Utilizing Nutrient Enriched Biologically Activated Bioremediation Units as a Soil Amendment in a Cyclic Remediation System (A Novel Fifth Year Study)

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Previous research determined that using Chlorella Vulgaris infused Sodium Alginate beads was an effective strategy to return hypereutrophic water systems to natural nutrient levels. Determining if these bio-active bioremediation units (BABU),would be more effective than traditional fertilizers, thereby increasing plant growth and dry biomass of Pisum sativum was explored. Separate 60 pea seeds into three groups: No Fertilizer, Miracle-Gro, and BABU. Place the seed in a damp paper towel to germinate then place it 1-inch in the respective soil. Wait three weeks until pea plants mature and measure the plant growth and primary productivity. The effectiveness of plant growth was measured by length to the longest leaf. The rate of primary productivity was measured by dry biomass. All the P-values from the ANOVA Analysis are less than the alpha value of .05. Therefore the null hypothesis of The various types of soil amendments will not alter the rate of plant growth or increase the primary productivity (dry biomass) by Pisum sativum's reuptake process is rejected, and there is a statistically significant difference between the groups. The P-values for the plant growth and Dry Biomass in Miracle-gro compared to the negative control are above the alpha value of 0.05. Therefore there was no statistically significant difference between this soil amendment and the negative control. There was a statistically significant difference between the plant growth and dry biomass in the BABu enriched groups and the Positive Control. Therefore this soil amendment would immediately uptake the nutrients and yield an increased rate of plant growth and increased rate of primary activity (dry biomass).

Awards Won:

Second Award of $2,000