

**Title** Towards identifying the full set of genes expressed during cassava post-harvest physiological deterioration

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#### **Abstract**

Storage roots of cassava (*Manihot esculenta* Crantz) exhibit a rapid post-harvest physiological deterioration (PPD) response that can occur within 24–72 h of harvest. PPD is an enzymatically mediated oxidative process with parallels to plant wound, senescence and defence responses. To characterise those genes that show significant change in expression during the PPD response we have used cDNA microarray technology to carry out a large-scale analysis of the cassava root transcriptome during the post-harvest period. We identified 72 non-redundant expressed sequence tags which showed altered regulation during the post-harvest period. Of these 63 were induced, whilst 9 were down-regulated. RNA blot analysis of selected genes was used to verify and extend the microarray data. Additional microarray hybridisation experiments allowed the identification of 21 root-specific and 24 root-wounding-specific sequences. Many of the up-regulated and PPD-specific expressed sequence tags were predicted to play a role in cellular processes including reactive oxygen species turnover, cell wall repair, programmed cell death, ion, water or metabolite transport, signal transduction or perception, stress response, metabolism and biosynthesis, and activation of protein synthesis.