

Echinacea

History

- Echinacea is a plant native to North America and was used by the Plains Indians to treat fever and respiratory infections.
- In the 1800s echinacea was the most commonly used plant remedy in the U.S., and is still widely used in Europe.
- Three different species of echinacea have been used medicinally: *E. Angustifolia*, *E. Pallida*, and *E. Purpure*.

Most studied use

Upper respiratory infections.

Other common uses

Immune stimulant for fighting numerous other infections, complementary immune support during chemotherapy, topically for bee stings and psoriasis.

Summary of the evidence

- Numerous small studies support a modest benefit, suggesting that echinacea may shorten the course of URI's, although many of these studies have had methodological problems. One very well-done study funded by the NIH found no benefit.
- Echinacea has been no better than placebo for the prevention of URI's.
- Heterogeneity in the diverse species studied and their preparation makes this research more difficult to interpret.
- Echinacea appears to be very safe and well-tolerated.

Pharmacology

- Polysaccharides such as arabinogalactan, xyloglycan and echinacin, as well as glycosides, alkaloids, alkylamides, and polyacetylenes appear to have immune modulating effects.

Mechanism of action

- Hundreds of *in vitro* and animal studies show that whole extracts and individual components can stimulate phagocytosis by leukocytes, enhance T-cell function, and increase cytokine release.
- Small *in vitro* studies also suggest possible weak anti-viral properties.

Clinical studies

- Two high-quality systematic reviews of echinacea for the treatment and prevention of URI's have come to almost identical conclusions: (Barrett 1999, Melchart 2000)
 - Treatment of URI - numerous studies have shown that echinacea modestly improves symptoms or shortens the course of URI's when started within the first few days of symptoms and continued for 8-10 days.
 - Prevention of URI - at least 4 large well-done studies have shown that echinacea taken prophylactically does not reduce the frequency of URI's.
- Interpreting the results of these meta-analyses is hampered by the fact that many of these studies had serious methodological shortcomings, and that they tested a wide variety of preparations (different species and different plant parts).
- A recent, NIH-funded, methodologically very well-done study tested a combination of 3 echinacea species in 148 college students. No difference was seen in symptoms with a slight trend in fact in favor of placebo. The duration of symptoms was 6.3 days in the echinacea group and 5.7 days in the placebo group. (Barrett 2002)

Adverse effects

- Echinacea is very well-tolerated with adverse effects similar to placebo.
- Allergic reactions have been reported with use of echinacea ointment.

Contraindications/cautions

- People with allergies to plants such as ragweed may be allergic to echinacea as well.
- Given that echinacea may act as a potential immuno-stimulant, caution in use in patients with organ transplants, lupus, or multiple sclerosis. Such concerns are theoretical, however, since no specific adverse effects have actually been reported in such patients.

Important drug/herb interactions

- No interactions with drugs have been reported.

Formulation and dosage

- Unlike for other herbal preparations, there are no standardized preparations for echinacea.
- Most herbalists recommend 1-5 g of dried herb daily, typically divided tid.

References

1. Barrett B, et al. Treatment of the common cold with unrefined echinacea. A randomized double-blind, placebo-controlled trial. *Ann Intern Med.* 2002 Dec 17;137(12):939-46
2. Barrett B, et al. Echinacea for upper respiratory infection. *J Fam Pract.* 1999;48:628-35
3. Melchart D, et al. Echinacea for preventing and treating the common cold. *Cochrane Database Syst Rev.* 2000;(2):CD000530.

For Additional Information

1. Natural Medicines Comprehensive Database. Available through UW Healthlinks.
2. UpToDate. Available through UW Healthlinks.
3. Herbmed.org for more general background.
4. For information about the quality of specific brands, check Consumerlabs.com.

