The Role of Bacillus subtilis on Algae Blooms for the Survival of Aquatic Ecosystems

Martin, Emily

The purpose of this project is to find a more efficient, environmentally safe way to reduce algae bloom growth. If algae growth is decreased by the growth of the bacteria, Bacillus subtilis, more than the store-bought algae preventative and does not harm the Daphnia magna, then Bacillus subtilis is a more environmentally safe method of decreasing algae. The result of algae blooms can be devastating due to the depletion of oxygen in the water. A control group of spring water and daphnia was used to compare with the other groups. One group of spring water and Daphnia magna was exposed to a proportioned amount of a common fertilizer. Another group was exposed to the fertilizer, but Bacillus subtilis was added. The next group was exposed to the fertilizer, but the store-bought preventative was added. The store- bought preventative over a short amount of time killed all algae and all Daphnia magna. Bacillus subtilis sustained a controlled amount of algae. These jars had little loss of Daphnia magna. The t- Test for living Daphnia count with Group 3 (Bacillus subtilis) and Group 4 (store-bought preventative) was highly significant (t= 4.07> t.01= 3.06). After data analysis and statistics, Bacillus subtilis is a more suitable option than the store-bought preventative. The hypothesis is supported.

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