

Key Features:

- Features Highly Concentrated **Anti-Microbial & Immune-Tonic** Extracts of Echinacea, Andrographis, Elderberry, and American Ginseng.
- Fortified with **Anti-inflammatory & Respiratory Tract Soothing** ingredients – Licorice, Ginger, and NAC

Indications:

- Reduce the severity and duration of acute upper respiratory tract infections (URTIs)
- Relieve the symptoms of cold/flu, such as mucus/catarrh secretions, congestions, sore throat, body aches, and fever.

Description:

Defenxin is formulated with synergistic actions to reduce the severity and duration of acute URTIs by directly inhibit bacterial growth and viral replications, promoting the body's immune response to pathogens while modulating and maintaining the inflammation at controlled and effective levels, as well as relieving the irritations and congestions of the respiratory tract.

Andrographis

Andrographis paniculata, commonly known as the “King of Bitter” in Traditional Chinese Medicine (TCM), has exhibited antimicrobial, anti-inflammatory, anti-atherosclerosis, and anti-platelet aggregation actions. Clinically, Andrographis has demonstrated benefits in relieving symptoms of acute URTIs, such as sore throat and fever.

Andrographolide, its major constituent, possesses potent anti-inflammatory and anti-bacterial actions, particularly against pathogens commonly found in the respiratory tract, such as Pseudomonas aeruginosa, Staphylococcus aureus & epidermidis, E. coli, and Mycobacterium, by interfering their virulence factors.^[1]

Andrographolide has also been shown to exert anti-viral actions against viral respiratory pathogens, such as SARS-CoV-2,^[2] by inhibiting infectious virion productions, enhancing cytotoxic T cells, NK cells, phagocytosis, and antibody-dependent cell-mediated cytotoxicity.^[3]

Echinacea

Echinacea purpurea has been used for years to treat colds, flus and infections, especially of the respiratory tract. Studies have shown that echinacea aids in the instantaneous augmentation of the immune response to pathogens by causing an increase in the number of circulating white blood cells, activation of phagocytosis by human granulocytes, production of cytokines by macrophages, and secretion of chemokines. Echinacea works by boosting immune response at the first sign of cold/flu, and taking a focused dose at the onset is very crucial to its effectiveness.^[4]

Taken as a prophylaxis, Echinacea can lower the likelihood of contracting a common cold by 55%^[5] and taken at the onset of the first symptoms related to a cold, the total daily symptom scores (10-point scale) were found to be 23.1% lower in the Echinacea group than in placebo. Response rate to treatments was greater in the Echinacea group, suggesting that Echinacea is most effective at lessening the severity and duration of the common cold when taken early in the illness.^[6] Much of the controversy related to the effectiveness of Echinacea for is the timely

Quantity: 84 Vegetarian Capsules

Ingredients (per capsule) (7,625 mg DHE*):

Andrographis Extract (13:1) (1,300 mg DHE*)	100 mg (10% andrographolide) (Andrographis paniculata) (herb top)
Echinacea Extract (Echinacea purpurea) (30:1)	50 mg (4% cichoric acid) (herb top) (1,500 mg DHE*)
Elderberry Extract (Sambucus nigra) (64:1)	50 mg (Certified Organic) (14% anthocyanins) (fruit) (3,200 mg DHE*)
American Ginseng Extract (8:1) (root)	50 mg (5% ginsenosides) (Panax quinquefolius) (400 mg DHE*)
Licorice Extract (Glycyrrhiza glabra) (17:1)	50 mg (20% glycyrrhizin) (root) (850 mg DHE*)
Ginger Extract (rhizome) (5:1)	75 mg (5% gingerols) (Zingiber officinale) (375 mg DHE*)
N-Acetyl-L-Cysteine (NAC)	100 mg
Zinc (from zinc bisglycinate)	5 mg

*DHE - dried herb equivalent

Non-medicinal Ingredients: L-Leucine, silicon dioxide, apple fibre, hypromellose (capsule)

Suggested Use: Adults - at the first sign of infection, take 2 capsules with food, 2 times per day, or as directed by the health care practitioner. Take a few hours away from other medications. Consult a health care practitioner for use beyond 4-6 weeks.

initiation of treatment.

Echinacea works the best when administered immediately after occurrence of the first symptoms of a cold. Another crucial factor is the dosage. Many Echinacea products on the market use dosages that are too low to be useful. **Defenxin** contains a highly concentrated **30:1 Echinacea extract standardized in cichoric acid**, one of the major echinacosides with potent immune support, antioxidant, and anti-proliferative actions.

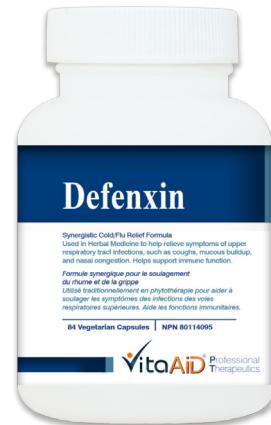
Elderberry - An Immune Support Medicine & Functional Food

Sambucus nigra (Elderberry) is traditionally used to help relieve cold/flu symptoms, sinus congestion, as well as an “alterative” (i.e. cleansing) in inflammatory conditions such as psoriasis and rheumatism. It has been shown to possess both anti-bacterial and antiviral properties, especially against various strains of influenza virus, Streptococci, and Herpes simplex.^[8,9]

Elderberry is also rich in vitamins, minerals, and antioxidants, such as proanthocyanidins, caffeic acid, rutin, and quercetin.^[10] It has been shown to carry out anti-inflammatory effects via its inhibitory actions on cyclooxygenase enzymes and nitric oxide production by macrophage and dendritic cells, making it an excellent immune-modulating herb for autoimmune conditions.^[11,12]

American Ginseng

American Ginseng contains polysaccharides and ginsenosides that have demonstrated immune-modulatory effects, including the stimulation of immunoglobulin production



and the enhancement of natural immune responses by macrophages, as well as the regulation of the microbiome.^[13] Moreover, in a study on human peripheral blood mononuclear cells cultured with live influenza virus, American ginseng extract was shown to be effective at enhancing the production of IL-2 and IFN- γ , which are major T-cell and natural killer cell cytokine responses associated with virus-elicited adaptive immunity.^[14]

Licorice, particularly its major constituent – glycyrrhizin, has been shown to exert anti-inflammatory activity, modulation of the immune system, inhibition of virus growth, and inactivation of virulence factors.^[15] Traditionally, it's also used as an expectorant/demulcent to help relieve phlegm and coughing.

Licorice has also demonstrated anti-bacterial activity against some of the common upper respiratory tract bacteria, such as Streptococcus pyogenes, Hemophilus influenza, and Moraxella catarrhalis.^[16]

Ginger is traditionally used in URTIs as a decongestant and expectorant; it works by providing anti-inflammatory action, as well as relaxing the airway smooth muscle.^[17] It also possesses direct antiviral and antibacterial properties.^[18,19] In addition, the 'warming' nature of ginger can balance out the 'highly cooling' nature of Andrographis and reduce of risk of potential 'cold symptoms', such as loose stool.

NAC is the precursor of endogenous glutathione, making it an important nutrient to maintain healthy lung tissue, support the body's defences, and enhance cellular health and longevity. NAC is also well-known for its mucolytic activity relieving any phlegm build-up in the respiratory tract. The antioxidant activity of NAC can mitigate the stimulation of NF- κ B by reactive oxygen species (ROS) and cytokines, preventing the excessive expression of inflammatory cytokines, chemokines, leukocyte adhesion molecules and inflammatory enzymes.^[20]

Zinc is known to play a central role in the immune system. Zinc-deficient persons experience increased susceptibility to a variety of pathogens. Studies show that zinc deficiency results in not only decreased lymphocyte concentrations, but also in depressed T- and B-lymphocyte function.

Administration of zinc also shortens the duration and severity of cold symptoms, providing both prophylactic and therapeutic effect against the common cold. A clinical trial involving 100 patients administered 13.3 mg of zinc gluconate (equivalent to 1.9 mg of zinc) to patients at the onset of a cold.^[21] The results showed that the time to complete resolution of symptoms was significantly shorter in the zinc group than in the placebo group (median, 4.4 days compared with 7.6 days), demonstrating zinc's treatment effect at the onset of a cold.

Reference:

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