



A Double-Fermented, Complete Antioxidant for Cardiovascular & Immune Health

Fermented food ingredients are one of the hottest new trends in dietary supplements and functional foods. In addition to the unique flavors that result from fermentation, fermented food ingredients can provide numerous nutritional and health benefits. Many regular foods become even healthier when fermented, due to improvement in bioavailability of nutrients and phytochemicals, elimination of anti-nutrients, increased levels of phytonutrients found in raw material, or the creation of new phytonutrients.

FermaPro® Black Garlic is a prime example of how fermentation can make already-healthy foods even more exceptional. Prized in many Asian cultures for its distinctive flavor and health benefits, black garlic is produced by aging regular garlic under mild heat, resulting in natural enzymatic fermentation. Some wonderful things happen when garlic ferments...

- ▶ As the garlic turns from white to black, its flavor shifts from pungent to sweet and savory.
- ▶ Fermentation reactions improve the garlic's immune-supportive activity and antioxidant potency—doubling the oxygen radical absorption capacity.



What's So Great About Garlic?

The use of garlic for medicinal purposes dates back more than 5000 years. Garlic's cardiovascular effects are the most studied and promoted of its benefits, but its therapeutic properties also include plasma lipid support and positive effects on the immune system.

The health-promoting effects of garlic are derived from sulphur-containing compounds such as allicin and S-allyl cysteine (SAC), a superstar antioxidant found abundantly only in black garlic (compared to other garlics). Unfortunately, allicin is very unstable and degrades quickly under heat. It is also extremely pungent, which limits its potential as a dietary supplement. The aging/fermentation of black garlic increases the levels of the stable compound, SAC, and changes the flavor and odor of raw garlic to a sweet, umami flavor.



A recent comprehensive review of SAC and black garlic reported that its antioxidant effects are the result of multiple mechanisms:¹

- ▶ Scavenging all types of free radicals, including superoxide, hydrogen peroxide, hydroxyl, peroxy nitrite radicals as well as hypochlorous acid and singlet oxygen
- ▶ Inducing the activity of endogenous antioxidant enzymes such as glutathione peroxidase, NAD(P)H:quinone oxidoreductase and superoxide dismutase (SOD)
- ▶ Chelating iron and copper ions
- ▶ Inhibiting prooxidant enzymes such as nitric oxide synthase (NOS), xanthine oxidase, NADPH oxidase and cyclooxygenase (COX)

This antioxidant and immune-enhancing activity translate to numerous health benefits, as shown through the following clinical studies:

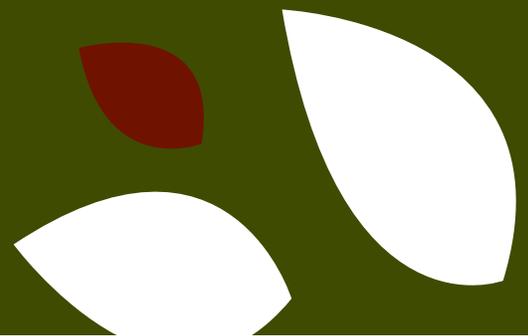
- ▶ Helps maintain healthy cholesterol levels² and blood pressure already in normal range^{3,4}
- ▶ Supports improved immune function by increasing NK cell activity^{5,6} and immunostimulatory activities⁷

Recommended Dosage = 800 - 1600 mg

FermaPro[®] Black Garlic is Unique

- ▶ Proprietary double fermentation
- ▶ A whole food ingredient, sourced in North America and processed in Wisconsin
 - ▶ Nothing is ever added – preserved in its whole garlic matrix
 - ▶ No extraction or purification – natural phytonutrient profile is retained
 - ▶ Freeze-dried – no added excipients
- ▶ Natural matrix ensures greater stability of marker compounds
- ▶ Guaranteed SAC content
- ▶ Higher ORAC than regular garlic

FermaPro[®] Black Garlic is commercially available in bulk and in 400 mg vegetarian capsules (serving size is 2 capsules).



Have an Idea for a Product?

We will help you bring it to market! **Blueprints for Health[®]** is our quick-to-market solution for custom products and turnkey solutions. Our diverse range of services will streamline the entire development, manufacturing and marketing process, saving you money, time and a whole lot of hassle.

¹ Colin-Gonzalez, A.L., et al. *Oxid Med Cell Longev.* (2012);2012:1-16.

² Munday, J.S., et al. *Atherosclerosis.* (1999);143(2):399-404.

³ Ried, K., et al. *Maturitas.* (2010); 67:144-150.

⁴ Ried, K., et al., *Eur J Clin Nutr.* (2013);67(1):64-70.

⁵ Ishikawa, H., et al. *J. Nutrition.* (2006);136(3 Suppl):816s-820s.

⁶ Nantz, M.P., et al. *Clin Nutr.* (2012);31(3):337-44.

⁷ Purev, U., et al. *Immunopharmacol Immunotoxicol.* (2012);34(4):651-60.