

# nanogreens<sup>10</sup> InVitro and InVivo Antioxidant Study.

Proven more powerful in the canister and more bioavailable in the body over other phytonutrient powders.

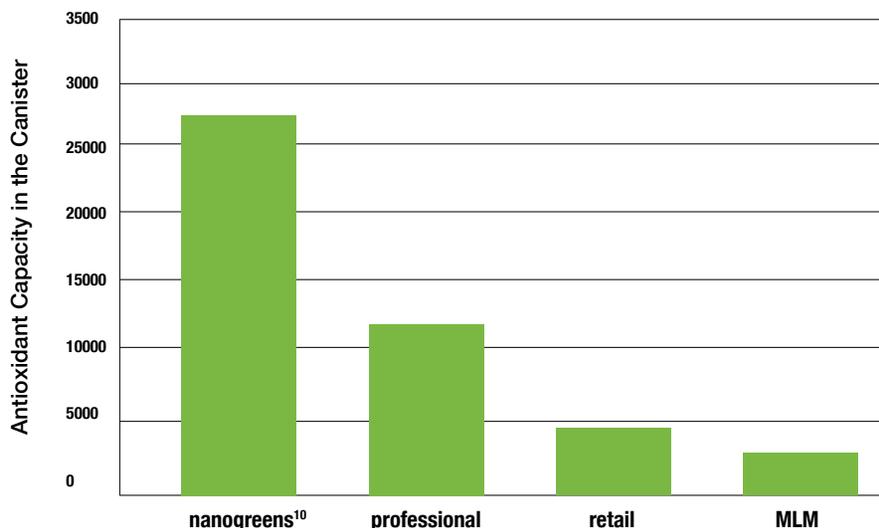


Antioxidant capacity testing evaluates the potency of phytonutrients which, in most formulations, are known to be poorly absorbable. Therefore, the potency in the canister and the potency in the body need two different measures. It's important to ask, "how much of the antioxidant power of a formula is absorbable, or bioavailable?" The answer can be found by testing the antioxidant power of the phyto-nutrients in the canister (invitro), and by analyzing them in the body (invivo).

In order to maximize the bioavailability of the phyto-nutrients in nanogreens<sup>10</sup> BioPharma's team of scientists has incorporated a patented liposomal technology called SuperSorb<sup>TM</sup>. To back our claim that nanogreens<sup>10</sup> is both more powerful in the canister and more bioavailable in you, we have performed, respectively an invitro antioxidant analysis using the Electro-Ox<sup>TM</sup> method.



## nanogreens<sup>10</sup> vs. Top Selling Phytonutrient Powders



Invitro antioxidant activity of one serving of nanogreens<sup>10</sup> as compared to one serving of a top selling fruit and vegetable phytonutrient powder from each distribution category.\*\*

\*\*Testing performed by Kerry Ringer, PhD Plant Biochemistry and Mark Saverese, Chemical Engineer of Columbia Phytotechnology, 02/05

## How Does The Electro-Ox<sup>TM</sup> Antioxidant Test Work?

The Electro-Ox<sup>TM</sup> test measures antioxidant activity nutritional supplements, saliva, and blood plasma. Electro-Ox<sup>TM</sup> uses the principles of electrochemistry to measure the conductivity of a test solution. Conductivity is related to the density of free radicals in the tested medium.

Common free radicals in biological system include superoxide, hydrogen peroxide, and peroxy ions. Superoxide radical scavenging is a particularly good marker for the overall antioxidant activity of a multi-ingredient plant-based extract sample, due to the fact that many oxidants reduce this free-radical in the human body.

The total antioxidant activity measured in supplements and foods come from a multitude of sources such as phenols (anthocyanins, catechins, isoflavones) terpenes (carotenoids, vitamin E complex), organic acids (ellagic acid) peptides (glutathione), minerals (selenium), water soluble vitamins (vitamin C) and enzymes such as superoxide dismutase.

Both hydrophilic and lipophilic antioxidants are measured with accuracy. Results are reported in equivalence to a standard antioxidant compound such as Superoxide dismutase enzyme (SOD), ascorbic acid, Vitamin E oil, and Trolox (water soluble form of vitamin E).

Unlike all other antioxidant testing methods, Electro-Ox<sup>TM</sup> has the advantage of directly measuring the primary reaction without interfering with the reaction by the addition of reagents in order to measure a color change or fluorescence. By directly measuring the primary reaction without interfering, the Electro-Ox<sup>TM</sup> instantly gives repeatable and accurate results.

## What The Experts Say:

"Young and middle-aged people may be able to reduce risk of diseases of aging—including senility—simply by adding high-oxygen radical antioxidant capacity to their diets."

- Agricultural Research Service's Human Nutrition Research Center on Aging, Tufts University.

"a starting point... is the regular consumption of foods that are naturally high in antioxidants and other phytochemicals (fruits, vegetables...). These foods contain hundreds of biologically active constituents not present in dietary supplements..."

- Michael Liebman, Ph. D., "Nutritional Tactics Against Cardiovascular Disease", Natural Pharmacy, Vol. 5, No. 7, July August 2001, p. 30

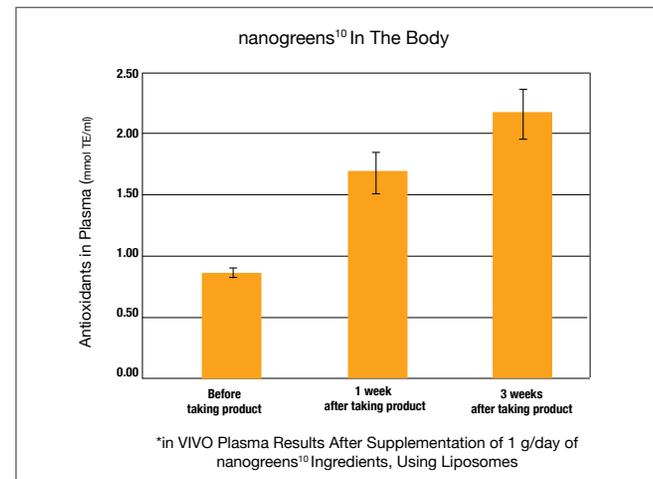


Figure 2a: Mean antioxidant activity for day 1, 7 and 21 in nmol TE/ml\*deproteinized plasma for all subjects (not including the control subject) after supplementation. Mean antioxidant activity increased over 100% over the course of the three week study.\*\*

\*Trolox Equivalent Antioxidant Capacity or TEAC. This Electro-Ox<sup>TM</sup> test measures antioxidant power against super oxide radical in Trolox equivalents per milliliter. Trolox uses water soluble Vit. E as a standard.

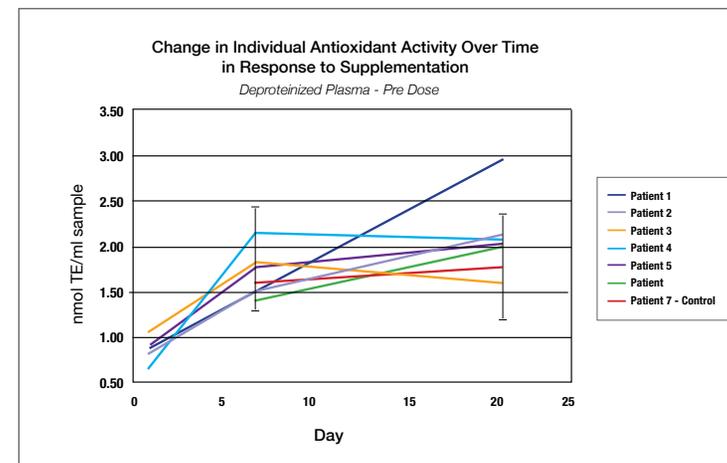
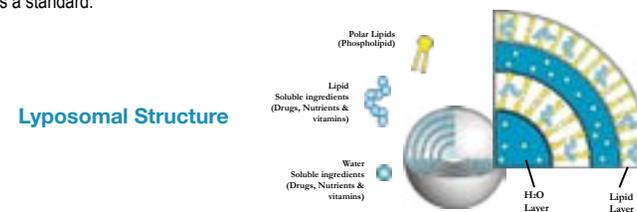


Figure 2b: Individual antioxidant activity for day 1, 7 and 21 in nmol TE/ml deproteinized plasma before supplementation. Individual antioxidant activity increased dramatically, especially in the first 7 days of the three week study.