

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647
(903) 845-2163 FAX: (903) 845-2262

2011 Crop Results

Vitazyme on Algae

Researcher: Jeffery Lodge, Ph.D., Associate Professor of Biological Sciences

Institution: Rochester Institute of Technology, Rochester, New York

Experimental design: Various algae species are very effective at converting wastewater nutrients into oil that can be harvested and used as fuel in various applications. Any means to accelerate the growth of these algae would be highly beneficial to improve the conversion of wastewater to usable biofuel. These three species of algae – Scenedesmus, Chlamydeomonas, and Chlorella – were used in three trial runs for each species, with eight flasks per trial having waste water and concentrations of Vitazyme of 0, 0.02%, 0.5%, 0.10%, 0.25%, 0.50%, 0.75%, and 1.00%. At two-day intervals, the absorbance of the solutions at 680 nm was measured to give response curves for the various Vitazyme concentrations over the 8-day test period. Algae growth is directly correlated with absorbance at 680 nm.

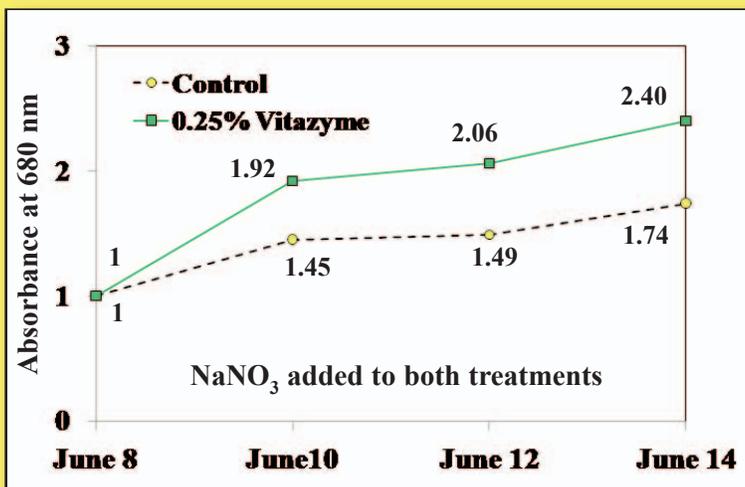
A separate analysis was made with one algae species using two flasks, with 0.8 mg/ml of solution of NaNO_3 , to increase the nitrogen content and evaluate Vitazyme activity (at 0.25% concentration) as a consequence.

1. Control

2. Vitazyme at several concentrations

Absorbance results at eight dilutions: No consistent patterns of growth resulted from the Vitazyme treatments using three algae species and eight concentrations. In some cases the growth of the algae was increased, but in other cases it was not. Thus, this data is not reported here.

Absorbance results with added NaNO_3 : When NaNO_3 was added at 0.8 mg/ml to two flasks, one containing Vitazyme and other no product, a considerable burst of growth of the algae was noted in the Vitazyme treated flask. This information is shown in the accompanying graph.



**Increase in algae growth
with Vitazyme at 6 days:
40%**

Conclusions: In this university study of algae growth in response to eight Vitazyme concentrations, results were not consistent using wastewater only, but when 0.9 mg/ml of NaNO₃ were added to the wastewater there was a great response in growth of the algae. After 6 days of growth, the 0.25% Vitazyme treatment had exceeded the control receiving no Vitazyme by 40%. These results show that a small amount of added nitrogen with Vitazyme will greatly accelerate algae growth in nitrogen-limited wastewater, much like adding nutrients to the soil will enhance Vitazyme activity in normal agronomic situations. Algae require nitrogen to metabolize the carbonaceous contents of wastewater, and by supplying extra nitrogen, plus the metabolizing enhancements of Vitazyme's active agents, the growth in a less nitrogen-deprived environment will proceed faster, making this product an excellent addition to algae production under these conditions.