

Medicinal properties and pharmacology of Asgandh Nagori (*Withania somnifera*): An important drug of Unani Medicine

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Abstract:

Asgandh (*Withania somnifera* Dunal) is a well-known Indian medicinal plant widely used in the treatment of many clinical conditions in Asian countries and. It is an important drug commonly known as Asgand which has been used either single or in combination with other drugs in Unani as well as Ayurvedic system of medicine for centuries. *Withania somnifera* holds a place in Ayurveda similar to that of ginseng has in Chinese medicine. Asgand is commonly known as Indian ginseng or Indian winter cherry. It has been described by Dioscorides (78 AD) in his book “Kitab-ul-Hashaish”. Asgandh exhibits a wide range of therapeutic properties by tuning the endocrine, cardiopulmonary, central nervous system and sexual behavior without any toxicity. The root has been used most frequently for therapeutic uses and is a constituent of over 200 formulations in Ayurveda, Siddha and Unani medicines. There are several reports to establish its immunomodulatory, anti-inflammatory, antistress, memory enhancing, antiparkinsonian, hypolipidemic, antibacterial, cardiovascular, antioxidant, antitumor and adaptogenic properties. These properties stem from the characteristic bioactive phytochemicals such as alkaloids and phytosterols present in the plant. This review presents a detailed survey on various traditional uses, phytochemical composition and pharmacological properties of *Withania somnifera*. An extensive review of ancient literature of Unani medicine revealed that the drug having numerous therapeutic action such as Muhallile warm (anti-inflammatory), Moallide mani (semen producer), Musakkin (sedative), Muqawwie aam (General tonic) and Muqawwie Bah (aphrodisiac). Keeping in view the medicinal properties of *Withania somnifera* Dunal (Asgand), an attempt has been made in this review paper to explore various dimensions of the drug including botanical, chemical and pharmacological studies of plant besides its traditional uses in Unani Medicine.

Keywords: Asgandh, Withanolide, Photochemistry, Unani Medicine.

I. INTRODUCTION

Nature is a treasure chest of large diversity of medicinal plants. The search for drugs in nature by man dates from the far past, and this search resulted the evolution of different modern medicinal systems. The curative powers of medicinal plants constitute the basis of all the indigenous systems of medicine namely Ayurveda, Unani, Siddha and Tibetan Medicine. Medicinal herbs have a great history in the realm of drug treatments, and are currently receiving attention as sources of synergistic combinations. Moreover medicinal plants made a lot of contribution towards the discovery of large number of new generation synthetic drugs. Recognition of the medicinal and the economic benefits of these plants are on increase in both developing and industrialized nations. Thus, in all aspects of research and development, the exploration and evaluation of phyto-pharmacological effect of herbal drugs are relevant. Also we have to safely preserve the knowledge of medicinal plants and herbal remedies, which humankind has received from the past generations for posterity.



Fig. 1 Fruits of Asgandh



Fig. 2 Fresh Leaves of Asgandh

Asgandh (*Withania somnifera*) Belongs to the family solanaceae. This shrub is found in the drier parts of India, Sri Lanka, Afghanistan, Baluchistan, Sind, and parts of Africa and is distributed in the Mediterranean regions, the Canaries and Cape of Good Hope. It is found in high altitude ascending to 5,500 feet in the Himalayas. It grows wildly throughout India particularly in hotter parts, on waste places and on road sides. It is also cultivated for medicinal purposes throughout India. It is widely cultivated in mandsaur of Madhya Pradesh, adjoining area of Rajasthan village and garhwal hills. In Unani system of medicine, roots of *Withania somnifera* commonly known as Asgand are used for the medicinal properties . Roots collected in winter during January to March, dried under shade for several days, washed and cut into short pieces. It is believed that the supplies of the roots were from Nagpur and were obtained from the wild plants grown in this region. Now days, except for a limited collection of the roots from wild plant growing in Bikaner and pilani area of Rajasthan most of the roots obtained from the cultivated plants. The drug retains its therapeutic efficacy for

less than 2 years. It is prone to decomposition and loses its potentials within 2 years. So the fresh dried roots are preferred for medicinal uses. Two varieties of Asgand have been mentioned in classical Unani literature Asgand Nagori and Asgand Dakani. Asgand Nagori is preferred for its more potential medicinal properties.

Asgandh has been traditionally used for calming the mind and has the capacity to improve learning ability, memory power and to improve poor eye sight. Asgandh shows anti-inflammatory potential in the treatment of joint diseases and an appropriate remedy for asthma and bronchitis. It is also used to inhibit the development of tolerance, dependence on chronic use of various psychotropic drugs and strengthening the female reproductive system.

Herbal combination containing Asgandh rejuvenates the body and is used in the treatment of infertility, impotence and seminal depletion. Combination with Shatavari has been used for the treatment of female infertility and frigidity and useful in threatened miscarriage, an excellent post-partum restorative as well as recommended to restore uterine tone. Asgandh is reported to have anti-tumor, antioxidant, anti-inflammatory and immunoregulatory properties. The chemo preventive properties of WS make it a potentially useful adjunct for patients undergoing radiation and chemotherapy. It not only supports the health of patients undergoing conventional cancer treatment and but also cures the after effects such as carbuncles, ulcers and painful swellings⁴. The reports on the phyto-pharmacological studies justify its use in the traditional medicine. The review provides an outline of currently published research articles on the photochemistry and pharmacology of *Withania somnifera*.

II. Benefits of the Various Parts of Asgandh:

- 1. Leaves:** The analgesic and antioxidant properties of the leaves of Asgandh are used for treating a viral infection, cough and cold symptoms, fever and chronic pain.
- 2. Flowers and Seeds:** Asgandh flowers have potent diuretic and aphrodisiac properties which is used for improving fertility and treating kidney problems such as kidney stones. The seeds, on the other hand, have anthelmintic properties and are used for preventing and treating infectious diseases and parasitic invasions.
- 3. Roots:** The roots are the most crucial part of the plant and are mostly used in various formulations. The root has potent aphrodisiac, diuretic, anti-helminthic, antioxidant, anti-depressant, anti-diabetic properties and are hence used for treating neural problems, diabetes, constipation, infertility, skin disorders, etc.

Although, in ancient times, Ayurveda healers used to self-prepare Asgandh formulations, nowadays, the markets are flooded with these formulations and one can easily avail it and use it for its wide range of health benefits.

III. Chemical constituents of Asgandh.

The pharmacological activity of roots is attributed to the presence of several alkaloids¹. The total alkaloidal content of the Indian roots has been reported to vary between 0.13 and 0.31%. In all, 13 dragendorff positive components have been obtained chromatographically. They include cuscohygrine, anahygrine, tropine, pseudotropine and anaferine. There is another alkaloid called withsomine which is reported from the root of the plant grown in West Germany^[6] In addition to alkaloids the root are reported to contain starch, resin, fat,

potassium nitrate, phytosterol, reducing sugars, hentriacontane glycosides, dulcitol, withaniol, stearic, palmitic, linoleic, withanic acid, ipuranol and somnirol. Dr. Trebut in 1886 separated an alkaloid from the Mediterranean plant, which forms a crystalline sulphate having hypnotic action, but not producing mydriasis. He provisionally named the alkaloid somniferine. The hypnotic and sedative properties are due to the presence of an alkaloid "somniferin." The root contains several alkaloid including withanine, withananine, pseudo-withanine, somnine, somniferine. Withferin A has antitumor, antiarthritic, and antibacterial and anti-inflammatory activity. The root extract contains an ingredient which has GABA mimetic activity. The free amino acids present in the root include aspartic acid,

IV. Pharmacological Properties of Asgandh.

Centuries of Unani medical experience using *Withania somnifera* have revealed it to have pharmacological value as anti-inflammatory (Muhallil-e-Warm), sedative (Munabbim), alterative (Muaddil), aphrodisiac (Muqawwi-e-Bah), hepatoprotective, immune-modulator activity, anti-oxidant, anti-ageing, anti-tumour activity, adaptogenic activity and has anti-convulsant activity.

A. Anxiety and Antidepressant activity of Asgandh.

In an animal study assessing the anxiolytic and anti-depressive actions of *Withania somnifera* compared to commonly prescribed pharmaceuticals, an extract of the root was administered orally to rats once daily for five days. The results were compared to a group administered the benzodiazepine lorazepam for anxiolytic activity, and the tricyclic antidepressant imipramine for antidepressant investigation. Both the Asgandh group and the lorazepam group demonstrated reduced brain levels of a marker of clinical anxiety.

B. Anti-inflammatory activity of Asgandh.

Research has explored the capacity of *Withania somnifera* to ease the symptoms of arthritis and other inflammatory conditions. These studies have proven that the herb acts as an effective anti-inflammatory agent. Its naturally occurring steroidal content is much higher than that of hydrocortisone, a commonly-prescribed anti-inflammatory. The effectiveness of *Withania somnifera* in a variety of rheumatologic conditions may be due in part to its anti-inflammatory properties. Rats given powdered root of *Withania somnifera* orally one hour before being given injections of an inflammatory agent over a three day period showed that *Withania somnifera* produced anti-inflammatory responses comparable to that of hydrocortisone sodium succinate.



Fig. 3 Asgandh as Anti-tumor and Anti-Anxiety in Unani formulation



Fig. 4 Asgandh as Anti-Hyper-lipidimic and Anti inflammatory

C. Antitumor activity of Asgandh.

In one study, *Withania somnifera* was evaluated for its anti-tumor effect in urethane-induced lung adenomas in adult male albino mice. Simultaneous administration of *Withania somnifera* (ethanol extract of whole plant, 200 mg/kg daily orally for seven months) and urethane (125 mg/kg without food biweekly for seven months) reduced tumor incidence significantly (tumor incidence: untreated control, 0/25; urethane treated, 19/19; *Withania somnifera* treated, 0/26, and *Withania somnifera* plus urethane treated, 6/24, $p < 0.05$). The histological appearance of the lungs of animals protected by *Withania somnifera* was similar to those observed in the lungs of control animals. No pathological evidence of any neoplastic change was observed in the brain, stomach, kidneys, heart, spleen, or testes of any treated or control animals. In addition to providing protection from carcinogenic effects, *Withania somnifera* treatment also reversed the adverse effects of urethane on total leukocyte count, lymphocyte count, body weight, and mortality. The growth inhibitory effect of *Withania somnifera* was also observed in Sarcoma 180 (S-180), a transplantable mouse tumor (Singh et al., 1986). Ethanol extract of *Withania somnifera* root (400 mg/kg and up, daily for 15 days) after intra-dermal inoculation of 5×10^5 cells of S-180 in BALB/c mice produced complete regression of tumor after the initial growth. A 55-percent complete regression was obtained at 1000 mg/kg; however, it was a lethal dose in some cases. *Withania somnifera* was also found to act as a radio- and heat sensitizer in mouse S-180 and in Ehrlich ascites carcinoma.

D. Effects on the endocrine system of Asgandh.

Based on the observations that *Withania somnifera* provides protection from free radical damage in the mouse liver, studies were conducted to determine the efficacy of *Withania somnifera* in regulating thyroid function. Mice were given Asgandh root extract (1.4 g/kg by gavage, daily for 20 days). The treatment significantly increased the serum levels of 3,3',5-triiodothyronine (T3) and tetraiodothyronine (T4), while the

hepatic concentrations of glucose 6-phosphatase activity and hepatic iodothyronine 5'-monodeiodinase activity did not change significantly. *Withania somnifera* significantly reduced hepatic lipid peroxidation and increased the activity of superoxide dismutase and catalase. The results suggest *Withania somnifera* stimulates thyroidal activity and also promotes hepatic antioxidant activity. A combination formula of *Withania somnifera*, *Tinospora cordifolia*, *Eclipta alba*, *Ocimum sanctum*, *Picorrhiza kurroa*, and shilajit was found to cause a dose-related decrease in streptozotocin-induced hyperglycemia.

D. Anticonvulsant activity of Asgandh.

Administration of *Withania somnifera* root extract was found to reduce jerks and clonus in 70% and 10% animals respectively with dose of 100mg/kg and reduction in the severity of pentylene tetrazole (PTZ)-induced convulsions was evident from EEG wave pattern. Asgand root extract showed reduction in severity of mot or seizures induced by electrical stimulation in right basilateral amygdaloid nuclear complex through bipolar electrodes. The protective effect of Asgand extract in convulsions has been reported to involve GABAergic mediation.

E. Adaptogenic activity and anti-stress activity of Asgandh.

Withania somnifera roots were investigated against a rat model of chronic stress. The stress procedure was mild, unpredictable foot-shock, administered once daily for 21 days to adult male Wistar rats. CS induced significant hyperglycaemia, glucose intolerance and increase in plasma corticosterone levels, gastric ulcerations, male sexual dysfunction, cognitive deficits, immunosuppression and mental depression. These CS induced perturbations were attenuated by *Withania somnifera* (25 and 50 mg/kg po) and by panax ginseng (PG) (100 mg/kg po), administered 1 h before footshock for 21 days. The results indicate that *Withania somnifera*, like *Panax ginseng* (PG), has significant anti-stress adaptogenic activity, confirming the clinical use of the plant in Ayurveda

Chronic stress can result in a number of adverse physiologic conditions including cognitive deficit, immune-suppression, sexual dysfunction, gastric ulceration, irregularities in glucose homeostasis, and changes in plasma corticosterone levels. In a rat model of chronic stress *Withania 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 chronic stress induced ulcers, reverse chronic stress induced inhibition of male sexual behavior, and inhibit the adverse effects of chronic stress on retention of learned tasks. Both botanicals also reversed chronic stress induced immune-suppression, but only the *Withania* 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.

F. Antimicrobial activity of Asgandh.

Aqueous root extract of Asgand was found to possess strong antibacterial activity against methicillin resistant *Staphylococcus aureus* (MRSA) as revealed by the in vitro agar well diffusion assay. The separation of the bioactive compounds from the plant extract was carried out using two dimensional thin layer chromatography (TLC) and contact bio-autography. The antioxidant activity was estimated to be

Trolox Equivalent Antioxidant Capacity of 9.83mg/gm of dry weight of extract and reducing power was 0.11mg/gm of dry weight of extract using ascorbic acid as standard. Our study suggests that the bioactive fractions separated from aqueous extract of *Withania somnifera* are a potential source of antibacterial compounds with antioxidant property

G. Antioxidant activity of Asgandh.

In Banaras Hindu University of India some researchers have discovered that some of the chemicals found in *Withania somnifera* are powerful antioxidants. Studies conducted on rats' brains showed the herb produced an increase in the levels of three natural antioxidants- superoxide dismutase, catalase and glutathione peroxidase. Through the study, these findings are consistent with the therapeutic use of *Withania somnifera* as an Ayurvedic rasayana. The antioxidant effect of active principles of *Withania somnifera* root may explain the reported anti-stress, cognition-facilitating, anti-inflammatory and anti-aging effects produced by them in experimental animals, and in clinical situations.

The antioxidant activity of *Withania somnifera* glycowithanolides was assessed in chronic footshock stress induced changes in rat brain frontal cortex and striatum. The stress procedure, given once daily for 21 days, induced an increase in superoxide dismutase (SOD) and lipid peroxidation (LPO) activity, with concomitant decrease in catalase (CAT) and glutathione peroxidase (GPX) activities in both the brain regions. *Withania somnifera* glycowithanolides, administered orally 1 h prior to the stress procedure for 21 days, in the doses of 10, 20 and 50 mg/kg, induced a dose-related reversal of the stress effects. Thus, WSG tended to normalise the augmented SOD and LPO activities and enhanced the activities of CAT and GPX. The results indicate that, at least part of chronic stress-induced pathology may be due to oxidative stress, which is mitigated by WSG, lending support to the clinical use of the plant as an anti-stress adaptogen

H. Immunomodulatory effect of Asgandh.

The efficacy of *Withania somnifera* on immunomodulation was tested in experimental azoxymethane induced colon cancer in mice. Azoxymethane 15 mg/kg was injected intraperitoneally once a week for 28 days. The colon cancer was confirmed by the appearance of aberrant crypt foci (ACF) in the colons of the experimental mice. The progression in colon tumor development was correlated with the appearance of the histological biomarker and ACF. Animals were treated with 400 mg/kg body weight of *Withania somnifera* extract once a week for four weeks orally. After that the animals were sacrificed and analyzed for immunocompetent cells, immune complexes and immunoglobulins. *Withania somnifera* significantly altered the level of leucocytes, lymphocytes, neutrophils, immune complexes and immunoglobulins (Ig) A, G and M. The azoxymethane induced colon cancer and immune dysfunction was better controlled by *Withania somnifera*. These results suggested that the immunomodulatory effects of *Withania somnifera* could be useful in the treatment of colon cancer.

I. Sexual behavior of Asgandh.

Methanolic root extract of WS were orally administered at dose 3000 mg/kg/day of 7 days in rats. Their sexual behaviour was evaluated 7 days prior to treatment, day 3 and 7 of treatment, and day 7, 14 and 30 post-treatment by pairing each male with a receptive female. The Asgandh root extract induced a marked impairment in libido, sexual performance, sexual vigour, and penile erectile dysfunction. These effects were

partly reversible on cessation of treatment. This antimasculine effect was not due to changes in testosterone levels but attributed to hyperprolactinemic, GABAergic, serotonergic or sedative activities of the extract. WS roots may be detrimental to male sexual competence.



Fig. 5 Asgandh for Libido and Stamina in males

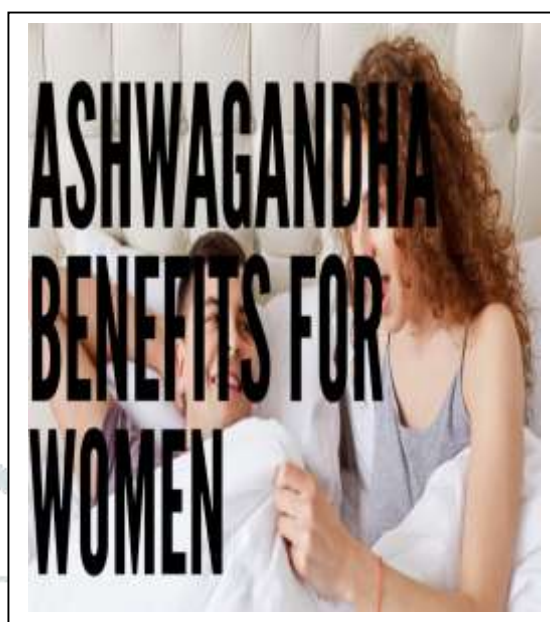


Fig. 6 Asgandh for female sexual well being

J. Cardio-protective Effect of Asgandh.

This study was evaluate the cardio-protective potential of hydro- alcoholic extract of *Withania somnifera* on the basis of haemodynamic, histopathological and biochemical parameters in the isoprenaline- (isoproterenol) induced myocardial necrosis in rats and to compare with Vitamin E, a known cardioprotective antioxidant. Wistar albino male rats (150–200 g) were divided into six main groups: sham, isoprenaline control, and *Withania somnifera*/Vitamin E control and *Withania somnifera*/Vitamin E treatment groups. *Withania somnifera* was administered at doses 25, 50 and 100 mg/kg and Vitamin E at a dose of 100 mg/kg, orally for 4 weeks. On days 29 and 30, the rats in the isoprenaline control and *Withania somnifera*/Vitamin E treatment groups were given isoprenaline (85 mg/kg), subcutaneously at an interval of 24hr. On day 31, haemodynamic parameters were recorded and the hearts were subsequently removed and processed for histopathological and biochemical studies. Result show that *Withania somnifera* (25, 50 and 100 mg/kg) exerts a strong cardioprotective effect in the experimental model of isoprenaline-induced myonecrosis in rats. Significant restoration of most of the altered haemodynamic parameters may contribute to its cardioprotective effect. Among the different doses studied, *Withania somnifera* at 50 mg/kg dose produced maximum cardioprotective effect.

V. Health Benefits of various Asgandh Formulations

A. Asgandh Churna

Asgandh churna is a powdered formulation of the Asgandh plant (mainly the roots) used for increasing the libido in males and treating various infertility issues.

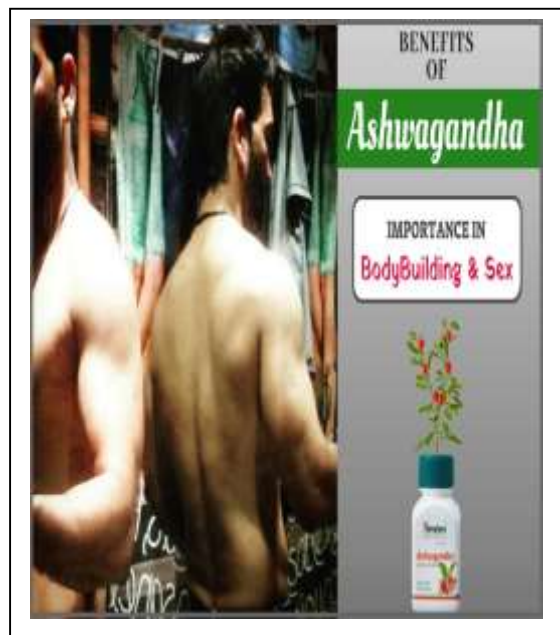


Fig. 7 Asgandh for male bodybuilding and sex

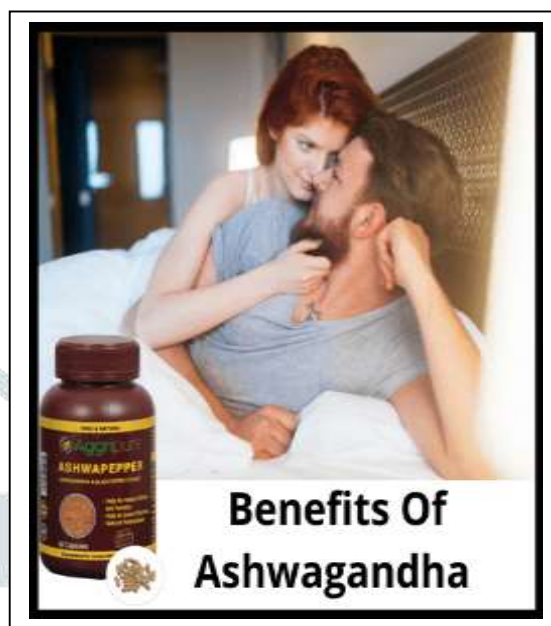


Fig. 8 Asgandh for Euphorodiasic in male

Ingredients:

1 part Asgandh

1 part Vidhara (i.e. *Argyrea speciose*)

Method: The herbs are washed and dried under direct sun. Once there is no moisture, they are powdered separately and passed through sieve no. 100 to get a fine powder. The powders are then mixed together to form a homogeneous mixture and again sieved to remove any impurities or hard particles. Stored in airtight containers for future use.

Benefit:

- 1. Male Reproductive System:** The formulation is typically indicated for improving men's health. The churna has powerful spermatogenic properties that are extremely beneficial for treating oligospermia (i.e. low sperm count), hypospermia (low volume of semen), asthenozoospermia (i.e. sperm motility), teratospermia (i.e. abnormal sperm shape) and enhances spermatogenesis (i.e. sperm production). The churna, being a natural antioxidant improves the production of male hormones like testosterone and luteinizing hormone. It also treats conditions like erectile dysfunction and premature ejaculation.
- 2. Female Reproductive System:** Apart from improving male fertility, it also helps in treating endometriosis (i.e. inflammation of the lining of the uterus) and is a powerful uterine tonic. It maintains hormone levels within the blood, strengthens the female reproductive organs and enhances maturation of the eggs into follicles. Regular use of this formulation or consuming foods that improve fertility may be very helpful when an individual is trying to conceive.

3. **Enhances Libido:** Being a natural aphrodisiac helps in reducing mental stress and anxiety and stimulates the hormones for increasing libido. It also increases virility and stamina in men.

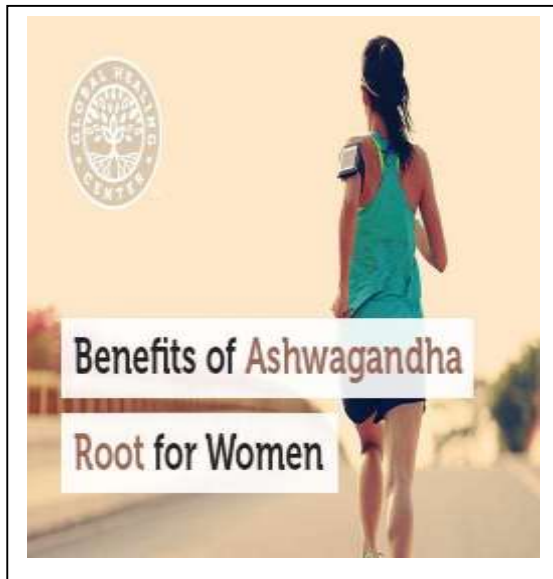


Fig. 9 Asgandh for Female sex drive

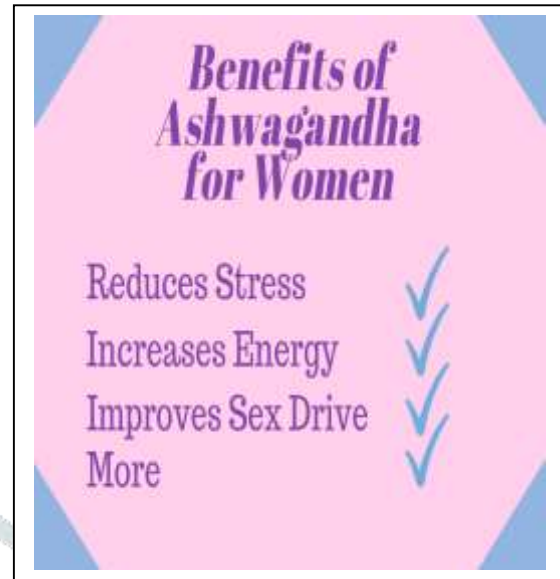


Fig. 10 Asgandh increase energy in women's

Dosage: The dosage should be as per health condition, age and as suggested by the Ayurveda doctor or practitioner. It is usually taken as 3 grams, 2 to 3 times a day for adults. It can be consumed with warm milk and should be taken on an empty stomach in the morning or at night before going to sleep.

It does not show any side effects when taken after proper consultation.

B. Asgandh Arishtam

This health tonic is a liquid preparation of the Asgandh herb for general debility and improving the immunity. Apart from being used for improving reproductive health for both men and women, it is also used for neural problems like depression, dementia, etc. The goodness of the various herbal ingredients along with Asgandh like mushali, manjistha, haldi, haritaki, mulethi, arjuna, rasna, daruhaldi, trivrit, chitraka, mustak, vacha, chandan, sariva and several other dravyas or ingredients which make this a potent remedy for a host of ailments. The decoction is prepared by boiling the various kashaya dravyas or specific decoction herbs and reducing the water content up to $\frac{1}{4}$ th of its original content. The decoction is strained and kept in a vessel. Jaggery and dried Prakshepaka dravyas like dhataki, ginger, black pepper, dalchini, ela, tejpata, nagkeshar and priyangu are added one by one and mixed. The vessel is covered with a lid, kept aside and allowed to ferment for about a month. After the fermentation is complete, it is filtered to remove husk of the herbs and stored in an airtight glass container for future use.

Benefits:

1. **Prevents Anxiety and Depression:** Asgandh arishtam is extremely useful for treating different types of psychotic problems like depression, dementia, etc. It normalises the vata and pitta doshas in the body which in turn keeps the serotonin level under control and helps to reduce various symptoms of anxiety which includes restlessness, uneasiness, cold hands, and feet, etc. The potent antidepressant

properties of the decoction help in relaxing the mind, reducing irritability and improving energy and stamina.

2. Treats Insomnia:

The anti-stress and anxiolytic properties of Asgandh help in calming the mind and body. It helps the mind to get rid of distraught thoughts, reduces mental fatigue and improves sleeping patterns.

3. Improves Immunity:

This powerful formulation holds high value in improving the general stamina and energy level of the body. The active ingredients in Asgandh and other herbs used in this formulation reduces Weakness and fatigue and improves the vitality of the body. It also improves the function of the adrenal Glands which in turn helps in reducing the stress levels.

4. Boosts Bone Health:

The tonic is highly beneficial for improving bone health and reducing pain and inflammation at the joints. It promotes bone health, reduces the risk of fracture, maintains overall body balance and provides the body with a strong and perfect skeletal structure. It also increases bone and muscle mass and treats conditions like osteoarthritis, osteoporosis, and fibromyalgia.

5. Reproductive Health:

Like the churna, the decoction of Asgandh also plays a key role in improving the reproductive health of both men and women. It treats the various disorders related to infertility and improves libido in men.

Dosage: The general dosage of Asgandh arishtam is 20 ml i.e. 4 tsp twice a day infused with equal quantities of water or as suggested by your doctor.

Side Effects: Over dosage of the formulation, without doctor's consultation may cause some contraindications like acidity, heartburn, GERD, sour mouth, gastritis, ulcer, etc.

C. Asgandhdi Lehyam

Asgandhdi Lehyam is a semi-solid jam like preparation of Asgandh which is prepared by adding jiggery or sugar and boiled with a specific liquid till the correct constituency is reached. The Lehyam is used for treating general weakness, fatigue, neuromuscular conditions, impotency, underweight, etc. This potent formulation improves immunity and is useful for treating arthritis, joint pain, back pain, and different breathing problems. The active constituents of the Lehyam include Asgandh, sariva, jeera, sugar, madhusnuhi, draksha, ghee, honey, ela and water for the decoction. The dried herbal powders are added in water and boiled till it becomes 1/4th of its original volume. Now the decoction is filtered and Sarkara or sugar is added to it and the flame is simmered. It is kept in that way till it reaches a semi-solid jam-like consistency. It is removed from the heat and allowed to cool. In the end, ela powder and honey is added and mixed thoroughly. The jam or jelly-like formulation is then kept in airtight glass vessels and stored for future use.

1. Improves Underweight Conditions:

The Lehyam effectively pacifies the Vata doshas and aggravates the Kapha Doshas, hence it can be used to improve skeletal and muscle mass and for healthy weight gain. It provides nourishment to the body, balances subcutaneous fat, enhances the strength of bones and muscles. Consuming this Lehyam

on a regular basis along with milk is sure to give marked results in a month.

2. Treats Pyospermia:

Pyospermia is a condition that is caused due to an infection or viral invasion which is characterized by an abnormal number of white blood cells in the semen which ultimately reduces the motility and functioning of the sperm. This antibacterial and anti-inflammatory nature of this potent Lehyam is excellent remedy for treating the infection and curing this ailment.

3. Boosts Stamina:

Like all other Asgandh formulations, the Lehyam of this magical herb is also useful against general weakness and debility. It reduces anxiety and stressful conditions by improving adrenal health. It also enhances the body's immunity and prevents infections due to the invasion of germs.

Dosage:

The dosage depends upon the patient's age, sex and severity of the disease; hence it is advised to visit or consult an Ayurveda doctor or practitioner before taking this medicine. The adequate dose for an adult is 6 to 12 grams taken twice a day with milk. It should be taken 1 hour before meals or 2 hours after a meal.

Warnings and contraindications of Asgandh.

Large doses of *Withania somnifera* may possess abortifacient properties; therefore, it should not be taken during pregnancy. Since Asgandh acts as a mild central nervous system depressant, patients should avoid alcohol, sedatives, and other anxiolytics while taking Asgandh.

V. Discussion

Asgandh is a very important drug and is traditionally used to treat a number of health problems. Recent ethno botanical, phytochemical and pharmacological studies have reported the medicinal values of *Withania somnifera* and its active constituents. This review provides evidence based scientific validation to some of its action and therapeutic uses described in ethno botanical literature and actions described for Asgandh in classical text of Unani Medicine since long. The above literature showed that *Withania somnifera* is an herb of enormous therapeutic effects and has been used in numerous ailments especially for sexual debility, Infertility, menstrual disorder, Arthritis and other inflammatory condition. A number of compounds are isolated from it; several alkaloids such as withasomine, withaferin A, phytosterol, reducing sugars, glycosides, flavonoids and saponins are the most common which are responsible for its extensive use. Further studies are required to isolate other biological active constituents responsible for its therapeutic use and also to validate the traditional knowledge of Asgandh.

VI. Conclusion

The extensive survey of literature revealed that WS is an important source of many pharmacologically and medicinally important chemicals, such as withaferins, sitoindosides and various useful alkaloids. The withanolides are the most searched chemical constituents of WS and till date around 138 withanolides with both ' and side chain has been reported apart from various amino acid and other normal plant constituents. The plant has also been widely studied for their various pharmacological activities like antioxidant, anxiolytic, adaptogen, memory enhancing, antiparkinsonian, anti-venom, anti-inflammatory, antitumor properties. Various other effects like immunomodulation, hypo-lipidemic, antibacterial, cardiovascular protection, sexual

behaviour, tolerance and dependence have also been studied. Although the results from this review are quite promising for the use of Asgandh as a multi-purpose medicinal agent, several limitations currently exist in the current literature. While Asgandh has been used successfully in Unani and Ayurveda medicine for centuries, more clinical trials should be conducted to support its therapeutic use. It is also important to recognize that WS extracts may be effective not only on isolation, but may actually have a modulating effect when given in combination with other herbs or drugs. In the recent years, traditional system of medicine have emerged as potential source to cope with the growing rate of chronic, degenerative, environmental, lifestyle and stress related diseases. This article briefly reviews the traditional knowledge, ethno medicinal, pharmacological and therapeutic application of the *Withania somnifera* Dunal. This is an attempt to compile and document information on different aspects of the plant and highlight the need for research and development.

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