



Sourcertainable® Organic Spirulina

RFI's **Sourcertainable® Certified Organic Spirulina** is a blue-green algae that has a long history of use as food. Spirulina contains greater than 50% protein by weight and provides numerous vitamins, especially vitamin B₁₂ and β-carotene, as well as iron, gamma-linoleic acid (GLA), and chlorophyll. Spirulina also contains a unique phytochemical pigment called Phycocyanin, which has high antioxidant activity. Due to its concentrated nutrition, Spirulina was recommended by both National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) as one of the primary foods during long-term space missions. Spirulina is also an excellent alternative to animal protein because it is lower in fat than animal-derived protein sources. Spirulina lacks cellulose cell walls and therefore it can be easily digested. It is an especially attractive protein source for vegans, vegetarians and those seeking to reduce their animal protein consumption.

Health Benefits of Spirulina

- Spirulina and phycocyanin have been shown *in vitro* and in animal models to have potent antioxidant,^{1,2,3,4,5,6,7,8} immunomodulating^{7,8,9,10,11,12} and hypolipidemic activity.^{7,8}
 - Clinical studies provide evidence that Spirulina may:
 - Counteract anemia and immunosenescence in the elderly subjects.¹³
 - Modulate the immune system by its role in covering nutritional deficiencies.^{14,15,16}
 - Support healthy cholesterol levels already in the normal range.^{17,18,19,20,21}
- ✓ FDA-notified GRAS
 - ✓ Antioxidant[†]
 - ✓ Immunomodulating[†]
 - ✓ Supports cholesterol levels already in the normal range[†]
 - ✓ Vegan protein source

800.962.7663

845.358.8600 FAX: 845.358.9003



Sourcertainable® Certified Organic Spirulina is sustainably grown and processed in GMP-certified facilities in Inner Mongolia, one in Etuoke County of Inner Mongolia and another in Yanchi County on the border of Ningxia and Inner Mongolia. Both places are known for their good water quality, sufficient sunlight, non-polluted air, and abundant natural alkaline resources.

RFI is committed to sustainable, organic agriculture and **Sourcertainable® Certified Organic Spirulina** matches our **Field to Formula®** model for developing high-quality and vertically-integrated products.

Sourcertainable® Organic Spirulina Highlights

- **FDA-notified GRAS**
- **USDA National Organic Program (NOP)-certified**
- **Audited and approved by CERES**, a USDA-accredited organic certifying agency
- **Certified Kosher**
- Grown and processed **in compliance with ISO 9001 and GMP** standards
- Routinely tested for BMAA bacteria, algal toxins, banned pesticides and melamine
- **Sourcertainable® Organic Spirulina** contains twice the level of carotenoids compared to other organic spirulina products
- **Sourcertainable® Organic Spirulina is available in 100% Organic and excipient-free tablets (200 and 500 mg)**

† *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.*

1. Bhat VB and Madyastha KM. C-phycoerythrin: A potent peroxyl radical scavenger in vivo and in vitro. *Biochem Biophys Res Commun.* 2000;275:20-25.2.
2. Chu WL, et al. Protective effect of aqueous extract from *Spirulina platensis* against cell death induced by free radicals. *BMC Complement Altern Med.* 2010;10:53.3.
3. Dartsch PC. Antioxidant potential of selected *Spirulina platensis* preparations. *Phytother Res.* 2008;22:627-633.
4. Kim MY, et al. *Spirulina* improves antioxidant status by reducing oxidative stress in rabbits fed a high-cholesterol diet. *J Med Food.* 2010;13:420-426.
5. Zheng J, et al. Phycocyanin and phycocyanobilin from *Spirulina platensis* protect against diabetic nephropathy by inhibiting oxidative stress. *Am J Physiol Regul Integr Comp Physiol.* 2013;15:304(2):R110-20.
6. Hwang JH, et al. *Spirulina* prevents memory dysfunction, reduces oxidative stress damage and augments antioxidant activity in senescence-accelerated mice. *J Nutr Sci Vitaminol (Tokyo).* 2011;57(2):186-91.
7. Deng R and Chow TJ. Hypolipidemic, antioxidant, and antiinflammatory activities of microalgae *Spirulina*. *Cardiovasc Ther.* 2010;28:e33-45.
8. Belay A. The potential Application of *Spirulina* as a Nutritional and Therapeutic Supplement in Health Management. *JAMA.* 2002;5(2):27-48.
9. Al-Batshan HA, et al. Enhancement of chicken macrophage phagocytic function and nitrite production by dietary *Spirulina platensis*. *Immunopharmacol Immunotoxicol.* 2001;23:281-289.
10. Hayashi O, et al. Class specific influence of dietary *Spirulina platensis* on antibody production in mice. *J Nutr Sci Vitaminol (Tokyo).* 1998;44:841-851.
11. Price JA, et al. Inhibition of mast cells by algae. *J Med Food.* 2002;5:205-210.
12. Kim, HM, et al. Inhibitory effect of mast cell-mediated immediate-type allergic reactions in rats by *Spirulina*. *Biochemical Pharmacology.* 1998;55(7):1071-1076.
13. Selmi C, et al. The effects of *Spirulina* on anemia and immune function in senior citizens. *Cell Mol Immunol.* 2011 May;8(3):248-54.
14. Mao TK et al. Effects of a *Spirulina*-based dietary supplement on cytokine production from allergic rhinitis patients," *Journal of Medicinal Food.* 2005;8(1):27-30.
15. Ishii K, et al. Influence of dietary *Spirulina platensis* on IgA level in human saliva. *Journal of Kagawa Nutrition University.* 1999;3:27-33.
16. Hirahashi T, et al. Activation of the human innate immune system by *Spirulina*: augmentation of interferon production and NK cytotoxicity by oral administration of hot water extract of *Spirulina platensis*," *International Immunopharmacology.* 2002;2(4):423-434.
17. Ramamoorthy A and Premakumari S. Effect of supplementation of *Spirulina* on hypercholesterolemic patients. *J Food Sci Technol.* 1996;33:124-128.
18. Nakaya N, et al. Cholesterol lowering effect of *Spirulina*. *Nutr Rep Int.* 1988;37:1329-1337.
19. Park JY and Kim WY. The effect of *Spirulina* on lipid metabolism, antioxidant capacity and immune function in Korean elderly. *Korean J Nutr.* 2003;36:287-297.
20. Kim MH and Kim WY. The change of lipid metabolism and immune function caused by antioxidant material in the hypercholesterolemic elderly women in Korea. *Korean J Nutr.* 2005;38:67-75.
21. Park HJ, et al. A randomized double-blind, placebo-controlled study to establish the effects of *Spirulina* in elderly Koreans. *Ann Nutr Metab.* 2008;52:322-328.