

Differential Display Protein Profiling of Some Common Production and Postproduction Problems in Root Crops

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ABSTRACT

Protein expression profiling is a powerful tool used to discover proteins associated with the biochemical state of a sample in response to some stimuli. To obtain fundamental knowledge on the biochemical events underlying the causes of existing production and postproduction problems in root crops, sodium dodecylsulfate polyacrylamide gel electrophoresis (SDS-PAGE) of samples was employed in order to establish protein expression profiles on major disorders and organoleptic constraints. Seven expression profiles were established to address the following concerns; acrid and non-acrid taro corms, anthracnose-infected and non-infected yam, spider mites and scale-insects infested and non-infested cassava, fresh and stored cassava roots, different varieties of blight-infested taro, sweet potato infected with scab and feathery mottle virus and four varieties of yam tuber (2 purple and 2 white). Differences in protein banding patterns extracted from different samples were compared and analyzed for overexpression and non-expression of specific proteins. Several differentially expressed specific proteins were identified as markers for diagnostic purposes and target biomolecules for designing appropriate control measures.