A Mycoremediation Study to Alleviate Eutrophication in Agricultural Watersheds

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This project exemplifies a form of bioremediation; Mycoremediation study designed to alleviate eutrophication from dissolved phosphorus and nitrogen contamination in agricultural watersheds. The intent of this project is to decrease the amounts of phosphorus and nitrogen content in chicken manure to limit the amount of excessive dissolved P and N contamination in bodies of water, especially lakes. Some success with various species of mushrooms have been used as a form of fungal bioremediation in the past for an Eco-friendly and cost efficient way to remove toxins from the environment. The soil and water runoff analysis were determined by means of a standard testing technique and equipment. Trays inoculated with mushrooms showed a gradual decrease in contents of dissolved phosphorus and nitrogen levels within the soil compared to the controls. The water runoff analysis showed that trays with mushrooms showed a decrease throughout the trial in phosphate, nitrate, and nitrite levels compared to the control. Distinctive species of mushrooms extracted varied quantities of elements and compounds from the soil; for example, the Oyster species flourished overnight while other species emerged within an elongated period of time. The contributions of this project are prodigious. First, the mycelium of the mushrooms has the capability to enhance soil quality, to absorb, and facilitate substances such as litter/manure. Mother Nature has provided us with the key to solving many of humanity’s mistakes by providing mushrooms and fungi as its natural decomposer. Secondly, the benefit of a cost-efficient bioassay technique utilizing fungal bioremediation was demonstrated.

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