

Andrographis Paniculata Benefits + Dosage, Side Effects

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What is Andrographis?

Andrographis paniculata is an Ayurvedic plant known as the “king of bitters.” People traditionally use it to fight infections and the common [cold](#). But did you know that scientists are researching whether it can enhance cognitive abilities and skin [collagen](#) formation? Learn about the science behind this herb.

Overview

Andrographis Paniculata, known as the “King of [Bitters](#),” is traditionally used in Ayurveda and Chinese Medicine.

People historically used it for the common cold, sinus infections, general inflammation, [pain](#), and [detoxification](#) [1, 2].

Andrographis supplements have not been approved by the FDA for medical use. Supplements generally lack solid clinical research. Regulations set manufacturing standards for them but don’t guarantee that they’re safe or effective. Speak with your doctor before supplementing.

Constituents

Andrographis contains three major categories of active compounds: diterpenoids, flavonoids, and polyphenols [2].

[Andrographolide](#) (a diterpenoid) is the most bioactive and most extensively studied compound [3, 4].

The leaves are traditionally used more than the rest of the plant and contain anywhere from 0.5% and 6% Andrographolide content [5, 2].

Both the herb as a whole and its specific extracts have been partially researched [2].

For example, andrographolide reduced [free radical](#) formation (superoxide and nitric oxide) in mice, suggesting it has antioxidant properties [6].

Snapshot

Proponents

- Traditionally used to fight infections
- Likely helps with the common cold, tonsillitis, and ulcerative colitis
- Alleged antioxidant and anti-aging effects
- May help reduce inflammation

Skeptics

- May interact with medications
- Few clinical trials available
- Tastes bad
- May cause nausea and other side effects
- May rarely cause severe allergic reactions
- Long-term safety unknown

Health Benefits of Andrographis

Get the Regimen of A Top Biohacker Preparing His Body to Fight Coronavirus

Joe Cohen is well-known for his work as a successful entrepreneur in the health field after he overcame his many health issues using a personalized regimen. Find out exactly which supplements he takes and what lifestyle changes Joe has made to maintain optimal health and prepare his body to fight off infections.

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Possibly Effective For:

1) The Common Cold

A specific andrographis extract in combination with Siberian ginseng called Kan Jang (Swedish Herbal Institute) possibly improves symptoms of the common cold when taken within 72 hours of feeling sick [7].

According to the research, some symptoms may improve within 2, but it usually takes 4-5 days before most symptoms resolve [7].

Additionally, limited research suggests a specific andrographis extract (KalmCold) may help with cold symptoms [8].

A couple of studies suggest the Kan Jang herbal combination improves cold symptoms in children better than echinacea. According to other studies, the same product might help prevent colds in adults [9].

Research Details

Andrographis reduced symptoms of the common cold including earaches, [headaches](#), cough, fever, and fatigue (dosing was 100mg Andrographis 2X daily for 5 days at 31.3% Andrographolide) [10, 11, 12].

Kan Jang was safe and improved symptoms in children with the common cold. It performed better than [Echinacea](#): the group receiving Kan Jang had less congestion and nasal secretion [13].

Scientists are investigating the effects of andrographolide specifically as a preventative against cigarette smoke-induced lung injury in cells [14].

2) Fever & Sore Throat from Tonsillitis

Andrographis (6 grams daily) may be comparable to acetaminophen (Tylenol) for reducing fever and sore throat associated with pharyngotonsillitis after 3 and 7 days of supplementation [15].

Some side effects were noticed in ~20% of the group, although minimal [10].

In one study, 1,200 mg of Andrographis for 4 days reduced measured symptoms of pharyngotonsillitis by the 2nd day [10].

Additionally, Kan Jang (fixed Andrographis + Siberian ginseng combination) improved symptoms of sinus infections in one trial of 90 people [16].

3) IBD (Ulcerative Colitis)

Andrographis possibly improves symptoms of ulcerative colitis, an inflammatory bowel disease (IBD) [17].

Taking 1,200 – 1,800 mg Andrographis daily for 8 weeks reduced symptoms of mild-to-moderate colitis in adults [18].

In the same study, the group taking the 1,800 mg dose had relatively higher mucosal healing rate over the 1,200mg and placebo groups [18].

However, **andrographis did not affect remission rates, when compared to placebo** [18].

Scientists are also exploring the effects of andrographis on [colitis](#) in mice. It is also being researched for enhancing small intestinal digestion and absorption of carbohydrates by activating intestinal disaccharidases (maltase, sucrase, lactase), but human data to back up these potential effects are lacking [17, 19].

Insufficient Evidence For:

The following purported benefits are only supported by limited, low-quality clinical studies. More research is needed to rate andrographis for all the below-listed uses.

Remember to speak with a doctor before taking andrographis supplements. Andrographis should never be used as a replacement for approved medical therapies.

4) Arthritis

There is insufficient evidence to support the use of andrographis for arthritis.

Despite the lack of evidence, andrographis is viewed as a “natural complement” against rheumatoid arthritis in traditional medicine [20].

In one study, andrographis is associated with a reduction of rheumatoid factors IgA and C4 but the clinical significance of its effects remained unclear [20].

However, other studies show that andrographis does not appear to reduce pain significantly. It only slightly reduced the number and intensity of swollen joints in patients with rheumatoid arthritis in one study [20].

Scientists are investigating the effects of Andrographis as an add-on to an anti-arthritic drug (etoricoxib) in rats. Human data on this interaction is lacking [21].

5) High Triglycerides (Hypertriglyceridemia)

More evidence is needed to support the use of andrographis for high triglycerides.

Yet, andrographis is traditionally used in patients with moderately high levels of blood [triglycerides](#) (hypertriglyceridemia) [22].

Preliminary research shows some promise. When paired with a lifestyle intervention, 300 mg/day Andrographis reduced triglyceride levels after 8 weeks, showing comparable effects to a prescription drug (gemfibrozil). The extract was standardized to contain andrographolide 119-120 mg [22].

A lower dose of andrographis, standardized to contain andrographolide 72 mg did not affect lipid levels [22].

Large-scale, better-designed studies are needed.

Lacking Evidence For:

No clinical evidence supports the use of andrographis for any of the conditions listed in this section.

Below is a summary of the existing animal, and cell-based research that should guide further investigational efforts. However, the studies listed below should not be interpreted as supportive of any health benefit.

6) Premature Skin Aging

In mice, topical application of Andrographis suppressed UV-induced skin thickness, elasticity, wrinkles, and water content [23].

Topical application in mouse models increases skin collagen content by 53.17% and decreased UV-induced disruption of collagen and elastic fibers [23].

It's unknown how andrographis affects skin aging in humans.

7) Antibacterial, Antiviral, Antiparasitic & Antifungal Effects

Scientists are investigating the effects of andrographis on the following microbes in dishes:

- *S. Aureus* and drug-resistant *S. Aureus* (MRSA). MRSA is associated with life-threatening bloodstream infections, pneumonia and surgical site infections [24].
- *P. aeruginosa*, a multidrug-resistant pathogen responsible for illnesses associated with pneumonia and sepsis [24].
- Mycobacterium that causes tuberculosis [25, 26].
- Herpes simplex virus (HSV-1) [27].
- Giant roundworm (*Ascaris lumbricoides*) [28].

- Malaria parasite [[29](#), [30](#)].

The effects of andrographis on these microbes in humans are unknown. Remember that cell culture work often doesn't translate to living beings.

Plus, several studies testing Andrographis against *S. Aureus* and MRSA show conflicting results.

Additionally, andrographis was not effective against *E. coli*, *Klebsiella pneumoniae*, *Salmonella*, *Shigella*, *A. streptococci*, and *S. aureus* (in-vivo) [[31](#), [32](#), [24](#)].

Mice given a Salmonella vaccine in conjunction with Andrographis had an enhanced Salmonella-specific antibody response [[33](#)].

Folk healers have used andrographis in people with Weil's disease (a relative of Leprosy). They say the results were comparable with antibiotic treatment (Nitrofurantoin), but proper human trials are lacking to support their claims [[26](#)].

8) Cognition

The effects of andrographis on cognition in humans are unknown.

In mice, andrographis has shown to lower chronic brain inflammation [[34](#)].

Andrographis also reduced diabetes-associated cognitive deficits in rats, possibly by reducing [acetylcholinesterase](#) and [oxidative stress](#) in the hippocampus and prefrontal cortex. These effects remain unverified [[35](#)].

9) Anti-inflammatory Mechanisms

Scientists recently started investigating this herb's anti-inflammatory effects in cells (particularly on [IL-1b](#), [NF-kB](#), [TNF-α](#), [IL-6](#), MIP-2, and NO) [[2](#), [36](#)].

Mice with induced acute inflammation had higher survival rates taking Andrographis, but human and other animal studies are lacking [[34](#)].

10) Glucose, Insulin & Liver Health

The effects of andrographis on glucose, insulin, and liver health in humans are unknown.

In diabetic rats, andrographolide improved hyperglycemia and [insulin](#) deficiency and reduced liver damage from some chemicals and drugs (carbon tetrachloride and acetaminophen) [[35](#), [37](#), [38](#)].

Scientists suggest andrographis might prevent liver cirrhosis in rats. They hypothesize andrographis might normalize [reactive oxygen species](#), inhibit cell proliferation, and induce cell death of problematic cells. These effects remain unproven, though [[39](#)].

Other researchers aim to determine the effects of a water extract of Andrographis on liver antioxidant defense systems ([SOD](#), [Catalase](#), [glutathione](#)) and [lactate](#) dehydrogenase [[26](#), [6](#)].

Cancer Research

Andrographis has not been shown to prevent or treat cancer.

Some scientists investigated its effects in cells. However, many substances have anti-cancer effects in cells, including downright toxic chemicals like bleach. This doesn't mean that they have any medical value. On the contrary, most substances (natural or synthetic) that are researched in cancer cells fail to pass further animal studies or clinical trials due to a lack of safety or efficacy.

With this in mind, research is exploring whether andrographis affects the following pathways and cancer cells:

- Genes involved in suppressing cancer cells [[40](#)].
- Mitochondrial pathways that may affect cancer cell growth [[41](#)].
- The cytotoxic activity of [white blood cells](#) against cancer cells [[42](#)].
- Colon and rectal cells and the growth of polyps in colon tissue [[43](#), [44](#), [45](#)].
- Breast cancer cells (increasing [p53](#)) [[46](#), [47](#)].
- Acute myeloid leukemia cells [[41](#)].
- Multiple myeloma cells (cancer of the [white blood cell](#)) [[48](#)].
- Melanoma skin cancer cells [[42](#)].
- Glioblastoma [[49](#)].
- Lung cancer cells ([MMP2](#) suppression) [[42](#), [40](#)].
- Kidney cancer cell lines [[42](#)].
- Pancreatic cancer cell lines [[50](#)].

The effects of andrographis on cancer in humans are completely unknown.

Other

In one low-quality study conducted in Thailand in 1995, Andrographis (1,000 mg twice daily for 5 days) following kidney stone treatment helped reduce the presence of pus, blood, and protein in the urine. However, these findings were never replicated and should be interpreted with serious caution [51].

According to a non-peer-reviewed article from a doctor in Saudi Arabia, ten cases of viper bites were reportedly improved in 3 – 5 days by a compound formula that had Andrographis as the chief constituent. However, no solid data backs up his claims [26].

Supplementing with Andrographis

Dose

Additionally, a specific combination product (Kan Jang, Swedish Herbal Institute) standardized to andrographolide 4-5.6 mg and Siberian ginseng 400 mg was taken three times daily for the common cold in clinical trials. In another trial, an andrographis extract (KalmCold) 200 mg was used daily for 5 days.

The standard dose of Andrographis basic root extract ranges widely from 20 – 6,000 mg, although the 2,000 – 6,000 range is typical for fighting the common cold.

Andrographis seems to be largely bound to plasma proteins (55%), which means that only a limited amount is likely to enter the cells [52].

Safety and Toxicity

Andrographis is relatively well tolerated, with typically few side effects. A few studies have noted up to 20% of people taking andrographis reported side effects, which were mostly minimal [53, 12, 10].

However, one study involving HIV patients reported dose-related toxicity such as [headaches](#), fatigue, rash, nausea, diarrhea, pruritus, and allergic reactions (dosing 5-10 mg/kg). **The trial was interrupted mid-way due to adverse events including an anaphylactic reaction in one patient** [54].

Additionally, Andrographis damaged cerebral endothelial cells, which theoretically suggests it may damage the blood-brain barrier. Animal and human data are lacking [55].

Contraindications

Low Blood Pressure

Andrographis has been shown to reduce blood pressure and pulse in animals. Although the same effects have not been investigated in humans, theoretically, this herb may cause excessively low blood pressure in people with already low blood pressure. Caution is advised [3].

Bleeding Conditions

Andrographis blocked platelet aggregation in cells and animals. Although the effects of andrographis on platelets in humans are not known, theoretically, this herb may increase the risk of bleeding in patients with bleeding disorders. Caution is advised.

Autoimmune Conditions

Andrographis may be an immunostimulant. Therefore, theoretically, it may worsen autoimmune diseases by stimulating immune activity. Caution is advised in patients with autoimmune diseases such as multiple sclerosis, systemic lupus erythematosus (SLE), psoriasis, rheumatoid arthritis (RA), or others.

Reproductive Concerns

Feeding sun-dried Andrographis powder to female mice at a dose of 2 g/kg/day for 6 weeks, then mating them with untreated males of proven fertility, inhibited pregnancy in 100% of the tested animals [56].

It has also been reported that the administration of Andrographis resulted in abortion in pregnant rabbits. Moreover, the herb is reported to suppress the growth of the human placental chorionic cells (in vitro) [57, 58].

The effects of andrographis on fertility and reproduction in humans are not known. Theoretically, this herb may increase the risk of infertility in women trying to conceive. Caution is advised.

Pregnancy and Breastfeeding

Due to the lack of safety data and concerning animal studies, pregnant and breastfeeding women should strictly avoid andrographis.

Male Fertility

Andrographis has shown to reduce Male fertility in Winstar rats [59].

Dry leaf powder of Andrographis dosed at 20 mg/day for 60 days caused sperm production to stop, and generally altered the health of the male reproductive organs [60].

Administration of 50 mg/kg andrographolide to male mice once daily up to 8 weeks had no significant effects on sperm quality. During week four, blood [testosterone](#) levels actually increased compared to controls [61].

Doses of 1,000 mg/kg Andrographis (6.1% Andrographolide) for 60 days in male rats failed to show testicular toxicity [62, 63].

Rats given up to 1,000 mg/day Andrographis (10.9% Andrographolide), for 60 days prior to mating and 21 days during mating, found total sperm count and sperm motility were unaffected, and fertility was comparable to the untreated control group [63].

Due to the conflicting data and lack of human safety research, men trying to conceive should avoid andrographis.

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