Characterization of Organic Products from Degradation of Sweetpotato Biomass by an Isolated Soil Microorganism. (S03ankunah003449-Poster)

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Abstract:

Manned space missions of 10 to 20 years or longer are expected to occur in the next 15 to 25 years. Sweet potato is one of the crops selected by NASA to be grown hydroponically for long space missions. Leachates from sweet potato compost have been reported to provide some nutrients comparable to Hoagland solution. However, there is little information on the organic species which may result from biodegradation of sweet potato biomass (SPB). The degradation of sweet potato biomass by soil microbial isolate WDSt3A was investigated. The degradation of SPB was followed by measuring weight reduction. Organic species formed were followed and identified using GC-MS. Two bioreactors containing SPB (500 g) and water (450 mL) was inoculated with WDSt3A (50 mL) in a shaker at 30oC for 31 d. Fifteen (15) mL samples from each reactor was taken at various times and analyzed for organic species using GC-MS. SPB decreased in the course of the experiment. Major organic species produced and identified included anthraquinone, chlromethanesufonyl, 4-H-Benzopyran-one and Claviculine (a dopamine receptor). The importance of these organic species and their possible influence on plant growth and

accumulation in edible portions of sweet potato warrants further investigation.

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Presentation Information:

Presentation Date: Monday, November 11, 2002 Presentation Time: 9:00-11:00 am Poster Board Number: 1807

Keywords:

Sweetpotato Biomass, Microbial Degradation, GC-MS analysis organic products, Composting of sweetpotato