Determining the Natural Microbial Flora Found on the Stem Surfaces of Aquatic Plants and Their Connection to Water Filtration

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Seventy percent of our planet is covered with water; however, only three percent is fresh and drinkable. The purpose of this project is to determine which type of aquatic plants filters water more effectively. The primary focus is to determine if the natural flora of microbes on the stem surfaces might have cleaning/filtering properties. Determining the mechanism of filtration is important because horsetail reeds serve as natural water filtration in wetlands and aquatic biomes. We hope to determine if the reeds take E. coli up through their roots and filter it, or if there are microbes living on the outside of the plants that restrict E. coli growth. To begin the experiment five plants of each species were established for two weeks. Three stems of each plant was swabbed and the bacteria transferred to nutrient agar plates After 24 hours colonies were inspected for the form, elevation, margin, and diameter of the bacteria. Then the Gram Staining technique was used to identify if the bacteria was Gram Positive or Gram Negative, and the bacterial shape and arrangement. The results showed that both Equisetum hyemale and Typha have natural flora living on their surface. Interestingly, Gram positive Staphylococcus were found only on Equisetum hyemale. If I continued this experiment in the future, I would try to find the names of the natural flora present and see how they kill off the E. coli.

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