

ProAmino®

TECHNOLOGY

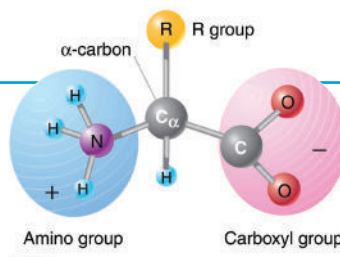
Ocean Organics' *ProAmino*® is a proprietary technology that delivers 18 of 20 amino acids necessary for protein synthesis. It augments the Ocean Organics product lines — industry-leading performers in promoting plant growth, stress management and recovery. Pro-Amino is based on several innovative sources of amino acids. Our foundational products, the Guarantee® Kelp Extract line, naturally contain amino acids. We bolster these concentrations with a variety of botanical and other distinct extracts to enhance the diversity of our amino acid profile and expand its functionality. We vary the types and proportions of amino acids in our products to strengthen specific biological functions under different growth conditions.

AMINO ACIDS — THE BASIC STRUCTURAL UNITS OF PROTEINS

All proteins in all species, from bacteria to humans, are constructed from the same 20 amino acids. Instructions to make amino acids are stored in the genetic code in the form of DNA (deoxyribonucleic acid). These amino acids are linked together to make an incredible variety of proteins used by the plant. Generally, one gene is the blueprint of one protein.

AMINO ACIDS THE BUILDING BLOCKS OF PROTEINS

Life cannot exist without proteins. They are one of the most critical classes of biological compounds. Proteins called enzymes are catalysts for nearly all important biological chemical reactions. Proteins also have other functions such as storage, transport, mechanical support, immune protection and control of growth.



An amino acid consists of an amino group ($\text{NH}_2/\text{NH}_3^+$ depending on pH), a carboxyl group (COO^-/COOH depending on pH), a hydrogen atom, and a distinctive side chain (often called an R group) all attached to a central (alpha) carbon atom.

STABILIZERS, REGULATORS, MODULATORS AND DETOXIFIERS

Amino acids are readily absorbed and translocated by plant tissues and have the capacity to function as compatible osmolytes (small organic molecules produced by cells in high stress situations to stabilize their macromolecules), regulate ion transport, serve as signaling molecules, modulate stomatal opening, and detoxify heavy metals (Kauffman et al., 2007). Amino acids are also used to create other key compounds. Glutamate is a precursor of chlorophyll, while tryptophan is a precursor of the hormone indole acetic acid (IAA or auxin). Although only 20 standard amino acids are used in protein production, plants may contain up to 200 amino acids (Horst and Marschner, 1995). These other proteins are not involved in protein synthesis, yet may have exciting potential for plant stress management. This is one reason we have pursued utilizing botanical sources of plant proteins.

Look For Pro Amino Technology in Ocean Organics Industry-Leading Products.

Ocean Organics is a manufacturer of high performance, scientifically proven seaplant-extract based biostimulants, plant growth materials and granular fertilizers. Our state-of-the-art products contain unique and proprietary constituents. Founded in 1977, we are the developers and manufacturers of the Emerald Isle foliar fertilizers and biostimulants, now owned and distributed to professional turf and ornamental markets by Lebanon Turf Products. Our materials have been tested in over 25 universities and independent laboratories.



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