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*Catch That Copper: The Effects of Fungi Cultivation on Copper Levels in Fresh Water*

Mycoremediation is defined as the process by which fungi are utilized to decompose toxins and pollutants to return an environment to a less contaminated state. The mycelium of the fungi secretes extracellular enzymes and acids that break down recalcitrant molecules such as lignin and cellulose, the two primary components of plant fiber found in almost all ecosystems. Most toxins and pollutants are composed of similar chemical bonds. The fungal mycelium breaks down these bonds and reconstructs them into simpler forms that can be absorbed through the fungi's mycelium and utilized as nutrients. This experiment was conducted to study the effects of fungi cultivation on copper levels in fresh water. In this experiment, Mycogrow (a combination of the fungal spores of *Glomus aggregatum*, *Glomus etunicatum*, *Glomus intaradices*, and *Glomus mosseae*) was placed in water contaminated with a copper solution. Mycogrow was also placed in the same environment containing a *Cryptocoryne* sp aquatic plant. *Plurotis Ostriotis* mycelium was utilized to grow fungi and was watered twice a day with water contaminated with copper solution. As a final test, a Crimini Mushroom Filter was constructed and water contaminated with a copper solution was filtered through. A Base test with water contaminated with a copper solution and a control test with a *Cryptocoryne* sp aquatic plant in water contaminated with a copper solution were tested. The water of the individual experiments was tested every three days for copper contamination using a SenSafe pH strip Copper Check. In reviewing my data, the tests with Mycogrow, *Plurotis Ostriotis* mycelium, and the Crimini mushroom filter experienced the greatest decrease in copper contamination. Both the Base test with the water contaminated with copper solution and the control test with the *Cryptocoryne* sp aquatic plant and the water contaminated with copper solution experienced no change in copper contamination. From this, I concluded that copper levels in fresh water can be greatly reduced through the growth of fungi in the water.