

Herbs for the Treatment of Acute Infections

Key Points at a Glance

Andrographis

- traditionally used for infections (particularly acute) and fevers
- clinically demonstrated:
 - for treatment and prevention of uncomplicated upper respiratory tract infections
 - benefit in hepatitis and enteric infections
- contains andrographolides

Holy Basil

- sacred plant in Hindu culture
- traditionally used as a tonic, and for coughs and fever
- clinically demonstrated:
 - to increase immune response (healthy volunteers)
 - for treatment of recurrent respiratory tract infection
 - to improve symptoms of pulmonary eosinophilia
- adaptogen (experimental models)
- contains essential oil

Echinacea Root

- traditionally used by Native Americans and Eclectic physicians (particularly *Echinacea angustifolia*), especially for infections
- clinically demonstrated:
 - to increase phagocytosis and white cell count (healthy volunteers)
 - prevention of common cold
 - relief of symptoms of upper respiratory tract infections (sufficient doses required)
- only the alkylamides, and not the caffeic acid derivatives, detected in the blood (healthy volunteers)

Andrographis

In Ayurvedic medicine, *Andrographis paniculata* is used as a bitter tonic, stomachic, antipyretic and laxative. It increases appetite, strengthens digestion and reduces biliousness. The herb is utilised for the treatment of diabetes, debility and hepatitis.^{1,2} In traditional Chinese medicine Andrographis is regarded as bitter and 'cold' and used to treat throat infections, acute or chronic cough, influenza with fever, skin disorders and snake bite. As Andrographis is a 'cold' herb, it is ideally suited to treating acute infections, which are 'hot' conditions.³ In Thai traditional medicine, Andrographis is used as an antipyretic and to treat abscess, herpes simplex, herpes zoster and diarrhoea.⁴ Andrographis is used as a tonic, and for fever and dysentery in Indonesia.⁵

Important constituents of Andrographis are the diterpenoid lactones consisting of aglycones (such as andrographolide) and glycosides (such as neoandrographolide). Andrographolide is the main diterpene lactone. Many of the diterpene lactones are bitter (such as andrographolide), although some are not (neoandrographolide).⁶

Clinical Trials

Andrographis has been evaluated in many clinical trials, alone and in combination with other herbs including (often in subtherapeutic doses) with *Eleutherococcus senticosus*. Randomised, double-blind trials of Andrographis alone, for which dosage information is available, are summarised in Table 1. Patients received **treatment for uncomplicated upper respiratory tract infections** such as common cold.

Standardised Andrographis extract has also been used for the **prevention of common cold** during winter in a randomized, double-blind trial. A significant decrease in the incidence of colds compared to placebo was observed in children treated with Andrographis extract (providing 11.2 mg/day of andrographolide). The relative risk of catching a cold was 2.1 times lower for the Andrographis group.⁷

Andrographis has shown immunostimulant activity for the treatment of bacterial and viral respiratory infections in uncontrolled clinical trials in China.⁸ In one study, Andrographis achieved a lowered body temperature during the common cold.⁹

Condition	Dosage	Results	Ref
common cold	extract providing 60 mg/day andrographolide	<ul style="list-style-type: none"> significantly improved symptoms at day 5 compared to placebo overall efficacy of Andrographis was 2.1 times higher than placebo. 	¹¹
common cold	extract providing 60 mg/day andrographolide and deoxyandrographolide	symptoms significantly decreased by the second day compared to placebo	¹²
common cold	extract providing 48 mg/day andrographolides	<ul style="list-style-type: none"> symptoms reduced significantly at day 4 compared with placebo significant reduction of the intensity of the signs of rhinitis and sinus pain and headache by day 4 for Andrographis 	¹³
pharyngotonsillitis	6 g/day herb	<ul style="list-style-type: none"> compared to baseline as effective as paracetamol in providing relief of fever and sore throat at day 3. lower dose (3 g/day herb) was less effective. 	¹⁴

Table 1. Randomised, double-blind clinical trials of *Andrographis paniculata* for the treatment of uncomplicated upper respiratory tract infection in adults.

In uncontrolled trials, Andrographis has shown benefit for:

- infective **hepatitis** (decoction equivalent to 40 g/day of herb, for an average of 24 days),¹⁰
- fulminant hepatitis (in conjunction with orthodox medications),⁸
- **enteric infections**, such as dysentery.⁸

Echinacea

Echinacea has a long history of use amongst Native Americans, particularly the root, which was used for toothache, sore throat, fits, stomach cramps, septic conditions, rabies and as an antidote for venomous bites including snake bite.¹⁵ The Eclectic physicians, natural therapists of the late 19th and early 20th centuries in the USA, adopted the plant into their materia medica. They prescribed Echinacea for a wide range of conditions, mainly infections and envenomations (venomous bites), and as a prominent remedy for fevers, which clearly attest to Echinacea's influence on the immune system. They were not averse to using Echinacea long-term, or for chronic disorders (including obstinate nasopharyngeal catarrh, cancer, tuberculosis, chronic ulceration, chronic glandular indurations, rheumatism) or conditions suggestive of autoimmunity (diabetes, exophthalmic goitre, psoriasis). In the traditional texts *E. angustifolia* is more often cited than *E. purpurea* with predominant use of the root as the preferred plant part.^{16,17}

Pharmacological studies have indicated that a single constituent is not responsible for the activity of Echinacea and many constituents may contribute. Alkylamides are widely regarded to be the most active constituents.^{18,19} Only the alkylamides were detected in the bloodstream following ingestion of high quality *Echinacea angustifolia* and *E. purpurea* root tablets by 11 healthy volunteers.²⁰

Clinical Studies

Oral administration of *Echinacea purpurea* root tincture to healthy volunteers for 5 days **increased the phagocytic activity** of granulocytes in a placebo-controlled trial. Phagocytic activity was maximally stimulated by the fifth

day and remained well above normal for a few days after Echinacea was stopped, indicating a residual stimulating effect, before it returned to normal.²¹

A small study published in 2005 found 2 weeks' treatment with tablets of *Echinacea angustifolia* root and *E. purpurea* root **increased white cell counts** in healthy volunteers. The tablets contained alkylamides and blood concentrations of alkylamides were measured.²²

A formula containing both *E. angustifolia* root and *E. purpurea* root **prevented the common cold** in highly stressed medical students in a randomised, double-blind, placebo-controlled trial lasting 15 weeks. By the seventh week of treatment the Echinacea group had a lower frequency of colds than the placebo group, and by the tenth week the difference was statistically significant. The daily dose of the formula was equivalent to 3.5 g dry weight of Echinacea root.²³

In a randomised, double-blind, placebo-controlled trial, 180 patients with **upper respiratory tract infections** received the equivalent of 1.8 g/day or 0.9 g/day of *E. purpurea* root as a tincture, or placebo. Patients receiving the higher dose experienced significant relief of symptoms. Patients receiving the lower dose were not significantly different from the control.²⁴

Holy Basil Leaf & Essential Oil

Ocimum tenuiflorum (synonym: *Ocimum sanctum*) is regarded a sacred plant in Hindu culture, hence the common English names: holy basil, sacred basil. It belongs to the same genus as garden or sweet basil (*Ocimum basilicum*) and is also an aromatic plant with a characteristic essential oil.

The aerial parts of Holy Basil are highly regarded in Ayurvedic traditional medicine and used fresh or dried to treat skin diseases, impurities of blood, malaria, gastric and hepatic disorders, chronic fever, haemorrhage, catarrh and bronchitis. Fresh leaf combined with honey and ginger juice is a good expectorant, and is beneficial for coughs,

bronchitis and children's fever.^{2,25} Aboriginal Australians used Holy Basil for colds and as a mild tonic.²⁶ It was traditionally used in Vietnam for many conditions including common cold, influenza and headache.²⁷ Holy Basil is also used in Thai and Fijian traditional medicine with additional uses including stress, to improve blood circulation, as a tonic and to treat peptic ulcer.^{4,28}

Several species of basil, especially Holy Basil (*Ocimum tenuiflorum*) are regarded as the most sacred plants in the Hindu religion. The leaves are used for ceremonies including weddings and sacred rituals. In many parts of India the fresh Holy Basil plant is worshiped daily as a ritual for family well-being and often picked and eaten fresh for good health.²⁹⁻³¹

Holy Basil leaf contains essential oil, flavonoids, phenolic acids and tannins.³² The quantity of the main constituent of the essential oil (eugenol, methyleugenol or alpha- and beta-caryophyllene) varies with geography and variety. The leaf should contain not less than 0.5% essential oil.³³

Experimental studies indicate oral doses of Holy Basil has immune stimulating³⁴⁻³⁶ and adaptogenic activities.³⁷⁻⁴⁰

Clinical Studies

A randomised, double-blind, crossover study found Holy Basil extract significantly **increased immune response** in healthy volunteers compared to placebo. A significant increase in T-helper cells and natural killer cells from baseline values was observed after herbal treatment. The Holy Basil extract was taken on an empty stomach for 4 weeks followed by a 3-week washout period prior to placebo for 4 weeks.⁴¹ The dose of Holy Basil extract was equivalent to about 2 g/day of dried leaf.⁴²

Holy Basil was beneficial in the treatment of **recurrent respiratory tract infection** in a randomised, placebo-controlled trial. Ten out of 11 children who received placebo had a recurrence of infection during the 6-month follow-up period compared to only one child of 7 treated with Holy Basil. The improvement in the herbal treatment group was associated with improvement in polymorphonuclear cell functions.⁴³

Treatment with Holy Basil extract **relieved breathlessness** and improved vital capacity in tropical pulmonary eosinophilia (uncontrolled trial).⁴⁴

Synergistic Formulation

These three herbs and the essential oil of Holy Basil complement each other in a very potent formulation with the following actions:

- enhanced immune function,
- relief of mucous congestion,
- enhanced response to stress.

Indications

- Prevention and treatment of upper respiratory tract infections, including common cold, influenza, tonsillitis; and sinusitis. Particularly useful in the acute phase.
- Treatment of other acute and chronic infections, especially acute hepatitis.

Contraindications and Cautions

Not recommended during pregnancy.

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