

AN OBSERVATIONAL STUDY ON ASHWAGANDHA (WITHANIA SOMNIFERA) – A BRIEF REVIEW

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ABSTRACT

Ashwagandha, a Rasayana, is an herb that is highly valued in Indian Ayurvedic medicine. It is primarily used as a nervine tonic but is also useful for a number of other diseases. In light of these findings, several scientific studies on its adaptogenic and anti-stress characteristics have been carried out. It has been shown to help both elderly people with memory loss and children with memory impairment. Additionally, it has been shown to be beneficial for those with neurological conditions including Parkinson's, Huntington's, and Alzheimer's disease. The medication has been found to be a successful treatment for the growth of cancer in a number of organs and contains anti-inflammatory, anti-arthritis, cardio protecting, anti-stress, tranquilizer-like sedative, and thyro-protective properties.

KEYWORDS – *Ashwagandha*, Rasayana, Anti-stress etc.

INTRODUCTION

Withania somnifera, a key Ayurvedic herb, has been utilised for thousands of years as a Rasayana because of its numerous health benefits (the conventional form of medicine in India). Rasayana is a herbal or metallic mixture that fosters youth in terms of enjoyment, physical and mental health. These medications are often used by the middle-aged and elderly to prolong their lives, and they are regularly administered to young children as tonics.¹

Ashwagandha is the most potent Rasayana herb utilised in Ayurveda. For more than 3000 years, Ayurvedic and indigenous medicinal systems have employed ashwagandha (Withania somnifera). The plant's sources are categorised as Rasayana, which means they have the

potential to improve disease defence, slow the ageing process, revitalise the body in weakened environments, increase a person's ability to withstand harmful environmental influences, and foster a sense of mental well-being in order to promote wellbeing and survival. It has been used for a very long period in individuals of all ages and genders without producing any bad effects, as well as during breastfeeding. Withanolides, a kind of steroidal lactone, are produced by the pharmacological effects of Ashwagandha roots. The leaves are used to treat tumours and tubercular glands in Ayurvedic and Unani therapy. From the leaves of *Withania somnifera*, a variety of steroidal withanolide lactones with antibacterial, antifungal, and anticancer properties have been discovered.²

AIM & OBJECTIVE— To evaluate the effect on *Ashwagandha* (*Withania somnifera*)

METHOD AND MATERIALS

Information about Ashwagandha is gathered from a variety of sources, including Ayurvedic and contemporary publications, reliable websites (PubMed, Medicinal Plants, etc.), real periodicals, literature, manuscripts, the Sanskrit Dictionary, Shabdakosha, and others.

BIOCHEMICAL INGREDIENTS –

Withanolides, which are steroidal lactones, are present in ashwagandha. These steroidal lactones are assumed to be the cause of many of the pharmacological actions. Additionally, 18 fatty acids, beta-sitosterol, polyphenols, and phytosterols are produced by the roots. Withanine, withananine, withananine, pseudo-withanine, somnine, somniferine, and somniferinine are some of the alkaloids present in the root. Withanolides, including withaferin A, are present in the leaves of Indian chemotype plants.³

STEROIDAL COMPOSITE

Withaferin A, Withanolides, sitoindosides IX&X, and withasomnine are a few of them. Withaferin A, a steroidal lactone that has been acknowledged for standardisation as an active marker, is the most notable withanolide derived from the dried leaves and roots of *Withania somnifera*. An important component of physiologically active steroids known as withaferin A has been linked to an anti-inflammatory effect. It works similarly to hydrocortisone sodium succinate.⁴

ANTI-INFLAMMATORY ACTION

Withaferin A has comparatively potent anti-arthritic and anti-inflammatory effects. Withaferin A is a key component of physiologically active steroids, which have been linked to anti-inflammatory effects. It was shown to be equally effective as hydrocortisone sodium succinate dose-to-dose in inhibiting arthritic symptoms without causing any side effects. The animals who received withaferin Animals with arthritic syndrome gained weight as opposed to those receiving hydrocortisone, which lost weight. In a number of animal models of inflammation, such as carrageenan-induced inflammation, cotton pellet granuloma, and adjuvant-induced arthritis, asganda (*Withania somnifera*) has anti-inflammatory properties. Comprehensive tests were performed utilising two inflammatory models, the primary stage of adjuvant-induced arthritis and formaldehyde-induced arthritis, respectively, to evaluate the release of serum -1 globulin during inflammation.⁵

CARDIOVASCULAR ACTION

According to the following research, *withania somnifera* can be used as a general tonic due to its favourable effects on the circulatory system. Researchers have looked at how *Withania somnifera* affects the respiratory and circulatory systems of frogs and dogs. Dogs are long-term bradycardic, hypotensive, and respiratoryly stimulated by the alkaloids. According to the research, the hypotensive effect was mostly caused by autonomic ganglion blocking activity, and the hypotension was primarily brought on by a depressing effect on the higher cerebral centres.⁶

IMPACT ON NEURODEGENERATIVE DISORDERS INCLUDING PARKINSON'S, HUNTINGTON'S, AND ALZHEIMER'S-

The principal causes of cognitive failure, as shown by neuropathological post-mortem examinations of Alzheimer's disease patients' brains, are neuronal shrinkage and synapse loss. As a crucial component of the aetiology, neurite atrophy has also been observed in patients with other neurodegenerative diseases, such as Parkinson's disease, Huntington's disease, and Creutzfeldt-Jakob disease. Ashwagandha has been shown in studies to prevent, slow down, or reverse neuritic atrophy and synapse loss. Ashwagandha can be used to treat neurological conditions including Alzheimer's, Parkinson's, Huntington's, and others at any stage of the disease.⁷

PROPERTIES OF GABA-MIMETIC DRUGS ON NEURODEGENERATION AND NEUROREGENERATION

Behavior studies have demonstrated the GABA-mimetic effects of Ashwagandha root extract. One of the etiopathological routes in the pathophysiology of tardive dyskinesia is GABAergic neurodegeneration caused by neuroleptic-induced excitotoxicity and oxidative stress, and GABA agonists have been shown to be helpful in easing the symptoms of tardive dyskinesia. The beneficial effects of Ashwagandha root extract are likely due to its GABA mimicking properties. Both the active ingredients in ashwagandha and their metabolites support nerve growth.⁸

RELATIONS BETWEEN DRUGS:

When used with a diazepam, *Withania somnifera* has an additional effect. When administered in status epilepticus, the combination was able to dramatically reduce the effective dose of diazepam, offering complete protection with no subsequent death.⁹

DISCUSSION

It has been extensively researched how the plants' pharmacological properties, including antioxidant, anxiolytic, adaptogen, memory enhancer, antiparkinsonian, antivenom, and anti-inflammatory, affect human health. Immunomodulation, hypolipidemia, antibacterial activity, cardiovascular safety, sexual orientation, resistance, and dependence are a few more effects that have been examined. There are a number of restrictions on the research that is currently accessible, despite the fact that the findings of this study support the use of *Withania somnifera* as a versatile therapeutic agent. Despite the fact that *Withania somnifera* has been effectively utilised for a long time in Ayurvedic medicine, further clinical studies are required to confirm its therapeutic effectiveness. It's also important to keep in mind that *Withania somnifera* extracts may have a moderating effect when combined with other plants or medications, as opposed to being beneficial on their own.¹⁰

Abortifacient, immune-modulating, alterative, adaptogenic, antibiotic, antiarthritic, antiasthmatic, anti-inflammatory, antimitotic, antiproliferative, antitumor, aphrodisiac, astringent, carminative, contraceptive, diuretic, emetic, febrifuge, fungicidal, hypnotic, and carminative. Since ashwagandha is used in Ayurvedic medicine in a similar way to how ginseng is used in traditional Chinese medicine, some herbalists refer to it as Indian ginseng. In contrast to ginseng, *withania somnifera* does not cause ginseng-abuse syndrome,

which is characterised by elevated blood pressure, water retention, painful muscles, and insomnia.¹¹

CONCLUSION

According to a thorough assessment of the literature, *withania somnifera* is a significant source of several pharmacologically and medicinally significant chemicals, including withaferins, sitoindosides, and other beneficial alkaloids. Thirteen positive alkaloids have been found in Indian variations. With approximately 138 withanolides with both and side chain discovered so far, withanolides are the most sought-after chemical constituents of *Withania somnifera*. There are substantial gaps in the existing research on *withania somnifera* as a multifaceted medicinal plant.

SOURCE OF SUPPORT: NIL.

CONFLICT OF INTEREST: NONE

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