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Research Paper

A **Clinical Appraisal of with aniaSomnifera as Boon to Health**

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Abstract
Withaniasomnifera, For more than 3000 years, the Solanaceae family member Dunal, also known as Ashwagandha, Indian ginseng, or winter cherry, has been utilised in Ayurveda, the Indian system of traditional medicine. It is a Rasayana (rejuvenation) and increases vigour and lifespan. It is a well-known herbal tonic and meal for good health that is used in ethnomedicine to treat cardiovascular disorders. It can be used by humans as a single herb or as a component of multi-herbal preparations. A thorough analysis of scientific publications and papers as well as Ayurvedic literature was carried out and presented in a clear and succinct way.
The study covers a number of Ashwagandha's actions in animal models as well as a clinical assessment of the medicine in various dose forms. The medication has been shown to be an effective treatment for cancer cells and the malignant growth of various organs. It is reported to have a variety of activities, including anti-inflammatory, anti-arthritic, cardio-protective, anti-stress, tranquillizers, sedative, hypoglycemic, immunomodulatory, impotence, amnesia, thyroprotective, and neurodegenerative. The medicine has been thoroughly researched from a scientific standpoint and has been shown in several experimental investigations to be a broad spectrum treatment. The results are encouraging, but further research on this plant is required to determine its potential for various types of treatment. Ashwagandha should be tested in clinical settings for a range of illnesses in order to treat conditions that endanger human life.
Key Words: ***Withania, Antioxidants, Ayurveda, Health, Tranquilizer, Hypoglycemic,*** *rejuvenator*

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I. Introduction

In Ayurvedic medicine, the plant is known as a Rasayana because it functions as a tonic for health and longevity. It is described to as an adaptogen. Unani literature mentions the AsgandNagori and AsgandDakani variants. The greater therapeutic potential of AsgandNagori is well recognised [8]. The most common form of ashwagandha is a fine powder that can be used with water, ghee, or honey (Gupta et al., 2006). It is applied to the skin to alleviate back pain, hemiplegia (one-sided paralysis), and wounds. It is one of the very popular and well-known Ayurvedic herbs.

It is essential for several bodily processes, including stress relief, body regeneration, muscle and joint health, vitality, and sleep. It is a remarkable, adaptable plant that is becoming more popular among herbalists in America, including those who practise Western, Chinese, and naturopathic medicine. In Ayurvedic and Unani traditions, its leaves are used to cure tumours and tubercular glands. (1994 Chopera). It occupies the position of prominence. The herb is referred to as "Sattvic KaphaRasayana" (Changhadi, 1938). The majority of Rasayana herbs function as stress-relieving/adaptogens. The leaves of W. somnifera have yielded a variety of withanolide steroidal lactones (Glotter et al., 1973). as well as having anticancer, antifungal, and antibacterial activities (Devi et al., 1993).

Ashwagandha is used to improve sound sleep, enhance sexual vitality, reduce weakness and nervous tiredness, and soothe the mind. Additionally, it is categorised as an adaptogen [2008]. AsgandNagori and AsgandDakani are the two types of Asgand that have been referenced in traditional Unani literature. Because of its greater potential for healing capabilities, AsgandNagori is recommended (Behl,etal, 1993).

"Smell of horse" is the direct translation of the phrase "Ashwagandha." The herb's name derives from two factors. One explanation is that the herb's new roots give forth a horsey odour. The second reason is because it's a widely believed idea that someone who consumes the herb's extracts may have the power and vigour of a horse. (Shastry,2001).

It was a crucial herb in the ancient and Ayurvedic medical systems of roughly 3000 years ago. The plant's root extract, known as rasayanas, is used to support healthy ageing by improving disease defence, slowing down the ageing process, revitalising the body in weakened states, boosting resistance to harmful climatic elements, and fostering mental well-being (Weiner and Weiner 1994). Without any negative side effects, it has been used for a very long period by both sexes and even during pregnancy [S Sharma etal 1985].

It has anti-diabetic (Chukwuma etal, 2019) and anti-inflammatory (Sun et al, 2016) properties, as well as anti-microbial (Tripathi etal, 2018, anti-tumor(Hassannia, 2019), anti-stress (Kaur, etal, 2001)and cardioprotective (Kaur, 2015) and neuroprotective (Yenisetti, 2016). It also exhibits improved endothelial function (Dar et al,2015), decreases reactive oxygen species (Sun et al,2016), regulates apoptosis (Ahmed et al,2018) and modulates mitochondrial function (Dar et al,2015), and has been shown to be effective in treating fatigue, diabetes epilepsy, anxiety, and stress [Chandrasekhar etal,2012), arthritic conditions (Khan et al., 2019), cognitive abilities and memory (Choudhary et al., 2017), diabetes epilepsy (Anju et al., 2018), fatigue (Singh et al., 2002), neurodegenerative diseases (Kuboyama, etal., 2014), pain (Ramakanth et al., 2016).

Phytochemistry

Researchers are always very interested in the chemical components of WS. Alkaloids, steroidal substances, such as ergostane type steroidallactones, withaferin A, withanolides A-y, withasomniferin-A, withasomidienone, withasomniferols A-C, withanone, etc. saponins containing an additional acyl group (sitoindoside VII and VIII), and withanolides with a glucose at carbon 27 (sito (Mishra, 2000 et al.). Plants also include a range of chemical components, such as withaniol, acylsteryl glucosides, starch, reducing sugar, hantreacotane, ducitol, aspartic acid, proline, and others. Thirteen Dragendroff-positive alkaloids of the Indian variety have been found. The identified alkaloids include anaferine (bis (2-piperidylmethyl) ketone), isopelletierine, tropine, pseudotropine, 3-tigloyloxtropine, 3-tropyltigloate, cuscohygrine, dl-isopelletierine, anahygrine, hygrine, mesoanaferine, choline, somniferine, withanine, withananine, Withaferine-A, Withanolide N and O, Withanolide D, Withanolide P and 8, Withanolide Q and R, Withanolide Y, 14-hydroxy steroids, and Withanolides G, H, I, J, K, and U are among the withanolides in withaniol (a combination of withanolides) (6). Wathania's two primary withanolides have been implicated in its pharmacological activity((Bone, 1996; Elsakka et al,1990).

Ashwagandha is used to treat weakness, nervous exhaustion, relax the mind, increase sexual arousal, and support sound sleep. It enhances learning and memory power. Emaciation, muscle tension, weakness, dehydration, bone weakness, loose teeth, thirst, chronic weariness, impotence, debility, and convalescence are some effects it aids to prevent from premature ageing. Just as a tree is energised by feeding the roots, the reproductive organs are revitalised in order to vivify (revitalise) the body. The herb's usage as a skin treatment and for enhancing reproductive fertility are covered by the Japanese patent applications. According to Wagner H. (1994), New England Deaconess Hospital obtained a patent on an Ashwagandha formulation and asserted that it reduced arthritis symptoms. Ashwagandha, almond oil, and other ingredients make up the substance known as "ashwagandha oil."It is known to have free radical scavenger property in In-vivo model where it has increased rat liver superoxide dismutase and catalase found increased (Bhattacharya et al., 2001; Parihar et al., 2004). Roots of Withania can be used to treat a variety of ailments, including asthma, bronchitis, edoema, leucoderma, anorexia, consumption, asthenia, anaemia, exhaustion, ageing insomnia, neurasthenia, infertility, impotence, repeated miscarriages, paralysis, memory loss, multiple sclerosis, immune dysfunction, cancer, rheumatism, arthritis, and lumbago. According to Bhattacharya A, 2003 and Bhattacharya 2001, leaves have been used to treat haemorrhoids, wounds, tumours, tuberculosis, anthrax pustules, syphilitic sores, erysipelas, and ophthalmitis.

Pharmacological Activity

Withaniasomnifera has been used in Ayurvedic medicine for centuries, and studies of its pharmacological characteristics have revealed that they include those of an adaptogen, antibiotic, aphrodisiac, aboritifacient, diuretic, tonic, astringent, anti-inflammatory, deobstruent, sedative, and narcotic. It is known to provide strong antioxidant defence (Abou-Douh AM and Panda S 19970). It causes immune system cells including phagocytes and lymphocytes to become active (Wagner H *etal*, 1994 and Singh *etal* 2001). It also mitigates the effects of stress and frequently encourages wellbeing (Singh B *etal* ,2003).

High Cholesterol

Patients with elevated cholesterol benefit from ashwagandha's lowering effects.

Physical Capability

In a placebo-controlled research, healthy volunteers who received a standardised extract of ashwagandha root for three months showed improvement in muscular strength and speed of more than 10%. (S. Sharma, 1985).

Rejuvenation

A clinical investigation with healthy adult males aged fifty to sixty-nine demonstrated increases in hair melanin pigmentation, better body posture, and blood counts if ashwagandha powder is taken three grammes per day for a chronic trial. When given 2 grammes of ashwagandha powder mixed with milk, healthy youngsters reported improvements in their body weight, blood counts, and hand strength (GlotterE,etal,1973).

Emotional and Sleep Health

Sleep is a necessary component of life that restores us biochemically, physiologically, as well as molecularly and cellularly. Sleeping takes up more than 30% of human lives, on average (Buysse, 2013). In addition to regenerating, sleep is crucial for maintaining blood pressure, the central nervous system, metabolism, catabolism, temperature control, memory consolidation, and many other vital physiological processes (Lovato N, Lack 2019). A significant portion of the world's population now suffers from insomnia, an illness that negatively impacts both physical and mental health. In a survey research conducted in 2018, healthy volunteers who took 1200 mg of ashwagandha daily for 30 days from Banyan Botanicals reported an increase in sleep quality of 67 percent.

Stress and Food Consumption

52 healthy people who were under chronic stress were given ashwagandha 600 mg per day. In addition to lowering stress, this research also reduced food cravings and total body weight. This was an eight-week, double-blind, randomised, placebo-controlled experiment (Chudhary,2017,Chandershikhar etal,201).

Stress is a mental overload syndrome. A patient may feel uneasy, apprehensive, or otherwise be less able to react normally to their surroundings. Long-term exposure to stress can cause physiological and psychological imbalance in patients, which can lead to additional illnesses such metabolic disorders, high blood pressure, heart diseases, and depression. Such disorders become prevalent worldwide illnesses. As a result, more people are experiencing stress and seeking medical care to deal with it. the adaptogens.

Adaptogens are "metabolic regulators that improve a person's capacity to adapt to external settings and reverse harm from such conditions," according to WebMD. An adaptogen must: 1. lessen stress-related damage; 2. be safe and have a positive impact even with more doses than necessary; 3. have no adverse effects, such as withdrawal syndromes; and 4. not interfere with the body's regular processes more than is necessary (Panossian A, Wikman G,2009). The qualities of an adaptogen are all present in ashwagandha.

Sexual activity

Rats received an oral dosage of 3000 mg/kg/day of an alcoholic extract of the Ashawghanda root for one week. Then, by matching each man with a receptive female, sexual behaviour was assessed seven days before therapy, on days three and seven of treatment, and on days seven, fourteen, and thirty after treatment. Ashawghanda root extract significantly reduced libido, sexual arousal, sexual vigour, and penile erectile dysfunction. If the medication was stopped, these adverse effects were somewhat reversible. Male sexual prowess may be harmed by the roots' extract (Andallu B, Radhika,2000).

Anti-cancer properties

The plant Withaniasomnifera has anti-carcinogenic qualities. Research on animal cell cultures has shown that the herb inhibits nuclear factor kappa B levels, lowers intercellular tumour necrosis factor levels, and enhances apoptotic signalling in malignant cell lines (Ilayperuma ,2007). According to Ichikawa H et al. (2006) and Prakash J et al. (2002), regular usage of awagandha helps combat cancer by shrinking tumour size. Researchers have looked at the antitumor characteristics of Withaniasomnifera to see whether they may be used to treat various forms of cancer. This herb's anti-tumor properties were examined in adult male mice with urethane-induced lung tumours (Jayaprakasam, et al., 2003). The histological analysis of the treated animals' lungs revealed similarities to the untreated animals' lungs after seven months of withaniasomnifera injections.

Anti-oxidant function

Because the nervous system, including the brain, is rich in iron and lipids, both of which are known to produce reactive oxygen species, it is more vulnerable to free radical damage than other tissues (ROS). Reactive oxygen species are directly responsible for ageing and neurological illnesses including Parkinson's, Alzheimer's, epilepsy, and schizophrenia. Using the levels of the free-radical scavenging enzymes catalase, superoxide, dismutase, and glutathione peroxidase in the rat brain frontal cortex, the bioactive compounds of Ashwghanda,

withaferin A, and sitoindosides VII-X, have been evaluated for their antioxidant properties. There have been reports of toxic free radical buildup leading to degenerative consequences from reduced enzyme activity. These enzymes have a neuroprotective impact and enhanced antioxidant activity.

All enzymes showed dose-related increases after receiving active withanolides daily for three weeks; the increases were equivalent to those observed after receiving deprenyl (a recognised antioxidant therapy). According to this, ashwghanda does have an antioxidant impact on the brain, which may be the cause of its many pharmacological effects (Bhattacharya, and Satyan 1997).

Antioxidants found in withaniasomnifera are potent. It raises the concentrations of three natural antioxidant enzymes in the rat brain, including catalase, superoxide dismutase, and glutathione peroxide (Dhuley,2000).

Numerous studies have demonstrated the antioxidant properties of W. somnifera, which are linked to flavonoids, phenolic acids, and alkaloids (Bhattacharya et al. 1987, 2000; Gupta et al. 2006). The composition of phenolic and flavonoids using high-performance liquid chromatography and MS/MS analysis revealed that W. somnifera contains caffeic acid, chlorogenic acid, ellagic acid, ferulic acid, gallic acid, catechin, tannic acid, kaempferol, quercetin, and rutin (Prakash et al. 2002; Singh et al. 2010).

To test Ashwghanda powder's hepatoprotective activity in ammonium chloride-induced hyperammonemia, Mohanty et al. (2008) measured its effects on the levels of circulating urea, ammonia, lipid peroxidation products like TBARS, hydroperoxides, and liver marker enzymes like ALT, AST, and ALP. The findings show that Ashwghanda induces hepatoprotection in experimental hyperammonemia via affecting livermarkers and lipid peroxidation products. The normalisation of urea levels, the presence of flavonoids, alkaloids, and withanolides, its capacity to scavenge free radicals, and its antioxidant capabilities might all be contributing factors to these results (Hari-krishnan et al.2008).

Glucose-lowering effects

One of the major risk factors for cardiovascular disease is hyperglycemia. In diabetic rats, ashwagandha alters glycated Hb, liver enzymes, and blood and urine glucose levels (Andallu and Radhika2000; Udayakumar et al.2009). The benefits of Ashwagandha root and leaf extracts on alloxan-induced diabetes in rats were studied by Udaya Kumar et al. in 2009. For two months, diabetic rats were given oral doses of glibenclamide and W. somnifera leaf and root extracts on a regular basis. After treatment, the levels of the following substances were assessed: serum enzymes aspartate transaminase, alanine transaminase, acid phosphatase, and alkaline phosphatase; blood glucose; liver glycogen; urine sugar; Hb; glycosylated; serum and tissue lipids; serum and tissue proteins; and liver glucose-6-phosphatase (G6P). In contrast to the Hb, total protein, albumin, albumin: globulin (A:G) ratio, tissue protein, and glycogen levels that were significantly (P0.05) decreased in alloxan-induced diabetic rats, the levels of urine sugar, blood glucose, HbA1C, G6P, AST, ALT, ACP, and ALP were significantly (P0.05) increased. After two months of therapy, the diabetic rats were given the WS extracts and glibenclamide, which returned the aforementioned parameters to normal levels, showing that W. somnifera root and leaf extracts have hypolipidemic and hypoglycemic effects in alloxan-induced diabetes mellitus (DM) rats.

Menopause and withania

Withania has been used for many years to improve and maintain energy, strength, memory, and courage, as well as to prevent the negative effects of stress on the body and mind. It is also regarded as one of the most effective adaptogenictonics.(Oida et al 2006). According to scientific data, ashwagandha has no toxicity and exhibits antioxidant, hematopoietic, anticancer, antistress, nutritional, immunomodulatory, and anti-inflammatory effects. It may also assist the cardiac, endocrine, and central nervous systems(Ritumala et al,2019). The analysis also noted that WS could be found to be more effective when used in conjunction with other herbs. There are several studies supporting ashwagandha's depressive and anxiolytic properties, which have been compared to those of lorazepam and imipramine. Other benefits include the ability to reverse chemotherapy-induced neutropenia and its anticonvulsant properties. One can get minor GI side effects. It is a great option for depression that is accompanied by anxiety, panic attacks, racing thoughts, tiredness, severe stress haemorrhage, and decreased libido. Additionally, it is used to treat learning and memory problems, anaemia and malnutrition, arthritis, inflammation, immune system issues, alcoholism, and problems with the reproductive system. Improvement in libido occurs gradually after 30 days of treatment. Ashwagandha can be consumed as a decoction or in powder form in capsules. The powder is traditionally made by heating milk with a small amount of honey.

Withania for the Support of the Nervous System

The most effective herb in Ayurvedic medicine for treating brain weakness is ashwagandha. Being a winter cherry, it gives the neurological system life and vigour. It is known as a "adaptogen" because it enhances physiological processes while also boosting tolerance to stress and nervous strain. It improves immunity,

regulates blood sugar, and regenerates brain cells to promote memory. The greatest natural anxiety treatment is a daily massage with Brahmi and Ashwagandha in coconut oil. Ayurveda offers a long-lasting solution. Because it attacks the disease at its source, it takes time to work. Maintain a healthy lifestyle and seek out Ayurvedic therapy for better health.

II. Discussion

Because of its numerous pharmacological properties, such as neuroprotective and anti-stress (M. Bhatnagar, D. Sharma, M. Salvi,2009), anti-arthritic, analgesic, anti-inflammatory, and antitumor (Grover et al., 2010), Ashwagandha is a real potent regenerative tonic, according to the available scientific data. It helps with a variety of illnesses, including malignoma, Parkinson's, dementia, and memory loss. It's interesting that some immune cells are known to be impacted by stress, while Ashwghanda is a female plant. The receptors on these cells can pick up signals from the adrenal hormones. Withania has historically been used to improve memory and brain functioning. Additionally, it is said to delay ageing and stimulate the body's anabolic activities. This is thought to occur as a result of the plant improving the activity of certain neurotransmitters in females.

Stress, tension, and worry are the factors that will kill the sex desire the quickest. Withania has been utilised in Ayurveda to treat low libido in both men and women by easing the symptoms of stress and boosting sexual desire.

It is regarded as the finest tonic for kids and the elderly, as well as an aphrodisiac by young people, and is utilised as a home or folk treatment in India. It is one of the greatest nervine tonics in the traditional medical system of Ayurveda. The use of Ashwagandha as a long-term therapy for neurological illnesses and brain strokes that cause paralysis has been demonstrated via clinical experience. Patients with all types of cancer, including lung and prostate cancer, especially those in the last stages, benefit greatly from it. Some lung cancer cases have rejected conventional treatment and responded favourably to our Ashwagandha therapy in terms of clinical and radiological outcomes. It was included as one of the six essential medicinal herbs at a recent conference (Singh, 2005) on the notion of essential drugs.

The presence of phenolic and flavonoid components in the plant gives it antioxidant capabilities, although the precise phenolic and flavonoid chemicals that give it those properties are unknown. Future research must determine the precise phenolic and flavonoid components found in W. somnifera. Therefore, it is abundantly obvious from the aforementioned data that Ashwagandha's traditional usage has a sound scientific foundation.To demonstrate the therapeutic effectiveness of this plant, particularly in neurological disorders, malignancies, and illnesses linked to stress, further clinical investigations are to be required.

III. Conclusion

Without generating any type of harm, medicinal plants both preserve human health and vitality and treat ailments. Since the early days of the traditional Indian medical system, withaniasominifera has been utilised in medicine (Ayurveda). The plant's numerous pharmacological effects, including antioxidant, anxiolytic, adaptogen, memory-enhancing, antiparkinsonian, anti-inflammatory, and anticancer capabilities, have received extensive research. Alkaloids, withaferins, and sitoindosides are examples of medicinally significant pharmaceutical compounds that shield cells from oxidative stress and illness. Numerous other effects have also been investigated, including immunomodulation, hypolipidemia, antimicrobial activity, cardiovascular protection, and sexual behaviour.

Because it contains flavonoid and phenolic components, W. somnifera possesses antioxidant qualities, however it is unknown which particular phenolic and flavonoid chemicals are responsible for these characteristics. Future research must pinpoint the precise flavonoid and phenolic compounds found in W. somnifera. Therefore, eating a healthy diet that is high in antioxidant plant foods (such fruits and vegetables) will have a protective effect on your health.

Since it has been shown to have strong antibacterial activity with amikacin and immunopotentiation with the DPT vaccination, boosting their therapeutic benefits, the medication has been determined to be safe for long-term use and in greater amounts.

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