CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
S1611

Project Title
The Effect of Gibberellic Acid on the Chlorophyll Concentration in Brassica rapa Plants

Abstract

Objectives/Goals

The chlorophyll concentration of Brassica rapa seeds soaked in Gibberellic Acid and untouched seeds were studied using the SPAD-502 Chlorophyll Meter#. Brassica rapa seeds were soaked in Gibberellic Acid (GA3) 24 hours prior to plantation (Seed Gibb), while another group was planted and Foliar Sprayed with GA3 Solution daily. The Control had no contact with GA3.

It was believed that the chlorophyll concentration would increase with Gibberellic Acid contact and plants that had the most exposure to this growth hormone would produce better yields. Seed Gibb would have the highest yield since GA3 was present in the seeds during the germination stage. Foliar was to have the second highest yield rate since it had some contact with GA3 and Control was believed to have the lowest production rate.

The hypothesis was both refuted and supported. Foliar sprayed plants had higher pod weight production per plant, yet their chlorophyll concentration decreased. Seed Gibb did not support the hypothesis; it had the lowest chlorophyll concentration readings and produced the lowest weight pods.

Once a statistical test was preformed (One-Way ANOVA Test), the results concluded that the difference in pod weight was not a result of the spraying of Gibberellic Acid, but in fact as a result of random factors, such as a small sampling size, mutations, and random chance. The hypothesis was based upon the accusation of farmers who commercially grow crops with use of GA3, which increases their yield. The fact that the yield of Brassica rapa was not accordant with previous studies can be because different plants have different responses to the same hormone.

Therefore, these trials were inconclusive with regard to the effect of GA3 on yields and inconclusive as to whether a foliar spray or soaking was more effective.

Summary Statement

This project was designed to observe if Gibberellic Acid made a difference in the chlorophyll concentration in Brassica rapa plants, which, in turn, would make a difference in the weight of pods (yeilds) produced by the plants.

Help Received

My father and his boss provided me with ProGibb 2X Powder; Ms. Dickson helped me with questions I had and giudance that I needed