**Conclusion**

We discovered that soybean and broad bean did not have a statistically significant impact on the phytoremediation of MTBE versus the natural degradation/loss of MTBE from the control apparatus. We noticed in our data that the concentrations fluctuate for each individual plant over the time interval of the experiment. In order to “normalize” the data for better interpretation, we took the average for the three plants of each species.

We conducted a t-test of significance to calculate any statistically significant difference between the control versus our broad bean and soybean tests. We found that broad bean had some impact on the MTBE within the system during day 2 of the exper4imental run. The p-value form our t-test of significance shows a value of 4.16%. This is below our 5% level of significance showing that at this particular day, broad bean had a significantly greater impact on MTBE in relation to control the test. However, during the other days, when comparing the percent changes on those days, broad bean nor soybean showed any significant differences from the control run. Yet, it should be noted that on the third day of our trial, the percent change in the soybean concentration gave a p- value of 8.98%, which is profound but not statistically different from the percent change in the control’s concentration on that day.

The drop in the concentration of MTBE for the control test yields an exponential relationship. The degradation line for the natural degradation of MTBE/loss through the system gives strong support that the loss is in fact an exponential curve. The r- squared correlation was found to be 0.9968, indicating a strong relationship.

We calculated the concentrations of our samples by using the standard curve we had developed. The chromatogram plot shows the peak for each individual constituent within the sample taken from the GC/MS. There is a direct relationship between the integration of the peak (area) with that of the concentration. We constructed our standard curve using seven points of varying concentrations from 0 ppm to 2000 ppm. The r-squared correlation was found to be 0.9535 showing a strong correlation and strength in the curve. This correlation was vital because it was used to calculate the concentrations of each of our samples.

Although only the broad bean showed any significant impact on MTBE, the soybean over the extended period of time, proved to be more effective in the long run. After the third day of experimentation( as noted in our observations) the broad bean showed signs of illness. We may assume that this illness was due to the concentration of the MTBE present. We grew the broad bean in hydroponics solution for extended periods of time without the presence of MTBE, and no negative impacts on the plant were observed. In contrast, the soybean proved to remain healthy throughout the entire duration of our experiment.