



ORIGINAL ARTICLE

Therapeutic and Traditional Values of Ashwagandha (*Withania somnifera*)

Ashok Kumar Kakodia¹, Kumud Tanwar² and Raaz Maheshwari³

¹Department of Chemistry, S.G.G. Government College Banswara, Rajasthan

²Department of Chemistry, Kanoria P.G. Mahila Mahavidyalaya, Jaipur, Rajasthan

³Department of Chemistry, S.B.R.M. Government P.G. College Nagaur, Rajasthan

Email: kakodia30@gmail.com

ABSTRACT

Ashwagandha, the magical herb, is considered to be nature's gift to mankind. For centuries Ayurvedic medicine has used it to treat people for their day to day woes such as stress, anxiety, exhaustion, lack of sleep and with an abundance of antioxidants, iron and amino acids, it's no surprise that Ashwagandha is one of the most powerful herbs in Ayurvedic healing. It is classified as a rasayana i.e. rejuvenation in Ayurveda and expected to promote physical and mental health, restore the body and increase longevity. It has been glorified over time for its dual capacity to energise and calm at the same time. It has hormone balancing, anti-inflammatory, antioxidant properties which can prevent and treat a number of diseases. Ashwagandha is popularly used for boosting immunity, anti-ageing, joint pain and insomnia. Due to its active ingredient called withanolides, Ashwagandha is also used as an "adaptogen" to help the body cope with daily stress, as a general tonic and for improving thinking ability. It also improves the brain's memory functions like attention and concentration, hence helping with the symptoms of Parkinson's, Alzheimer's and other neurodegenerative diseases. It enables the body to reserve and sustain vital energy throughout the day while promoting sound, peaceful sleep at night." These varied benefits are what makes Ashwagandha a go-to choice in Indian herbal medicine.

Keywords: Withanolides, Adaptogen, Aphrodisiac, Inflammation, Insomnia, Stress

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INTRODUCTION

The Sanskrit term Ashwagandha translates to 'smell of horse', and rightly so. Traditionally, it is believed that a person who consumes this herbal medicine will gain horse-like strength and vitality. It is a small shrub with yellow flowers and a red fruit, native to India, North Africa, and the Middle East. The extract is typically taken from the berries or roots of the plant. It is also referred to as *Withania Somnifera* (Latin name), Indian Ginseng or Winter Cherry. It has hormone balancing, anti-inflammatory, antioxidant properties which can prevent and treat a number of diseases. Ashwagandha is popularly used for boosting immunity, anti-ageing, joint pain and insomnia. Due to its active ingredient called withanolides, Ashwagandha is also used as an "adaptogen" to help the body cope with daily stress, as a general tonic and for improving thinking ability. It also improves the brain's memory functions like attention and concentration, hence helping with the symptoms of Parkinson's, Alzheimer's and other neurodegenerative diseases. It enables the body to reserve and sustain vital energy throughout the day while promoting sound, peaceful sleep at night."

These varied benefits are what makes Ashwagandha a go-to choice in Indian herbal medicine.

The benefits of Ashwagandha are perfect for those battling stress, as it inhibits high levels of cortisol, 'the stress hormone'. It is in fact used in tranquilizers and antidepressants drugs, since it helps relieve physical and mental stress and overcome depression.



Fig. 1: Flowers and Fruits of Ashwagandha Plant

Ashwagandha has a rich history in Ayurveda for its wound healing abilities. Traditionally, fresh leaves were used topically to heal joint pains, skin sores and to reduce swelling. In Ayurveda, Ashwagandha is referred to as *balya*, which means giving strength in conditions like general debility. It is known to improve energy, increase stamina and endurance.

The exotic herb is a promising alternative treatment for a variety of mental degenerative diseases because it has demonstrated an ability to promote the growth of nerve cells, and protect the brain cells from the harmful effects of the environment.

Ashwagandha is used as an aphrodisiac as well, since it supports sexual health. It has been used for centuries as a general body tonic, as it makes you feel stronger and healthier. It is also present in *Chyawanprash*, the delicious and famous concoction stocked up in every Indian household.



Fig. 2: Dry root of Ashwagandha plant

In addition to boosting your overall immunity, Ashwagandha also has the potential to be a serious anti-cancer agent as it slows the growth of cancerous tumors.

Ashwagandha also acts on the endocrine system by encouraging hormone balance. Studies suggest reduction in symptoms such as hot flashes and mood swings during menopause.

The rejuvenating properties of Ashwagandha make it very effective in treating insomnia. It calms the nervous system, eases stress and gets rid of sleeplessness. Traditionally, it is used as a powder mixed with honey and warm milk for calming vata and regulating your sleep and wake cycles. You can also have a cup of hot milk mixed with 1 teaspoon of powdered Ashwagandha before bedtime (Mirjalili, *et al.* 2009 and Pandit *et al.*, 2013).

CHEMICAL COMPOSITION

Alkaloids (such as isopelletierine, anaferine, cuseohygrine, and anahygrine) steroidal lactones (such as withanolides, withaferins), and saponins (Mishra *et al.*, 2000) are the chemical components of *Withania somnifera* (WS) that are biologically active. Ashwagandha contains acylsterylglucosides and sitoindosides, both of which are stress relievers. It has been demonstrated that the active components of ashwagandha, such as the sitoindosides VII-X and withaferin-A, have strong anti-stress efficacy against acute models of experimental stress (Bhattacharya *et al.*, 1987). Numerous of its components promote immunomodulatory effects (Ghosal *et al.*, 1989). 5-dehydroxy withanolide-R and withasomniferin-A were produced from *Withania somnifera*'s aerial parts (Atta-ur-Rahman *et al.*, 1991).

BEAUTY BENEFITS OF ASHWAGANDHA

Tired of looking at wrinkled, dry, sagging skin when you look in the mirror? It's Ashwagandha to the rescue. Its potent antioxidant properties help protect the skin against free radical damage and slow down the ageing process by firming up your skin for a more youthful look. Ashwagandha stimulates DHEA, which is a precursor to both testosterone and estrogen and stimulates the production of natural skin oils. It also promotes the production of vital compounds and proteins for healthy skin such as hyaluronan for skin hydration, elastin to keep the skin supple and collagen for skin strength. For glowing skin, you can also use Ashwagandha as a toner with dried ginger and lemon. Ashwagandha is believed to help improve scalp circulation and strengthen the hair, as well as help get rid of dandruff. It also appears to stimulate production of melanin, the pigment responsible for the colour of your hair. So, it may actually reverse greying of hair. And if that wasn't enough, it also helps deal with hair loss (Pati *et al.*, 2009).

BENEFITS OF ANCIENT MEDICINAL HERB

Ashwagandha is used as a household remedy by Indians, who consider it as the best tonic for old people and children, and as aphrodisiac by young people (Singh *et al.*, 2011). Ashwagandha is one of the most important herbs in Ayurveda, a form of alternative medicine based on Indian principles of natural healing. It has been used for over 3,000 years to relieve stress, increase energy levels and improve concentration. 'Ashwagandha' is Sanskrit for 'smell of the horse,' which refers to both its unique smell and ability to increase strength. Its botanical name is *Withania somnifera*, and it is also known by several other names, including Indian ginseng and winter cherry. The ashwagandha plant is a small shrub with yellow flowers that's native to India and North Africa. Extracts or powder from the plant's root or leaves are used to treat a variety of conditions.

Many of its health benefits are attributed to the high concentration of withanolides, which have been shown to fight inflammation and tumor growth. In several studies, ashwagandha has been shown to lower blood sugar levels. A test-tube study found that it increased insulin secretion and improved insulin sensitivity in muscle cells. Several human studies have confirmed its ability to reduce blood sugar levels in both healthy people and those with diabetes. In one study in people with schizophrenia, those treated

with ashwagandha for 4 weeks had an average reduction in fasting blood sugar levels of 13.5 mg/dL, compared to a 4.5 mg/dL reduction in those who received a placebo. What's more, in a small study of 6 people with type 2 diabetes, supplementing with ashwagandha for 30 days lowered fasting blood sugar levels as effectively as an oral diabetes medication.



Fig. 3: Different parts of Ashwagandha plant

Animal and test-tube studies have found that ashwagandha helps induce the apoptosis or 'programmed cell death' of cancer cells. It also impedes the growth of new cancer cells in several ways. One of these ways is believed to be the generation of reactive oxygen species (ROS), which are toxic to cancer cells but not normal cells. Another mechanism causes cancer cells to become less resistant to apoptosis (Saroj *et al.* 2012).



Fig. 4: Ayurvedic medicine from Ashwagandha plant

Animal studies suggest that it may be beneficial for treating several types of cancer, including breast, lung, colon, brain and ovarian cancer. In one study, mice with ovarian tumors treated with ashwagandha alone or in combination with an anti-cancer drug had a 70-80% reduction in tumor growth. The treatment also prevented metastasis, the spread of cancer to other organs. Although there are no studies to confirm these results in humans yet, the research to date is encouraging.

Cortisol is known as a 'stress hormone' because your adrenal glands release it in response to stress and when your blood sugar levels get too low. Unfortunately, in some cases,

cortisol levels may become chronically elevated, which can lead to high blood sugar levels and increased fat storage in the abdomen. Studies have shown that ashwagandha may help reduce cortisol levels. In a controlled study of chronically stressed adults, the group that supplemented with ashwagandha had significantly greater reductions in cortisol than the control group. The group taking the highest dose had a 30% reduction, on average.

Ashwagandha is perhaps best known for its ability to reduce stress. Researchers who looked at its effects on rat brains reported that it blocked the stress pathway by regulating chemical signaling in the nervous system. Several controlled human studies have shown that it can effectively reduce symptoms in people with stress and anxiety disorders. In a 60-day study of 64 people with chronic stress, those in the ashwagandha group reported a 69% average reduction in anxiety and insomnia, compared to 11% in the placebo group. In another study lasting 6 weeks, 88% of people who took ashwagandha reported a reduction in anxiety, compared to 50% who took a placebo (Sharma, and Pati, 2011).

Although it hasn't been studied much, a couple of studies suggest ashwagandha may help alleviate depression. In a controlled 60-day study in stressed adults, those who took 600 mg per day reported a 79% reduction in severe depression. At the same time, the placebo group reported a 10% *increase*.

Ashwagandha supplements may have powerful effects on male hormone levels and reproductive health. In a study of 75 infertile men, the group treated with ashwagandha had an increase in sperm count and motility. What's more, the treatment led to a significant increase in testosterone levels. The researchers also reported that the group who took the herb experienced increased antioxidant levels in the blood. In another study, men who received ashwagandha for stress experienced higher antioxidant levels and better sperm quality. After 3 months of treatment, 14% of the men's partners had become pregnant.

Research has shown that ashwagandha may improve body composition and increase strength. One study's purpose was to determine a safe and effective dosage for ashwagandha. Healthy men who took 750-1250 mg per day had gained muscle mass and lost fat after 30 days. In another study, the ashwagandha group had significantly greater gains in muscle strength and size. It also had more than double the reduction in body fat percentage compared to the placebo group. Several animal studies have shown that ashwagandha helps decrease inflammation. Studies in humans have found that it increases the activity of natural killer cells, which are immune cells that fight infection and help you stay healthy.

It has also been shown to decrease markers of inflammation, such as C-reactive protein (CRP). This marker is linked to an increased risk of heart disease. In a controlled study, the group who took 250 mg of ashwagandha daily had a 36% average decrease in CRP, compared to a 6% decrease in the placebo group. In addition to its anti-inflammatory effects, ashwagandha may help improve heart health by reducing cholesterol and triglyceride levels. Animal studies have found that it significantly decreases these blood fats.

One study in rats found that it lowered total cholesterol by as much as 53% and triglycerides by nearly 45%. While controlled human studies have reported less dramatic results, there have still been some impressive improvements in these markers. In a 60-day study of chronically stressed adults, the group taking the highest dosage of ashwagandha experienced a 17% decrease in LDL cholesterol and an 11% decrease in triglycerides, on average.

Test-tube and animal studies suggest that ashwagandha may reduce memory and brain function problems caused by injury or disease. Researchers have shown that it promotes antioxidant activity that protects nerve cells from harmful free radicals. In one study, epileptic rats treated with ashwagandha had nearly a complete reversal of spatial memory impairment. This was likely caused by a reduction in oxidative stress. Although ashwagandha has traditionally been used to boost memory in Ayurvedic practice, at this

point there is only a small amount of human research in this area. In a controlled study, researchers who gave healthy men 500 mg of the herb daily reported significant improvements in their reaction time and task performance, compared to men who received a placebo (Sharma and Pati, 2012).

CONCLUSION

Ashwagandha is an incredibly healthy medicinal herb. Ashwagandha provides all sorts of other benefits for your body. For example, it can lower blood sugar levels, reduce cortisol, boost brain function and help fight symptoms of anxiety and depression. Although it hasn't been studied much, a couple of studies suggest ashwagandha may help alleviate depression. Ashwagandha is popularly used for boosting immunity, anti-ageing, joint pain and insomnia. Due to its active ingredient called withanolides, Ashwagandha is also used as an 'adaptogen' to help the body cope with daily stress, as a general tonic and for improving thinking ability. It also improves the brain's memory functions like attention and concentration, hence helping with the symptoms of Parkinson's, Alzheimer's and other neurodegenerative diseases. It enables the body to reserve and sustain vital energy throughout the day while promoting sound, peaceful sleep at night.

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