

Carbon in the Planted Aquarium



INTRODUCTION

Aquatic plants use carbon to fuel photosynthesis which turns light energy and nutrients into new plant growth. Carbon is essential to build more complex organic compounds which are needed for growth. In nature, aquatic plants take in CO₂ (carbon dioxide) from the water. Some plants can also use carbonates (KH) as a carbon source. While some aquatic plants will grow in the aquarium without additional CO₂ being added, many plants will not survive without it. Lack of available carbon for the plants is one of the main problems many hobbyists experience when keeping live plants in aquariums. In order to grow, many aquarium plants require the addition of supplemental CO₂. The use of CO₂ gas has become the standard way of increasing CO₂ in aquariums. Homemade yeast systems and a few commercial products use yeast to produce CO₂.

Glutaral, used in the medical industry, has been found to stimulate plant growth in aquariums. It is safe for use with freshwater fish and invertebrates, and will not alter pH. Glutaral has been shown to stimulate plant growth by providing aquarium plants a form of carbon that they can utilize. Plants rapidly use the available carbon supplied by Glutaral during photosynthesis metabolism; in addition, the natural breakdown of Glutaral also releases some CO₂ into the water.

AIM

To compare the growth of the common aquarium plant *Vallisneria* sp. when treated with API CO₂ BOOSTER and a leading competitor.

METHODS

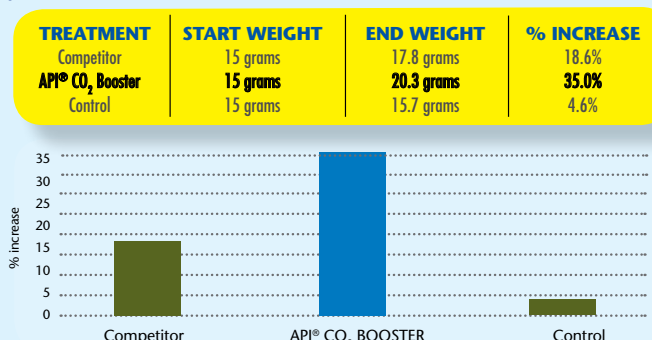
Three 29-gallon treatment aquariums were tested: 1) Control, no CO₂ treatment added, 2) API CO₂ BOOSTER, and 3) a leading competitor. Each aquarium contained five pots of *Vallisneria*. Each pot was filled with fine aquarium gravel and one ROOT TAB fertilizer tablet. All *Vallisneria* plant leaves and roots were trimmed to achieve similar weight and planted in the pots at 3.0-3.2 grams of *Vallisneria* plants per pot. Each aquarium contained 5 pots with a combined total of 15 grams of *Vallisneria* plants at the start of the experiment. Identical lighting was supplied to each aquarium. API CO₂ BOOSTER and a leading competitor were dosed as per label directions for each product. The control aquarium received no CO₂ treatment. The experiment ran for 46 days.

After 46 days, the plants were removed from the pots. The fine gravel was rinsed from the roots. The plants were drained for one minute, then weighed. The plants in each treatment aquarium were weighed and calculated as a group and percentage increase recorded.

RESULTS

API CO₂ BOOSTER significantly stimulated plant growth when compared to the control and had almost double the growth of a leading competitor. See Chart 1. When compared to an aquarium without any CO₂ supplementation, the plants grew 7 times more when using API CO₂ BOOSTER. The test results show that plant growth can easily be obtained using API CO₂ BOOSTER without the need for additional CO₂ supplementation.

Chart 1



It is proven that plants treated with API CO₂ BOOSTER grew 7 times more than the untreated aquarium and had almost double the plant growth compared to plants treated with a leading competitor

