Title Pre and post harvest metabolism of pineapple crown leaves

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Citation Souvenir Programme, 7th International Pineapple Symposium 2010. 13-15 July, 2010, Persada Johor International Convention Centre, Johor Bahru, Johor, Malaysia. 126 p.

Keyword Crown leaves; long term storage and transport; cell burst

Abstract

As the pineapple crown is a continuation of the vegetative stem leaves, and the spirally arranged leaflets have a similar morphology, one might expect a similar metabolism occurred in these leaves. The functioning of the crown leaves remain unexplored. Leaf damage, occurring as brown spots on the crown leaves, are causing import financial losses. The brown spots on pineapple crown leaves occurring after transport were caused by physiological disorders similar to described leaf damage in ornamental CAM bromeliads (Londers *et al*., 2005; De Proft *et al*., 2007). Gas exchange analyses and organic acid content confirmed a CAM activity of the crown leaves for intact plants as well as for crown leaves of cut fruits kept under dark/light conditions. During continuous dark at 10°Cel (transport conditions), the acidity levels in the crown leaves increase while those in the fruit remain constant. This suggests that organic acids are translocated from the fruit into the leaves. This long time malate exposure of leaf cells causes cell wall weakening and bursting in the chlorenchyma layer. A better understanding of these processes inside the crown leaves might lead to improvements of the transport chain of fresh pineapple fruits for overseas markets.