniferine (alkaloid), somniferene (alkaloid), tropanol (alkaloid), withanine (alkaloid), withananine (alkaloid) and withanolides A–Y (steroidal lactones), somniferine, somninar, pseudo-withanine, tropine, pseudo-tropine, 3-a-gloyloxytropane, cuscohygrine, isopelletierine, anahydrine, sitoindoside VII and sitoindoside VIII, pseudo-withanine, tropino, choline, cuscohygrine, isolettetierine, anahydrine, 3-alpha-gloyloxy tropane.

MEDICINAL USES AND PHARMACOCLOGICAL ACTIVITY

Withania somnifera has been used in Unani Medicine as an anti-inflammatory and to treat rheumatism beside other ailments. Withania somnifera is recommended as having Abortifacient; Anti-inflammatory, Adaptogen; Antibiotic; Aphrodisiac; Astringent; Deobstruent; Diuretic; Sedative; Tonic. According to Unani system of medicine, the root is bitter, tonic, aphrodisiac, emmenagogue, anti-inflammatory. Studies have shown asgandh to be effective in stimulating the immune system. It also appears to inhibit swelling and aid memory. It is especially beneficial in stress-related disorders such as arthritis and premature aging. Withanolides possess remarkable antitumour, antiarthritic, anti-inflammatory and immunosuppressive properties. Asgandh is used for treatment of rheumatism, hyperuricemia, and as sex stimulant. Asgandh is one of the most widespread tranquillizers used in India and Pakistan, where it holds a position of importance similar to ginseng in China and Korea. It is an anti-inflammatory agent. It is used to improve vitality and aid recovery after chronic illness. The leaves and the root bark, are deobstruent, diuretic, narcotic, strongly sedative and tonic. It is also used to treat, debility, insomnia, impotence, infertility, multiple sclerosis etc. The seed is diuretic and hypnotic. Withania Somnifera has a long history, of about 4000 years, as a holistic herb used for treating a variety of ailments. This particular herb is used to treat various infectious diseases as well as tremors and inflammation especially arthritis, nervousism, insomnia, weakness, anemia, rheumatic pains, general debility among other conditions.
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It’s a boon in cases of impotence and infertility and is very useful in spermatorrhea, loss of strength, lack of sexual drive, erectile dysfunction. It is a good Uterine anti-inflammatory so useful in Uterine infections. Thus it is considered to be the best aphrodisiac drug. Ashwagandha stimulate the immune system, stop inflammation, increase memory and helps maintain general health and wellness of the body. It is high in iron content and increases hemoglobin. The fruits of Ashwagandha are a blood tonifier, so when consumed over a considerable period of time improves circulation of blood in the body and absorption of nutrients by cells. Also it is known to increase the production of bone marrow, semen and inhibiting the ageing process. All anxiety symptoms including panic attacks and paranoia had virtually disappeared by the use of this drug. If taken in proper dose, it can restore the neurotransmitters and hence have found to be useful in treating various mental disorders like Depression, Alcohol dependency and Schizophrenia. Also, by taking Ashwagandha regularly one can enhance his memory and learning skills dramatically. Many studies have been conducted to see the effects of Ashwagandha on tumors, arthritis and other forms of inflammation. The studies proved that Ashwagandha acts as an anti-tumor, anti-inflammatory agent. It’s naturally occurring steroidal content is much higher than that of hydrocortisone which is a common treatment in cancer cases[2-4].

DIABETES

The hypoglycemic, diuretic and hypocholesterolemic effects of roots of Ashwagandha were assessed in six patients with mild NIDDM and six patients with mild hypercholesterolemia. The treatment consisted of the powder of roots over a 30 day period. At the end of the study, researchers noted a decrease in blood glucose comparable to that of an oral hypoglycemic drug, and a significant increase in urine sodium and urine volume, coupled with a decrease in serum cholesterol, triglycerides, LDL (low density lipoproteins) and VLDL (very low density lipoproteins) cholesterol, with no adverse effects noted[5,6].

IMMUNITY

Myelosuppressed mice treated with an extract of Ashwagandha displayed a significant increase in hemoglobin concentration, red blood cell count, white blood cell count, platelet count and body weight as compared to controls, as well as increased hemolytic antibody responses towards human erythrocytes[7]. Researchers at the Amala Cancer Research Centre in Kerala, India, found that the administration of an extract from the powdered root of Withania somnifera enhanced the levels of interferon, interleukin-2 and granulocyte macrophage colony stimulating factor in normal and cyclophosphamide-treated mice, suggesting an immunopotentiating and myeloprotective effect. Mice infected intravenously with Aspergillus fumigatus and treated for 7 consecutive days with an oral preparation of an extract of Withania somnifera at a dose of 100mg/kg displayed increased phagocytic activity and prolonged survival time[8-9]. The antifungal activity of Withania has been confirmed elsewhere, attributed to the withanolides[10].

REFERENCES