

# Fertilizing Planted Aquariums

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In addition to [CO2](#) and [light](#), [aquarium plants](#) require [nutrients](#) in the [substrate](#) and the water for lush and healthy growth. The two basic categories of essential plant nutrients are macro and micro-nutrients. Macronutrients consist primarily of [nitrogen](#), [phosphorus](#), and [potassium](#), while micronutrients include calcium, chloride, [iron](#), magnesium, manganese, sulfur, zinc, and other [trace elements](#).

Plants are able to obtain some of these nutrients directly from the water, (i.e., nitrogen in the form of ammonia or nitrate from fish waste and other organic materials, and micronutrients and trace elements from the source water) but these levels are often insufficient for healthy plant growth. Plants in aquariums that use purified water are faced with greater challenges – [RO/DI water purification](#) removes macro and micro nutrients.

Without supplementation, plants are unable to thrive since natural concentration of nutrients such as potassium is relatively low. The nutrients need to be replenished routinely to maintain adequate levels, especially micronutrients, since many of them are utilized quickly and do not remain available for more than a few days.

The two basic delivery methods of supplementing plant nutrients are [substrate fertilization](#) and [liquid fertilization](#). Since some plants draw nutrients primarily through their roots while others draw nutrients through their leaves, each method has its unique benefits and application depending on the plant species. Proper supplementation leads to a balanced, beautiful planted aquarium that provides the added benefit of biological filtration and improved oxygen levels to your system.



## Substrate Fertilizers

Substrate fertilizers are buried within the substrate bed. The nutrients are released slowly over time and are absorbed directly by the roots. They are ideal for root-feeders and have another advantage; algae cannot access the nutrients buried in the substrate. This minimizes unwanted algae outbreaks. Sometimes the substrate itself is rich in plant nutrients.

## Liquid Fertilizers

Liquid fertilizers are an important source of nutrients for aquatic plants that absorb nutrients primarily through their leaves. In fact some plants don't grow roots into the substrate, so their only source for nutrients is from the water. The wide varieties of liquid fertilizers are easy to use and generally require regular use. However, a hobbyist must be careful when using liquid fertilizers since it is easy to over-dose, leading to conditions that favor algae.

## **We Recommend:**



[PhosPure](#)



[Aqueon Aquarium Water  
Changer](#)



[One And Only Nitrifying  
Bacteria](#)