

Echinacea and turmeric are two of the most popular natural health products (NHP) and yet there are still questions about their effectiveness and safety. Dr. Mary Hardy, physician and member of the ISURA Scientific Advisory Committee, and Chuck Chang, researcher and laboratory director for ISURA, talk about these two NHPs and what ISURA does to ensure safe echinacea and turmeric products through state-of-the-art analytical testing!

Understanding Echinacea and Turmeric as Effective NHPs

by Dr. Mary Hardy

ECHINACEA

“Understanding which species and parts of the plant are effective as a natural health product is important when considering a herbal/botanical natural health product in order to help you choose an effective echinacea product,” says Dr. Mary Hardy. “There are a number of research studies that have looked at echinacea as a NHP.”

Echinacea species are flowering plants found in the plains of mid-western North America. Three echinacea species: *E. purpurea*, *E. angustifolia* and *E. pallida*, are commonly used to make dietary supplements/natural health products. People generally take echinacea to reduce the risk of catching a cold or to lessen the severity or duration of a cold. Echinacea is thought to work by stimulating the immune system.

Products may be made from different species, different plant parts and using different extraction methods—this can lead to echinacea products with different levels of effectiveness. As researchers don’t utilize the same echinacea products, the studies reported in the medical literature do not report the same results. The differences in the outcomes can be very confusing for consumers—as some research studies show benefit and some don’t. It is important therefore, to find a product that has proven its effectiveness in clinical trials in humans.

TURMERIC

Turmeric, an Ayurvedic spice, has been used medicinally for centuries in India as part of a holistic healthy-lifestyle system. Traditional conditions treated include respiratory problems, wounds, fatigue and musculoskeletal pain. The rhizome, or underground stem, is the part of the plant that is used. Turmeric is bright yellow and one of the major ingredients in curry. The major active ingredients in turmeric are curcumin and related compounds; these have antioxidant and anti-inflammatory properties. Curcumin represents about 3% of the whole turmeric rhizome by weight and is an oily resin.

Turmeric, and its main active constituent curcumin, are among the best studied botanicals in the world. Thousands of studies have been done, many of them in the last 5 years. Most of the studies have shown that turmeric/curcumin have antioxidant and/or anti-inflammatory properties. Inflammation and oxidative stress contribute to many chronic diseases common in the West.

Human studies have shown that turmeric/curcumin can improve many of the components of metabolic syndrome, including higher amount of abdominal fat (bigger waist), high blood pressure, overweight or obesity, unfavourable blood lipid profile and potentially high blood sugar. Turmeric/curcumin can lower blood pressure, bad cholesterol and blood lipids; may help people lose weight and can lower fasting blood sugar. These changes help establish a more favourable metabolic profile in someone who uses an effective turmeric product.

“Curcumin and other active ingredients in turmeric are oily and resinous substances; they do not disperse well in water and are therefore poorly absorbed from the gut. This means extra steps need to be taken to help absorb curcumin into the body,” says Dr. Hardy. Different formulations of turmeric/curcumin NHPs have different capacity for absorption—the more effective the absorption (the amount of herb that gets absorbed into the blood stream), the better the bioavailability and the better the supplement works.

Dr. Hardy also notes that “Recent reports of lead contamination in turmeric, remind us why a quality control program is so important. A strong quality control program will check all raw materials for heavy metals and other unexpected contaminants so that only uncontaminated raw materials are included in final products.”



How do We Know Raw Materials are Safe for Us?

by Chuck Chang

The raw ingredients for natural health products (NHP) come from all over the world—turmeric from India, tea tree oil from Australia, echinacea from British Columbia and hundreds more. “Utilizing a range of mass spectroscopy techniques, DNA sequencing and other state-of-the-art analytical testing equipment, ISURA is able to test NHP ingredients for contaminants, wherever they come from,” says Chuck Chang, ISURA Laboratory Director. “For example, we can test turmeric raw material for lead and 26 other heavy metals and elemental impurities to the level of parts per billion. This helps to ensure that the NHPs produced by our clients and bearing the ISURA seal are safe, effective, pure and authentic.”

The raw materials in products with ISURA on the label have been tested for more than 600 contaminants including lead and other heavy metals, glyphosate and other pesticides, acetone and other solvents, aflatoxins and other microbiologicals, phthalates/plasticizers, polychlorinated biphenyls (PCBs) and dioxins, as well as the presence of genetically modified organisms (GMOs).

The safety of NHPs is paramount to all stakeholders—growers, raw material suppliers, manufacturers, regulators, retailers, healthcare providers, and ultimately consumers. Stakeholders in the NHP supply chain recognizes how crucial it is to ensure that only products of the highest quality and integrity reach consumers. Testing raw materials and ingredients for contaminants like lead and ensuring that an ingredient is “what it is supposed to be” are key to help reassure consumers that NHPs they are buying are safe and effective and that there’s label integrity—what’s on the label is in the product package.

ECHINACEA RESEARCH

Goel V, Lovlin R, Chang C, Slama JV, Barton R, Gahler R, Bauer R, Goonewardene L, Basu TK. A proprietary extract from the echinacea plant (*Echinacea purpurea*) enhances systemic immune response during a common cold. *Phytother Res*. 2005 Aug;19(8):689-94. PMID: 16177972

Goel V, Lovlin R, Barton R, Lyon MR, Bauer R, Lee TD, Basu TK. Efficacy of a standardized echinacea preparation (Echinilin) for the treatment of the common cold: a randomized, double-blind, placebo-controlled trial. *J Clin Pharm Ther*. 2004 Feb;29(1):75-83. PMID: 14748902

Jawad M, Schoop R, Suter A, Klein P, Eccles R. Safety and Efficacy Profile of *Echinacea purpurea* to Prevent Common Cold Episodes: A Randomized, Double-Blind, Placebo-Controlled Trial. *Evid Based Complement Alternat Med*. 2012;2012:841315. Epub 2012 Sep 16. PMID: 23024696

Schapowal A, Klein P, Johnston SL. Echinacea reduces the risk of recurrent respiratory tract infections and complications: a meta-analysis of randomized controlled trials. *Adv Ther*. 2015 Mar;32(3):187-200. doi: 10.1007/s12325-015-0194-4. Epub 2015 Mar 18. PMID: 25784510

TURMERIC RESEARCH

White CM, Pasupuleti V, Roman YM, Li Y, Hernandez AV. Oral turmeric/curcumin effects on inflammatory markers in chronic inflammatory diseases: A systematic review and meta-analysis of randomized controlled trials. *Pharmacol Res*. 2019 Aug;146:104280. doi: 10.1016/j.phrs.2019.104280. Epub 2019 May 20. Review. PMID: 31121255

Daily JW, Yang M, Park S. Efficacy of Turmeric Extracts and Curcumin for Alleviating the Symptoms of Joint Arthritis: A Systematic Review and Meta-Analysis of Randomized Clinical Trials. *J Med Food*. 2016 Aug;19(8):717-29. doi: 10.1089/jmf.2016.3705. Review. PMID: 27533649

Hariri M, Haghghatdoost F. Effect of Curcumin on Anthropometric Measures: A Systematic Review on Randomized Clinical Trials. *J Am Coll Nutr*. 2018 Mar-Apr;37(3):215-222. doi: 10.1080/07315724.2017.1392263. Epub 2018 Jan 9. PMID: 29313748

Poolsup N, Suksomboon N, Kurnianta PDM, Deawjaroen K. Effects of curcumin on glycemic control and lipid profile in prediabetes and type 2 diabetes mellitus: A systematic review and meta-analysis. *PLoS One*. 2019 Apr 23;14(4):e0215840. doi: 10.1371/journal.pone.0215840. eCollection 2019. PMID: 31013312

Dr. Mary Hardy is a physician and authority on integrative medicine and natural products; the Founder/Director, Wellness Works; Faculty, Academy of Integrative Health & Medicine—Fellowship in Integrative Health & Medicine; and a member of ISURA’s Scientific Advisory Committee.

Mr. Chuck Chang is a scientist specialized in testing and analyzing the authenticity, quality, purity, and bioavailability of natural health products utilizing advanced mass spectrometry and biological assays.