Filtering Agricultural Effluent with Fungal Mycelia, Year Two

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Filtering Agricultural effluent with fungal mycelia is a multiyear study focused on developing and deploying biological filters to remove phosphorus and nitrogen from sources of run-off that may increase the nutrient load of the Indian River Lagoon. To determine if development of mycelia and basidiocarps is proportional to the nutrient level during cultivation, 15 microcosms using 200 grams of coffee grounds as the substrate were inoculated with 20 grams of Pleurotus ostreatus spawn and treated with four solutions: Low Dose Phosphorus- T1 (600mg/L of P), Low Dose Phosphorus & Glucose-T2 (600mg/L of P, 50,000mg/L glucose), High Dose Phosphorus-T3 (1200mg/L of P) and High Dose Phosphorus & Glucose –T4(1200mg/L of P, 50,000mg/L glucose). Each set of three microcosms were treated with 20mL of solution weekly, distilled water was used as the control. Examination of the microcosms showed significant differences in all morphological parameters between the treatments. Compared to the control, all of the treatment groups were more resistant to green mold, T4 had the least amount of infection. All treatment groups produced more mycelia. Thin, downy mycelia completely colonized the surface of the T1 and T2 microcosms in less than seven days. T3 and T4 developed dense, elastic mycelia in fourteen days and primordial formation occurred. More basidiocarps and a greater biomass were produced by the T4 group. In conclusion, the results supported the hypothesis that there is a proportional relationship between the amount of basidiocarps and the level of nutrients.

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