Recent Research Finds Echinacea Promoted Immune System and Respiratory Health in Air Travelers

Dr. Evelin Tiralongo and a team of researchers from Griffith University of Australia conducted a double-blinded clinical trial investigating the effect of Echinacea on immune and respiratory health of long-distance air travelers. MediHerb Echinacea Premium was used in this trial due to its high alkylamide content, essential for this purpose of the research.

Adults flying economy class from Australia to America, Europe, or Africa took Echinacea Premium tablets or a placebo for two weeks before flying, during the trip, and for two weeks after returning to Australia. The dose was one tablet twice daily, increasing to two tablets twice daily while flying. Participants were allowed to increase the dose up to three tablets twice daily if they experienced any respiratory or immune system challenges. The higher dose could only be continued up to eight consecutive days or twice for four days during the whole travel period.

Echinacea Premium was found to significantly support and protect immune system and respiratory health in air travelers who participated in the trial.

This research (by Tiralongo E et al.) has been published in the online journal Evidence-Based Complementary and Alternative Medicine (www.hindawi.com/journals/ecam/).

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1 Wagner H. Z Phytother 1996; 17: 79-95
5 Matthias A et al. Life Sciences 2005; 77: 2018-2029
7 Matthias A et al. Phytomedicine 2007; 14: 587-590

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Echinacea A New Understanding

Echinacea is both misunderstood and underestimated. There are many Echinacea products available which differ according to species, plant part, quality and dosage. The wide variety of products available is why there is controversy surrounding Echinacea and its effectiveness. In many people, Echinacea is the same. However, treating different species, plant parts and actives of Echinacea as the same thing, is like comparing apples with oranges.

Echinacea is commonly thought of as herb for winter seasonal stresses and only for short-term use. Kerry Bone’s applications for Echinacea are much broader than this and you may wonder why this is. Kerry has spent many years both researching and prescribing Echinacea for thousands of patients. His passion for Echinacea led to the MediHerb research project and a greater understanding of Echinacea and how it works. The research results validate the traditional wisdom of Echinacea, ie to achieve good clinical results you must use only a root preparation with high levels of alkylamides.

So if the traditional users of Echinacea understood how to use it for the best results, why is there so much confusion now? To answer this question we must first look at the history of Echinacea.

The History of Echinacea – Traditional vs 20th Century

Information about the therapeutic value of Echinacea first came from Native American tribes. Their use of Echinacea was then adopted by the Eclectics, a group of doctors who were prominent around the late 19th and early 20th centuries in the United States. By 1921 Echinacea (specifically the root of Echinacea angustifolia) was by far the most popular treatment prescribed by Eclectic physicians.1

From this traditional use we know:

- The Native Americans preferred Echinacea angustifolia and ONLY used the root.
- The Eclectics only used a fluid extract of the dried root of Echinacea angustifolia extracted in a high percentage of alcohol.
- This extract is lipophilic (fat loving) and can be called a “traditional Echinacea extract”.
- The Eclectics defined good quality Echinacea root as “as imparting a persistent tingling sensation” which is a key reference to alkylamide levels as a quality indicator.2

In Europe during the 1930s, the German herbalist Madaus used E. purpurea of fresh tops (aerial parts). E. purpurea was then adopted by the Eclectics, a group of doctors who were prominent around the late 19th and early 20th centuries in the United States. By 1921 Echinacea (specifically the root of Echinacea angustifolia) was by far the most popular treatment prescribed by Eclectic physicians.1

These tinctures contain (water loving) extract of Echinacea.

European:

- Traditional:
  - Ethanol extract
  - Root
  - High alkylamides

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The Science of Echinacea – MediHerb’s Research

Kerry Bone has always believed that a key aspect of modern phytotherapy is to respect traditional-generated knowledge. E. angustifolia root however is very expensive and was cost prohibitive for many of his patients. To overcome this, Kerry developed Echinacea Premium, a particular blend of E. angustofolia and E. purpurea roots. In 2003 MediHerb began an extensive research project which was designed to identify the bioavailable components of Echinacea Premium and how they exert an effect on the immune system.*

Which of the key phytochemicals in Echinacea Premium are absorbed and therefore bioavailable?

From MediHerb’s in vitro and pharmacokinetic research we know:

- Alkylamides are the ONLY constituents detected in the blood after taking Echinacea Premium. No caffeic acid conjugates, degradation products of these or the alkylamides were found4
- The immune active alkylamides mainly in E. purpurea are rapidly degraded by the liver5
- In contrast, the alkylamides mainly in E. angustofolia were much more slowly degraded6
- Interestingly, the alkylamides from E. angustofolia actually slowed down the rate of degradation of the alkylamides from E. purpurea7
- The combination of E. angustofolia and E. purpurea alkylamides decreases the degradation of the immune system active alkylamides so that they last in the blood stream longer8
- This is a strong justification for the combination of E. angustofolia root with E. purpurea root, as in the Echinacea Premium. A patent has been applied for to protect this very important finding9
- The total amount of alkylamides absorbed into the bloodstream was essentially the same for both Echinacea Premium tablets and Echinacea Premium 1:2 liquid10
- Do alkylamides have an effect on the immune system?

- Echinacea did not activate the immune system in the absence of any challenge (in vitro research).
- The Echinacea alkylamides tended to modulate the immune system response of macrophages and T cells in vitro, toning the response down in the face of a strong stimulus hence helping the immune system to operate more efficiently11
- These results, combined with the fact that alkylamides are the only phytochemicals which are bioavailable from traditional lipophilic extracts of Echinacea root (such as ethanolic liquid extracts), suggests that the alkylamides are largely responsible for the systemic immune system effects of Echinacea lipophilic extracts.
- This immune system modulating activity may be (at least in part) due to the interaction of alkylamides with cannabinoid receptors specifically CB2 (in vitro research)12,13,14,15
- Echinacea Premium increased heat shock protein levels (Hsp70) and increased white cell count in healthy volunteers16
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In Europe during the 1930s, the German herbalist Madaus used *E. purpurea* as he was more successful at growing this species. His interest in homeopathy led him to use the stabilized juice from this traditional use we know:

**A New Understanding**

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In Europe during the 1930s, the German herbalist Madaus used *E. purpurea* as he was more successful at growing this species. His interest in homeopathy led him to use the stabilized juice from fresh *E. purpurea* tops (aerial parts).

From the 20th century German use of Echinacea we know:

- This style of product is a “hydrophilic” (water loving) extract of Echinacea.
- These extracts contain very low levels of alkylamides.
- German scientists researched these new extracts for an active component and identified the polysaccharides.
- In contrast, traditional Echinacea extracts contain few polysaccharides because the root has low starting levels and the high percentage of alcohol used does not effectively extract these water-loving molecules.
- Importantly, polysaccharides are large polar compounds that have low oral bioavailability.*

**Traditional:***

- High alkylamides
- European: Juice
- Aerial parts

**European:***

- Juice
- Aerial parts

- Low alkylamides

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**Research Proven Echinacea**

**The Story Continues**

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**A New Understanding of Echinacea**

The research on Echinacea Premium by the MediHerb scientists has made a substantial contribution to a new understanding of lipophilic extracts of Echinacea. It can be concluded from this research that:

- **Alkylamides** are the major quality and activity markers. They are bioavailable and active.
- The root of Echinacea is the preferred plant part, since it is highest in alkylamides.
- The preferred species of Echinacea are *E. angustifolia* and *E. purpurea* since they contain high levels of alkylamides (compared to *E. pallida*).
- Echinacea must be extracted using an alcohol percentage sufficiently high to efficiently extract the alkylamides.
- The synergistic blend of *E. angustifolia* and *E. purpurea* alkylamides in Echinacea Premium potentiate each other for greater therapeutic effect.
- One potential way in which the bioavailable alkylamides modulate the immune system response is by interacting with CO2 receptors.
- Echinacea root (rich in alkylamides) also may boost the white cell count (clinical trial results), especially NK cells (in animal models).
- The traditional way Echinacea was used has been validated by scientific research at the cutting edge of modern immunology.
- Mediherb guarantees a minimum of 4.1 mg of alkylamides in every tablet of Echinacea Premium to ensure optimal clinical results.

For full details of MediHerb’s Echinacea Research refer to our catalog or visit www.mediherb.com catalog to search for the MediHerb Echinacea Research Story on the Echinacea - A New Understanding page.