

Aphanizomenon flos-aquae

Alpha Sun® and Omega Sun®

Organic Blue-Green Microalgae



EARTH'S FIRST FOOD

Aphanizomenon flos-aquae (abbreviated *Aph. flos-aquae* or AFA) is a species of cyanobacteria, or blue-green microalgae, that are among the most ancient of all living organisms. Cyanobacteria have provided oxygen to Earth's atmosphere and nutrients to marine life for over 3.5 billion years.

Algae are the basis of the entire food chain—the foundational nutrient source for creating and renewing all life on Earth. *Aphanizomenon flos-aquae* is the *crème de la crème* of all microalgae, one of the planet's most basic yet most powerful foods. Today, blue-green algae in the collective sense is commonly referred to and marketed as the original 'superfood' that provides many benefits, among which are the following:

- ◆ Supports good physical health and biomodulation for overall performance
- ◆ Provides all essential amino acids that feed and enhance brain activity
- ◆ Promotes enhanced absorption and assimilation of food nutrients*
- ◆ Supports cardiovascular health and normal cholesterol levels*
- ◆ Maintains healthy immune system function*
- ◆ Provides a natural, vegetarian source of omega-3 and omega-6 essential fatty acids*
- ◆ Offers a convenient and affordable daily supply of a vast array of micronutrients



Tucked away in the Cascade Mountains of southern Oregon, USA, fed by a network of mountain streams and springs, and anchored in deep volcanic soil and 35 feet of mineral-rich sediment, beautiful Upper Klamath Lake is one of Nature's most abundant sources of wild, edible microalgae known as *Aphanizomenon flos-aquae*. To tap this remarkable nutrient resource, in 1983 Simplicity Health developed custom equipment to harvest, transport, dry, process, and package the algae for commercial sales in the form of natural wholefood dietary supplements.

Simplicity Health adheres to stringent quality control procedures, ensuring that the extraordinary nutritional properties of AFA are preserved throughout processing. Our unique system takes into account that freshwater algae are more sensitive to heat than their cousins, the edible seaweeds ([macroalgae](#)); valuable nutrients can easily be lost if microalgae are subjected to extreme heat during any stage of harvesting and processing. The unique and efficient harvester we designed and built utilizes methods and technology that contribute to the exclusive quality of the algae. Our unsurpassed low-temperature drying process (Bioactive Dehydration®) produces the finest finished algae products available. The combination of expert handling and the selection of only prime ingredients, provides the foundation for consistently producing nutrient-dense, premium quality products. We stand behind our products!

For decades, millions of people have experienced a wide variety of positive results by consuming Simplicity Health products formulated with wild-harvested, organic blue-green microalgae from Upper Klamath Lake. Current health research on microalgae reveals increasing interest in the unique benefits of making algae-based food supplements a significant part of a daily balanced diet.



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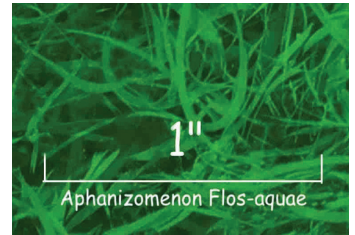
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The nutritional profile of organic blue-green microalgae is impressive, and years of extensive research well document the various health benefits of AFA. The following links guide you to detailed technical and scientific information that many consumers find of great interest. It is important to remember that it's the unique combination of a wide variety of essential nutrients in one source, not the amount of each component, which makes organic *Aphanizomenon flos-aquae* such a logical first choice for dietary food supplementation.

- Science/Research – www.simplexityhealth.com/scienceresearch.html
- Harvesting & Processing – www.simplexityhealth.com/scienceharvesting.html
- From the Lake to Your Door (video) – www.simplexityhealth.com/laketodoor.jsp
- Product information – www.simplexityhealth.com/associatenew/productknowledge.jsp
- Testimonials – www.simplexityhealth.com/emails/voices/vff_sbga.html
- Frequently Asked Questions – www.simplexityhealth.com/resources/technical/FAQ.html
- Antioxidants and Organic Blue-Green Microalgae – www.simplexityhealth.com/associatenew/technical/orac.html

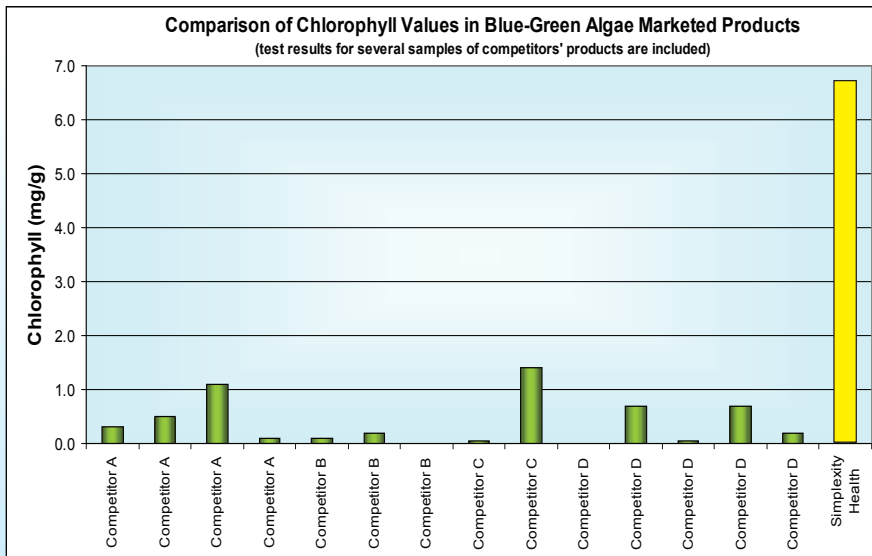


CHLOROPHYLL COMPARISON

Numerous surveys show that 80% of North Americans fail to receive adequate amounts of fruits and vegetables in their daily diets, as recommended by the USDA and the National Cancer Institute. Consuming “green foods”—nutrient-dense, minimally processed whole foods—is one important way to achieve a healthy diet and lifestyle. But what makes green foods so great? One factor is chlorophyll.

Chlorophyll is the green pigment in plants that is essential in the photosynthetic reactions that convert radiant energy from the sun into chemical energy for life processes. Chlorophyll is what makes plants grow. Inside the cells of green plants, chlorophyll combines with carbon dioxide and sunlight to form oxygen and simple sugars. Without chlorophyll plants would die! They would be unable to perform essential functions such as respiration and growth. Chlorophyll is also an excellent source of antioxidants and has many beneficial nutritional properties.

The graph below compares the test results for chlorophyll levels in Simplexity Health’s organic microalgae with samples from other companies’ Upper Klamath Lake *Aphanizomenon flos-aquae* microalgae supplement products.



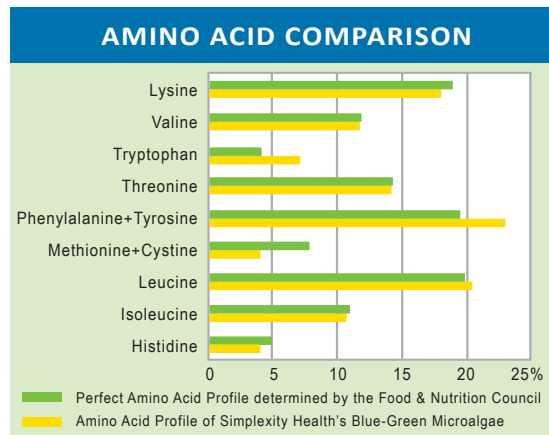
Energy for Life®

Samples from other algae companies were analyzed according to the widely used and accepted Japanese Food Hygiene Association method. The accompanying graph represents the average chlorophyll level from three summers’ harvests as confirmed by an independent laboratory. This chlorophyll comparison clearly demonstrates the high nutritional value our dietary supplement products contain.

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ESSENTIAL AMINO ACIDS

Amino acids are the building blocks of protein. Protein molecules often make up more than half of the physical structure of all cells and tissues. There are ten non-essential amino acids the body can biosynthesize from foods, and ten essential amino acids you must receive intact and directly from food sources. **There are twenty essential amino acids (EFAs) and *Aphanizomenon flos-aquae* contains all twenty of them! This is most unique among all food plants.** Each amino acid offers a variety of health benefits, but together they provide vital fuel and energy, build and maintain neuropeptides (chemical messengers of the nervous system), and help biomodulate emotion and mood swings.* The chart at left illustrates how closely AFA's amino acid profile matches the ideal profile recommended by the Food & Nutrition Council.

ESSENTIAL FATTY ACIDS

Aphanizomenon flos-aquae supplies essential fatty acids (EFAs) in an all-natural form, suitable for vegetarians and vegans. EFAs are “good fats” vital to the flexibility and fluidity of all cells. EFAs are required for the normal growth and repair of the skin, blood vessels, and nerve tissues. They build, maintain, and repair cell membranes. Without healthy cell membranes, none of the other miraculous activities of cells would be possible. EFAs have dynamic lubricating qualities that can actively increase the solubility of cholesterol deposits, thereby helping to maintain healthy blood cholesterol levels.* The following EFA information represents an average for both Alpha Sun[®] and Omega Sun[®] organic blue-green microalgae.

<u>Lipid Analysis</u>	<u>Averages</u>	<u>Amount per 250 mg capsule</u>
Total Lipid (fat) Content	Avg: 4.4% of dry weight	11 mg per capsule
Total Saturated Fat	43%	4.7 mg
Total Unsaturated Fat	57%	6.3 mg
Total Essential Fatty Acids	45%	5.0 mg
Total Omega-3 Essential Fatty Acids	38%	4.1 mg
Alpha-Linolenic Acid (ALA)	37%	4.1 mg
Eicosapentanoic Acid (EPA)	0.4%	0.04 mg
Docosapentaenoic Acid (DPA)	<.1%‡	<0.01 mg
Docosahexaenoic Acid (DHA)	<.1%‡	<0.01 mg
Total Omega-6 Essential Fatty Acids	8%	0.9 mg
Linoleic Acid (LA)	8%	0.9 mg
Arachidonic Acid (AA)	0.1%	0.01 mg

‡Note: Some analyses have detected DHA and DPA in very small quantities.

Approximately 45% of the lipids (fats) within *Aph. flos-aquae* are essential fatty acids. Since all Simplicity Health products contain blue-green algae, all will contain a measure of the fatty acids listed above.

EFAs and ALGAE

Aphanizomenon flos-aquae microalgae, the ultimate photosynthesizer, contains both LA[•] and ALA[•] in an ideal balance (more ALA). Researchers at Massachusetts General Hospital who studied its fat content conclude that AFA is a good source of the most valuable fatty acids and “should be a valuable nutritional resource” (Kushak et al. Favorable effects of blue-green algae *Aphanizomenon flos-aquae* on rat plasma lipids. JANA 2(3):59-65). Interestingly, the findings revealed that AFA raises the levels of the good fatty acids far more than would be expected based on its ALA content alone. It was concluded that something about the algae—probably its range of micronutrients—was helping the animals to utilize the fatty acids they were getting from other sources as well as those from the algae. The “good” fatty acid (ALA, EPA, DHA) levels increased, and the levels of the arachidonic acid decreased.

~ Linoleic acid (LA) - the essential omega-6 fatty acid
 • Alpha-linolenic acid (ALA, for short) - the essential omega-3 fatty acid

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PHENYLETHYLAMINE (PEA)

Phenylethylamine (pronounced fen-il-ETH-il-a-meen) is a naturally occurring alkaloid chemical compound made from the amino acid phenylalanine and is linked to energy, mood, and focus. Studies indicate that PEA may work as a neurotransmitter that helps send and receive signals in the brain. PEA is a natural activator present in plants, animals, and humans. It exists naturally in the human central nervous system and is responsible for the emotional experience associated with pleasure and mental awareness; it supports mental energy, mental clarity, concentration, and attention, and is a known natural mood enhancer.

PHYCOCYANIN

The word 'phycocyanin' is derived from the Greek *phyco* meaning 'algae' and *kyanos* meaning 'blue-green'; this pigment is responsible for the intense color of our microalgae. The richest sources of phycocyanin in nature are blue-green algae like *Aphanizomenon flos-aquae*. AFA contains 15% phycocyanin by dry weight. Classified as a phycobiliprotein (a light-harvesting protein that contributes to photosynthesis), phycocyanin has been shown to exhibit a variety of beneficial health properties; most importantly, it acts as an antioxidant to help neutralize the damaging effects of free radicals.

QUALITY ASSURANCE

Simplexity Health is very conscientious about ensuring the quality of the wild-crafted algae we harvest, process, and market. Our microalgae is harvested and processed according to Good Manufacturing Practices (GMPs). Every harvest undergoes stringent [Quality Control/Quality Assurance](#) procedures, ensuring that only the highest quality products are made available. In addition to in-house testing, regular analyses are conducted by independent laboratories. We use state-of-the-art equipment, and we comply fully with all regulations of the Oregon Department of Agriculture (ODA). The ODA audits our facilities on a quarterly basis and has granted approval of Simplexity Health's testing procedures and the results attained. We utilize the expertise of world-class algae scientists to remain current with the latest research and technology available. For over 27 years we have taken great pride in producing clean, safe, premium quality, naturally wholesome nutritional wholefood supplements.

HARVESTING AND PROCESSING

Since 1983 Simplexity Health has been the industry leader in designing and building the first state-of-the-art equipment for harvesting and processing algae. We have consistently chosen methods that are optimal for ensuring that all of the excellent nutrient properties of *Aphanizomenon flos-aquae* are preserved intact throughout the harvesting, drying, and packaging processes. We use Bioactive Dehydration[®], a state-of-the-art low-temperature, organic, and kosher-certified drying process that preserves natural vitamins, enzymes, and other phytonutrients. Testing indicates that the quality of this drying system is superior to freeze-drying, especially for heat-sensitive algae components such as chlorophyll and enzymes. In addition, because the algae is dried at temperatures below 105° F, it is considered a "raw food," which is an important distinction to many health-conscious raw food consumers.

Energy for Life[®]

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ALPHA SUN® is the whole cell algae, which provides proteins and natural complex carbohydrates critical for the health of tissues and cells. Because the intact cell walls are composed of peptidoglycan (carbohydrates and peptides), lipids (oils), polysaccharides (sugars), and proteins, Alpha Sun® is the ideal natural complex essential for good physical health.*

OMEGA SUN® is the heart of the algae with the cell wall carefully removed, allowing greater access to the high overall amino acid content, which makes Omega Sun® an abundant source of raw materials for building the neuropeptides that feed and enhance brain activity.*



Simplexity Health's facilities and blue-green microalgae are certified organic according to the U.S. Department of Agriculture's National Organic Program standards. OCPP/Pro-Cert of Canada performs thorough annual audits at our Klamath Falls processing facilities and continues to certify our entire operation as compliant with the requirements for organic certification.



Star-K of Baltimore, Maryland, certifies Simplexity Health's facilities and products as meeting kosher standards. A representative from Star-K annually inspects our facilities and products, and reviews required documentation. Representatives for Star-K also inspect all of the operations of vendors that produce and supply kosher-certified products to Simplexity Health.



The internationally respected Islamic Food and Nutrition Council of America (IFANCA) developed a procedure for producing halal (meaning 'lawful' or 'permitted') products that assures consistent methodical cleanliness throughout the entire production process. IFANCA inspects Simplexity Health's facilities and processes, and has certified Alpha Sun® and Omega Sun® as meeting halal certification standards.

ELEMENTS AND TRACE ELEMENTS

Amount per Serving (1 g)

	Alpha Sun	Omega Sun
Calcium***	8.5 mg	9.3 mg
Chloride	2.0 mg	1.6 mg
Chromium	1.2 mcg	0.5 mcg
Copper	10.5 mcg	4.3 mcg
Iron	0.7 mg	0.5 mg
Magnesium	1.8 mg	1.9 mg
Manganese	31.2 mcg	29.0 mcg
Molybdenum	4.7 mcg	3.6 mcg
Phosphorus	4.7 mg	5.4 mg
Potassium	10.6 mg	12.1 mg
Selenium	0.4 mcg	0.3 mcg
Sodium	2.5 mg	2.3 mg
Zinc	12.1 mcg	11.2 mcg

GENERAL COMPOSITION

	Alpha Sun	Omega Sun
Protein	50-60%	50-64%
Carbohydrates	26-30%	24-28%
Total Fat	4-6%	4-6%
Total Dietary Fiber	5-8%	3-5%
Minerals	6-7%	5-7%
Cholesterol	<1 mg	<1 mg

VITAMINS

Amount per Serving (1 g)

	Alpha Sun	Omega Sun
Vitamin A (beta carotene)	1523.0 IU**	1285.0 IU**
Thiamine (B1)	19.0 mcg	18.7 mcg
Riboflavin (B2)	44.9 mcg	39.0 mcg
Pyridoxine (B6)	14.6 mcg	6.9 mcg
Cobalamin (B12)	3.7 mcg	4.0 mcg
Ascorbic Acid (C)	0.4 mg	0.14 mg
Niacin	0.4 mg	0.3 mg
Choline	1.3 mg	2.3 mg
Folic Acid	0.6 mcg	0.6 mcg
Pantothenic Acid	3.1 mcg	5.1 mcg
Biotin	0.2 mcg	0.1 mcg
Vitamin E	1.0 IU**	0.1 IU**
Vitamin K	47.7 mcg	39.1 mcg

SUGAR PROFILE

	Alpha Sun	Omega Sun
Glucose	19.4 mg	18.1 mg
Fructose	0.5 mg	0.0 mg
Maltose	5.6 mg	6.3 mg
Sucrose	0.8 mg	0.0 mg
Total Sugars	26.2 mg	24.4 mg

AMINO ACIDS

(Essential in Diet)

	Alpha Sun	Omega Sun
Arginine***	29.0 mg	32.0 mg
Histidine***	9.0 mg	9.0 mg
Isoleucine	25.0 mg	24.0 mg
Leucine	43.0 mg	43.0 mg
Lysine	29.0 mg	30.0 mg
Methionine	9.0 mg	8.0 mg
Phenylalanine	21.0 mg	21.0 mg
Threonine	29.0 mg	31.0 mg
Tryptophan	6.0 mg	7.0 mg
Valine	29.0 mg	27.0 mg
Asparagine	49.0 mg	51.0 mg
Alanine	39.0 mg	40.0 mg
Glutamine	78.0 mg	81.0 mg
Cystine	3.0 mg	2.0 mg
Glycine	23.0 mg	25.0 mg
Proline	20.0 mg	21.0 mg
Serine	25.0 mg	26.0 mg
Tyrosine	16.0 mg	15.0 mg
Aspartic Acid	46.0 mg	44.0 mg
Glutamic Acid	49.0 mg	40.0 mg

Alpha Sun

Essential Amino Acids: 49.1 %
Non-Essential Amino Acids: 50.9 %

Omega Sun

Essential Amino Acids: 40.2 %
Non-Essential Amino Acids: 59.8 %

** International Units

*** Important for children's growth

*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.

