
ⁱ Assumptions: *Daucus carota* costs 69c per kg, carrots are 85% moisture, packaging costs 10c, drying costs 25c, 5c is spent on advertising, and 75c is the retail mark-up. *Echinacea* is actually easier to grow than *Daucus carota* and is considered by some in North America to be a weed. So its costs of production are actually lower than *Daucus carota* suggesting that the profit margin on *Echinacea* is incredibly high.

ⁱⁱ There is a common belief that *Daucus carota* contains particularly high levels of Vitamin A. It does not. This idea came from British propaganda during WWII. The British spread the rumour that their night fighter pilots had been eating lots of carrots and this is why they could see so well at night and were shooting down German aircraft. The truth was that the pilots had radar. As for constipation? Carrots are 3% fibre and thus dried carrot would provide a splendid laxative.

ⁱⁱⁱ See: <http://www.med.unc.edu/phyrehab/ncmedicinalherbs/Echinacea/Echinacea-history.html> Accessed 29 Mar 2007.

^{iv} See: <http://www.madaus.de/Plants-Database.182.0.html> Accessed 29 Mar 2007

^v “Economic Issues with *Echinacea*”, David Coltrain, Department of Agricultural Economics, Kansas State University. Accessed online on 29 Mar 2007. See: <http://www.agmrc.org/NR/rdonlyres/601D314D-545B-4FF1-8592-7CA806066134/0/ksuechinacea.pdf>

^{vi} “Optimisation of Polysaccharides in Processed *Echinacea purpurea*” A report for the Rural Industries Research and Development Corporation by D.L. Stuart, R.B.H. Wills and T.M. Dickeson, Centre for the Advancement of Food Technology and Nutrition University of Newcastle, November 2004, p11

^{vii} <http://nccam.nih.gov/health/echinacea/> Accessed 29 March 2007.

^{viii} “Efficacy and safety of echinacea in treating upper respiratory tract infections in children: a randomized controlled trial.” Taylor JA, Weber W, Standish L, Quinn H, Goesling J, McGann M, Calabrese C, Child Health Institute, University of Washington and Children's Hospital and Regional Medical Center, Seattle, Wash 98915-4920, USA. *JAMA*. 2003 Dec 3;290(21):2824-30. See:

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14657066&query_hl=8 Accessed 29 March 2007.

^{ix} “An Evaluation of *Echinacea angustifolia* in Experimental Rhinovirus Infections” Ronald B. Turner, M.D., Rudolf Bauer, Ph.D., Karin Woelkart, Thomas C. Hulsey, D.Sc., and J. David Gangemi, Ph.D. *New England Journal of Medicine*. Volume 353:341-348 No 4. July 28, 2005 See:

<http://content.nejm.org/cgi/content/short/353/4/341> Accessed 29 March 2007

^x Linde K, Barrett B, Wölkart K, Bauer R, Melchart D. *Echinacea* for preventing and treating the common cold. *Cochrane Database of Systematic Reviews* 2006, Issue 1. Art. No.: CD000530. DOI: 10.1002/14651858.CD000530.pub2. See:

<http://www.mrw.interscience.wiley.com/cochrane/clsystrev/articles/CD000530/frame.html> Accessed 7 May 2007

^{xi} See: <http://www.consumerlab.com/results/echinacea.asp> Accessed 29 Mar 2007.

preparations for cold and flu treatment and for preventative purposes might exist *but have not been shown in independently replicated, rigorous randomized trials*”^x[my italics].

The authors of the meta-analysis also noted that there was a bias in their study as they knew of a number of ‘unpublished’ studies that showed no effect. They postulated that there was a bias in the studies they looked at as “some authors tended to report only those findings which were statistically significant.”

Oddly enough, the great majority of studies that show effectiveness are those undertaken by those who receive a financial benefit from the consumption of *Echinacea* — the manufacturers, naturopaths or herbalists. Those studies funded by Governments that have no financial incentive for finding an effect, find no effect. This appears to be further confirmation of the aphorism, “Money Talks.”

But even the few studies that do show that *Echinacea* has some effect, don’t indicate any worthwhile effect. Maybe a twelve hour reduction in duration or maybe several fewer tissues used. This then raises the additional question, if the effectiveness of *Echinacea* is so minor, why would you bother? Going to bed half an hour earlier and getting a bit more rest can probably achieve the same results relating to severity and duration, as spending \$21.95 on 100 grams of dried vegetation! And all that money spent on this most expensive herb, could be spent on buying healthier food!

Oh, and there are a couple of final things to consider. *ConsumerLab*, an American laboratory that provides independent certification and testing (a bit like *Choice Magazine* in Australia — but with the added certification element), tested eleven brands of *Echinacea* products. Just below half of the test brands failed the claims made on their labels for levels of the active ingredient and one brand contained 2.5 micrograms of lead per daily serving, which exceeded the Californian State limit above which a warning label is necessary.^{xi} Give that Australian Governments do not test *Echinacea* products in Australia, how do you know that the tablets you are taking for your cold, aren’t killing you rather than curing you?

And if they aren’t killing you, they may be causing some harm. The German drug regulatory authority recommends that *Echinacea* not be taken for more than eight weeks at a time (if you are planning to use it as a preventative) owing to the lack of safety testing, and the Cochrane review recommends that owing to the evidence of increased rash in children, it should not be used in minors.

Next time I feel a cold coming on, I’ll go to bed with my dried *Daucos carota*, and have an extra few hours of sleep.

David Vernon is a freelance writer. Based in Canberra he writes about science, parenting, health and history. In mid-2006 he completed his third book, an anthology of birth stories told by men, called *Men at Birth*.

Website: <http://web.mac.com/david.vernon>

Email: dvbooks@mac.com

with his morning caffeine, he sipped at an *Echinacea* rich drink. “For my cold,” he explained when I looked at him quizzically.

With even medical professors quaffing the herb, is it any wonder that *Echinacea* makes up 10% of the US herbal remedy market? It is the fifth highest selling herbal preparation after ginko, St John’s Wort, ginseng and garlic.^v And, in Australia, it is the largest selling herbal preparation in a market worth \$190 million annually.^{vi} You might imagine with so many millions being spent on this herbal remedy that the evidence for its efficacy would be utterly overwhelming. But it’s not.

The evidence for its effectiveness is completely underwhelming — indeed it is practically absent. And that can be stated with some certainty, because unlike many other herbal remedies, *Echinacea* has been extensively studied. Many double-blind randomised control trials have been done on the efficacy of the herb. The National Centre for Complementary and Alternative Medicine in the United States provides government funding for the scientific study of complementary and alternative medicines. Its most recent fact sheet on *Echinacea* states the following stark conclusion, after reviewing the scientific evidence and after commissioning its own independent studies:

- ◆ *Studies indicate that Echinacea does not appear to prevent colds or other infections.*
- ◆ *Studies to date have not proven that Echinacea shortens the course of colds or flu.*^{vii}

What scientific studies have been done? One US study reported in 2004 looked at the efficacy of *Echinacea* in reducing the duration or severity of upper respiratory tract infections (URIs) in children. The trial met the gold standard for scientific trials by being a randomised, double blind, placebo-controlled trial. Participants (n=407) were divided into two groups. Over the four month study period, there were 707 URIs in the total group. 337 were treated with *Echinacea purpurea* and 370 with the placebo. The median duration of the URI was 9 days and there was no difference in the duration or severity of the *Echinacea* receiving group and the placebo group. Nor was any statistically significant differences between the two groups as to when the severity of symptoms peaked. The only difference between the groups were that those who received *Echinacea* were three times more likely to have a rash as an adverse outcome (7.1% of URIs treated with *Echinacea* suffered a rash) than the placebo group (2.7%).^{viii}

In case it wasn’t *E.purpurea* which was the effective species, but a related species, such as *E.angustifolia* another 2004 US study checked its efficacy on rhinovirus infections. 437 volunteers used in this exercise either received a placebo or the *E.angustifolia* preparations. The results showed that there were no statistically significant differences between the two groups, either in the rates of infection or the severity of symptoms. Nor were there any difference in the quantities of nasal secretions (the things scientists do for the sake of knowledge!) between the groups. The conclusion drawn by the authors was that *E.angustifolia* had no clinically significant effect.^{ix}

A meta-analysis of sixteen trials reported in the Cochrane Database concludes: “*Echinacea* preparations tested in clinical trials differ greatly. There is some evidence that preparations based on the aerial parts of *Echinacea purpurea* might be effective for the early treatment of colds in adults, but results are not fully consistent. Beneficial effects of other *Echinacea*

Echinacea – the wonder herb

by David Vernon

Coming into winter, pharmacies all over the country are stocking up on a herbal remedy made out of a rather beautiful North American plant, *Echinacea purpurea*. And is it any wonder? It seems to be a remarkably profitable product for the retailers. A 100g bottle of *E.purpurea* made from the powdered root of the plant can be bought at my local pharmacy for \$21.95. To give some perspective on how horrendously expensive this is, you could dry and powder *Daucus carota* (aka the common carrot) and a 100gm bottle would cost less than \$1.50.ⁱ

“Ah,” I hear you say, “but *Echinacea* helps me recover from a cold. I don’t think powdered carrots would help me with anything, other than perhaps constipation.”ⁱⁱ

My reply to that is simply, “On what basis do you believe *Echinacea* is useful for the common cold?”

Most proponents for herbal medicine argue that humans have successfully used herbal remedies for many centuries. It is often stated that remedies are based on ancient knowledge. And not-surprisingly this claim is made for *Echinacea* with herbalists claiming that it was used extensively by North American Indians as a cure for the cold. In reality, it was only one tribe, the Cheyenne, who used it for colds. But it was used far more widely as a general panacea. Apparently the Lakota used it for snakebite, sepsis and rabies. Blackfoot used it for toothache. Delaware claimed it cured venereal disease. The Dakota used it for eye infections and the early European settlers in 1762 used it to treat saddle sores on horses. In *American Materia Medica* (1919) *Echinacea* is listed as used for syphilis, typhus, diphtheria, mastitis and tuberculosis!ⁱⁱⁱ

Its use in the USA faltered with the rise of antibiotics, although it continued to be popular in Europe, particularly Germany, because in 1938 a German Doctor called Gerhard Madaus brought *Echinacea* back to Germany to study for its medicinal purposes. The company he founded, Madaus GbH, remains in existence today, and it publishes a large database on the various herbs and botanical specimens the company has researched over the decades, particularly for manufacturing its homeopathic remedies. Madaus promoted the use of *Echinacea*, through its product *Echinacin*, specifically as a cure for the common cold, and thus its widespread use for this purpose is only some 70 years old.^{iv} With the renaissance of homeopathy in the alternative medicine field in the USA and Australia from the 1970s, the generally accepted view that *Echinacea* is an effective cold preventative seems to have arisen (although one also notes that its use as a syphilis suppressant seems to have been dropped by modern pharmacists — perhaps consumers were a little shy to buy bottles with “VD Cure” emblazoned upon them).

It is now apparently common knowledge that *Echinacea purpurea* is supposedly effective in combating the common cold. Indeed, this knowledge seems to be so well engrained that even some of the most well-educated believe that it is efficacious. We recently had a highly qualified medical professor staying with us and in the morning he staggered out of bed and