Using Guaiacol to Measure the Effect of a Natural Hormone (N-Acetyl-5-Methoxytryptamine) and Artificial Substitutes on the Rate of Photosynthetic Reactions and Oxygen Production, Year III

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The purpose of this project was to allow a better, more concrete understanding of the way in which benzodiazepine drugs, commonly referred to as sleep aids, effect the way that cells behave. The experimentation was designed to recreate the behavior of a living animal cell in every way that was possible, while still being able to maintain control over how the solution behaved.

This was accomplished through the collection of data regarding how much oxygen the peroxidase solution produced when exposed to both the natural and artificial substance. Both substances were introduced in the same manner, and were introduced at the same concentrations. The data collection was done over the same period of time as well, to ensure that no one substance had any more time to react than that of others.

The data analysis was done through a one way ANOVA and a post hoc Tukey HSD. These tests led to the confirmation of the validity of the results with a 98% confidence. The analysis proved beneficial in that it has confirmed the results of the experiment to be following a valid trend, ergo a more sufficient conclusion may be drawn.

The conclusion of the experiment proved to be straight forward in that it took less of the artificial substance to perform the same amount of inhibition as it took the natural substance. This was fascinating to me, as the dosage recommendation for an adult person (ages 17+ years) was the same on both bottles.

Awards Won: