Toxic Ipomeamarone Accumulation in Healthy Parts of Sweetpotato (*Ipomoea batatas L.* Lam) Storage Roots on Infection by *Rhizopus stolonifer*

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Introduction

Furanoterpenoid accumulation in response to microbial attack in rotting sweetpotatoes has long been linked to deaths and lung edema of cattle (1-2). However, it is not known whether furanoterpenoid, ipomeamarone accumulates in the healthy-looking parts of infected sweetpotato storage roots. This is critical for effective utilization as animal feed and assessing the potential negative impact on human health. This work was accepted by the J. Agric. Food. Chem. (3).

Experiment

We first identified the fungus from infected sweetpotatoes as MI-1 (*Rhizopus stolonifer*) and then infected healthy sweetpotato samples to determine furanoterpenoid content. Ipomeamarone and its precursor, dehydroipomeamarone, were isolated and purified by chromatography from fungus infected sweet potatoes in the infected and uninfected regions. The structures of the furanoterpenoids were verified using NMR.

The NMR for this work was done on the 600 MHz Bruker instrument outfitted with a 5 mm cryogenic probe in the AMRIS Facility at the University of Florida.

Results and Discussion

Dehydroipomeamarone and ipomeamarone were detected in all the samples and controls at varying concentrations. Suprisingly, ipomeamarone and dehydroipomeamarone concentration was at toxic levels in healthy-looking regions.

Conclusions

This study provides fundamental information on toxic furanoterpenoid accumulation in relation to infection site. High furanoterpenoid levels in healthy-looking tissues could cause health problems when fed to live stocks or consumed by humans.

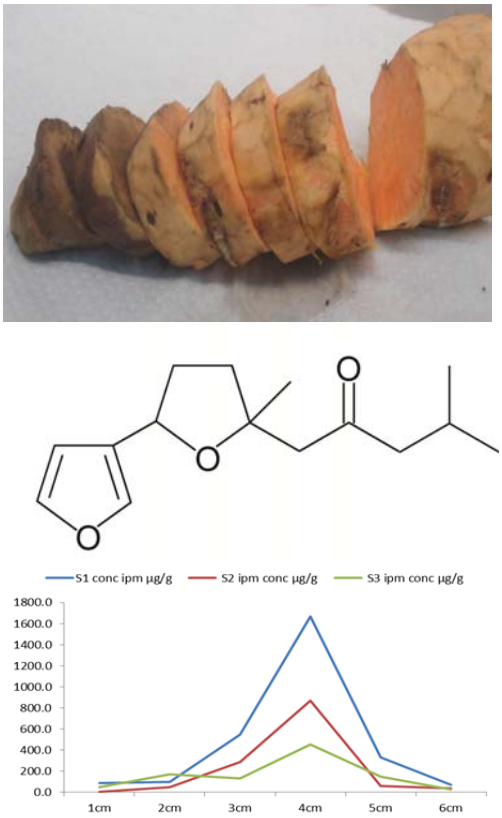

Figure 1. Structure of ipomeamarone and amounts in infected and uninfected tissues.

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