

The Use of Filamentous Fungi to Convert Solid Waste into Consumable Products

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Here we report on the use of *Neurospora* to reduce human solid waste while converting it into fungal biomass which has the potential to be used as a dietary supplement. Typically portrayed as an environmental hazard and source of undesirable odor, solid waste represents an untapped resource. Filamentous fungi are natural decomposers with the ability to use this resource and reduce its environmental impact. We examined fungal growth and composition to determine the conditions which maximize the rate of conversion of waste into fungal biomass. We compared the effect of the length of incubation, method of aeration, available surface area, and presence of supplemental salts on fungal growth and nutritional composition. Rates of conversion and nutritional content were highly variable, however, rates as high as 75% (3.75g of fungus produced from 5g of solid waste), with fungal protein content up to 50%, were obtained. Additionally, fungal growth reduced the characteristic odor of the media. We present data that the fungal mass is consuming these chemicals from the media to fuel its own metabolism and thus acting to eliminate the normally associated odor.

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No information provided.

Faculty Sponsor: Dr. Michael Watters and Dr. Jon Schoer

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