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POTENTIAL USE OF WITHANIA SOMNIFERA IN THE MANAGEMENT OF VARIOUS PHYSICAL AND MENTAL DISEASES: AN OVERVIEW OF CURRENT RESEARCH ON ASHWAGANDHA AS RASAYANA (REJUVENATOR)

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ABSTRACT

Withania somnifera (*Ashwagandha*) is a wonderful drug in the field of complementary and alternative medicine. *Ashwagandha* is one of the best nervine tonics used in the Ayurvedic system of medicine since time immemorial. It is a very common *Rasayana* (rejuvenator) to be used in many diseases. Many researchs prove that this drug can alone improve the stamina of the individual. It has a central and prominent place in Ayurvedic medicine and is referred to as a "Royal herb" because of its multifarious rejuvenative effects on the human body. This herb has been reported as an adaptogenic, antibacterial, anticancer, antidepressant, antifungal, anti-inflammatory, antioxidant, anxiolytic, cardioprotective, thyroid modulating, immunomodulating, neuroprotective, cognitive enhancing, and hematopoietic agent. On the basis of its medicinal properties, it is considered the King of Ayurvedic Herbs. *Ashwagandha* contains a range of constituents like withanolides, sitoindosides, and other alkaloids that are pharmacologically and medicinally important. This article brings together information from ancient texts as well as recent research regarding the usefulness of this herb for health and in treating various diseases.

Key words: *Ashwagandha, Withania somnifera*, Aphrodisiac, bronchitis, emaciation.

INTRODUCTION

Ashwagandha (Latin name: *Withania somnifera*; Family: Solanaceae), also known as Indian Winter Cherry or Indian Ginseng is both a tonic and a sedative due to its adaptogenic properties.[1] *Withania* refers to the plant's primary extract and *somnifera* literally means "sleep-inducing."[2] The name *Ashwagandha* is derived because of two reasons – the roots of the herb smell like a horse and, there is a commonly held belief that a person consuming extracts of the herb may develop strength and vitality similar to that of a horse.[3] *Withania somnifera* is a medicinal plant that extends over a large area, from the Atlantic-ocean to South East Asia and from the Mediterranean region to South Africa. Medicinal plants are widely used by traditional medical practitioners for curing various diseases in their day-to-day practice. In traditional systems of medicine, different parts (leaves, stem, flower, root, seeds, bark, and even whole plant) of *Withania somnifera* (known as *Ashwagandha* in Hindi), a small herb seen throughout India, have been recommended for the treatment of aphrodisiac, liver tonic, anti-inflammatory agent, astringent, and more recently to treat bronchitis, asthma, ulcers, emaciation, insomnia, and senile dementia, etc.

The properties and usage of different parts of *Ashwagandha* are briefly discussed here-

A. Leaves:

The leaves are an anthelminitic medication that lowers fever and kills intestinal worms. Eye pain, boils, and swollen hands and feet can all be treated with a fomentation made from the leaves. Lice infestations on the body can be killed by applying a paste made from the leaves locally. It is also used to treat syphilitic ulcers, carbuncles, and acute supportive inflammation of the skin and subcutaneous tissues. For bedsores and wounds, an ointment can be made by boiling the leaves in fat. The anti-inflammatory properties of leaves have been noted. *Ashwagandha* is widely utilised at home in the form of tea in addition to its medical applications. [4]

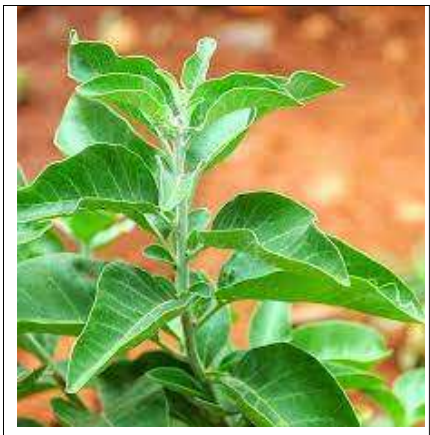
B. Roots:

Boosting the immune system is the most frequently cited benefit of *Ashwagandha* root. White blood cell production is capable of being increased by the roots. It has mild sedative qualities that support restful sleep and aid in the relief of insomnia. Additionally, it is effective in the management of weight reduction and helps control blood sugar levels. The roots of *Withania somnifera* have a variety of medicinal properties, including alterative, aphrodisiac, deobstruent, diuretic, narcotic, sedative, and restorative effects. Alkaloids and steroidal lactones are thought to be the root's primary pharmacological agents. *Ashwagandha* root powder may work well as an herbal supplement to treat cancer, according to research studies. The growth of tumours can be slowed by it. Male sperm count is increased, and it aids in treating erectile dysfunction. In India, *Ashwagandha* root is a well-liked male erectile tonic. Additionally, it aids in lowering the level of bad cholesterol, which is what causes hypertension and cardiovascular issues. Recent research has shown that the steroidal components of the *Ashwagandha* root can be used to relieve inflammation. Additionally, it is utilised to alleviate sciatica and low back pain. Given that it is entirely natural and has no negative effects, using it is generally safe. Alkaloid Somniferine can be found in the root. The herbal treatment *Ashwagandha,* which has been used historically to treat a number of symptoms and illnesses, is made from the roots of *W. somnifera*.[5,6,7] The root is a stimulant, deobstruent, narcotic, aphrodisiac, alternative, tonic, stimulant, alternative, aphrodisiac, and aferoceptive (a drug that removes obstruction to secretion or excretion by the opening of the natural passages or pores of the body.) The plant's roots are classified as *Rasayanas*, which are thought to increase one's defence against sickness, stop the ageing process, revitalise the body in debilitated conditions, increase one's ability to withstand harmful environmental elements, and foster a sense of mental well-being.[8] It is administered in doses of

3.0 grams for generalised debility, rheumatic ailments, dyspepsia (indigestion), appetite loss, cough, and dropsy. The root, mixed with milk or ghee, is used as an aphrodisiac in doses of the half to one drachm (3.89 gm). In cases of leucorrhoea, blood discharges from the uterus, etc., 4.5 grams of the powdered root are administered with sugar candies twice a day. In cases of spermatorrhoea, debility, etc., half to a drachm of the powder is taken every day with sugar, honey, long pepper, and ghee. When used to tone up the uterus of women who frequently miscarry, the root is quite effective. In treating scrofula, a decoction of the root is combined with long pepper, ghee, and honey (a disease of the lymphatic gland, often of the neck). A decoction is advised for colds and chest ailments. Carbuncles, ulcers, and swellings are treated with a paste produced from the roots and leaves; scrofulous and other glandular swellings are treated with a warm root paste.

C. Berries and seeds: The diuretic properties of the berries and seeds make them useful for treating chest ailments. *Ashwagandha* seeds are used to thicken milk in India. When producing cheese, the berries are used to coagulate milk in place of rennet.

Figure1: *Ashwagandha* plant in habitat



Plant of Ashwagandha

Fruits

Roots of Ashwagandha

Medicinal properties of *Ashwagandha*: [9, 10, 11]

- ***Vajikara***– Increase in sexual desire.
- ***Rasayani***- revitalises the body.
- ***Balya***- Increases power.
- ***AtiShukrala***- increases semen quality and quantity.
- ***Shwitrapaha***- Useful in white discoloration of skin management.
- ***Shothahara***- Beneficial in oedematous conditions management and helps to clear impurities (*Ama*) from the various channels of the body.
- ***Kshayapaha***- Useful in treating emaciation and under nutritive conditions.

THERAPEUTIC SIGNIFICANCE:

Chronic Stress- Chronic stress (CS) can result in a number of adverse physiologic conditions including cognitive deficit, immune suppression, sexual dysfunction, gastric ulceration, and irregularities in glucose homeostasis, and changes in plasma corticosterone levels. In a rat model of chronic stress *Withana somnifera* and *Panax ginseng* extracts were compared for their ability to attenuate some effects of chronic stress. Both botanicals were able to decrease the number and severity of CS-induced ulcers, reverse CS-induced inhibition of male sexual behaviour, and inhibit the adverse effects of CS on the retention of learned tasks. Both botanicals also reversed CS-induced immune suppression, but only the *With-*

ania extract increased peritoneal macrophage activity in the rats. The activity of the Withania extract was approximately equal to the activity of the *Panax ginseng* extract. *Withania somnifera*, however, has an advantage over *Panax ginseng* in that it does not appear to result in ginseng- abuse syndrome, a condition characterized by high blood pressure, water retention, muscle tension, and insomnia.[12]

Cardiovascular Protection- Hypoglycemic, diuretic, and Hypocholesterolemic effects of *Ashwagandha* root were assessed in human subjects, in which six type-2 Diabetes mellitus subjects and six mildly hypercholesterolemic subjects were treated with a powder extract for 30 days. A decrease in blood glucose comparable to that of an oral hypoglycemic drug was observed. Significant increases in urine sodium, and urine volume, and decreases in serum cholesterol, triglycerides, and low-density lipoproteins were also seen.[13]

Anti Aging- In a double-blind clinical trial, *Ashwagandha* was tested in a group of 101 healthy males, 50- 59 years old, at a dosage of 3 grams daily for one year. Hemoglobin, red blood cell count, hair melanin, and sitting stature all showed considerable improvement. Nail calcium was retained while serum cholesterol fell. The rate of erythrocyte sedimentation significantly decreased, and 71.4 percent of people reported improved sexual performance. [14]

Immunity- Neutropenia, rheumatoid and osteoarthritic illnesses, cancer, and chronic connective tissue diseases are all auto-immune diseases. A number of research on animals have revealed that *Ashwagandha* has significant effects on the haematological system and functions as a chemo protectant and immunoregulator. [15,16] It is frequently used in painful or swollen arthritic conditions as a painkiller and anti-inflammatory. It can boost a compromised immune system and guard against it being worn down by immunosuppressive medications or a sedentary lifestyle. Additionally, it raises white blood cell numbers. It appears to be a "real" adaptogen because it possesses both immunosuppressive and immunotonic properties. Additionally, when compared to a control group, this extract reduced delayed-type hypersensitivity reactions and increased macrophage phagocytic activity.[17] Withanolides from *Withania somnifera* were found to be comparable to doxorubicin in their ability to suppress the growth of human breast, colon, lung, and central nervous system cancer cell lines in an in vitro investigation. Doxorubicin was less effective than withaferin A at preventing the growth of breast and colon cancer cell lines. These findings raise the possibility of developing novel chemotherapeutic drugs and raise the possibility that extracts of *Withania somnifera* may stop or slow tumour growth in cancer patients. [18]

CONCLUSION

As modern medicine continues to expand, so do the uses of botanical medicines. *Withania somnifera* shows great potential as a safe and effective in Immuno-modulation and Hematopoiesis. More research is needed to determine if *Withania somnifera* can duplicate this activity in humans, and to determine an optimal dosage range for achieving these effects. The potential beneficial effects of *Withania* in anxiety, cognitive and neurological disorders, inflammation, and Parkinson's disease. Experienced natural medicine practitioners, working hand-in-hand with oncologists, could increase effectiveness and decrease the side effects of conventional treatments with the use of *Withania somnifera*.

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