

Effects of Different Frequencies of Electromagnetic Radiation on the Growth Rates of the Cyanobacteria *Spirulina platensis*

Watarida, Alyssa (School: Kapolei High School)

Tam, Michelle (School: Kapolei High School)

Spirulina platensis is a type of cyanobacteria that is often used as a protein dietary supplement as well as a whole food. It contains a high concentration of protein and essential vitamins and minerals. In this experiment, the influence of electromagnetic radiation on the growth rates of the cyanobacteria *Spirulina platensis* is examined. The growth rates were determined by measuring the turbidity of each water sample using a turbidity meter. The higher the turbidity means the more growth of the *Spirulina platensis*. From the experimental results, the *Spirulina platensis* under the lamp emitting red light exhibited the highest growth rate, reaching an average of 781 NTU (Nephelometric Turbidity Unit) over the course of 8 days. The *Spirulina platensis* under the lamp emitting blue light displayed a steady growth rate, reaching an average turbidity of 585 NTU over the course of 8 days. *Spirulina platensis* is frequently used in cosmetics, fish foods, and skin care products. It is also used by the food and beverage industries as a natural coloring agent. *Spirulina platensis* is highly valued in parts of West and Central Africa as it has been cultivated for decades as a means to treat malnutrition, starvation, and soil deficiency. Thus, this data yields valuable information for large companies, manufacturers, small farmers, or regular citizens as a means to increase the growth rates of their *Spirulina platensis* cultures. This would increase the availability of *Spirulina platensis* and allow more people to reap its many benefits.