

### Abstract:

Laboratory investigations were carried out to test the hypothesis that internal browning and accumulation of malic acid in pineapple results from activation of Crassulacean acid metabolism (CAM) and deficiency of K in the fruit and the crown leaves during cold storage. Accumulation of malic acid in the fruit after harvest was inhibited by spraying with malic hydrazide before exposing the fruits to incandescent light (300-700nm) at 914 microwatts/cm<sup>2</sup> at 20°C for 24 hours. The treatments arranged in a randomized complete block design, consisted of the application of 5% K<sub>2</sub>SO<sub>4</sub> followed by spraying with 5% Ca(OH)<sub>2</sub> in combination with 10ppm malic hydrazide plus wax sprays at post-harvest. Fruits were then exposed to light for 24 hours and stored in corrugated cardboard cartons for 1-4 weeks in a cold room at 10°C and 80-85% R.H to reduce fruit core tissue deterioration and internal browning (IB). With the application of 5% Ca(OH)<sub>2</sub> plus 10ppm malic hydrazide before cold storage 50 to 60% of malic acid content in the crown and the flesh was significantly reduced. 30 to 40% of malic acid content in the fruit and the crown was further reduced with the application of commercial wax spray and by exposing the fruits to light for 24 hours at 20°C. Significant changes in total soluble solids (TSS), K<sup>+</sup> contents, fruit-core tissue deterioration, firmness, taste, flavour and shelf-life of pineapple fruits were observed during cold-storage from 1 to 4 weeks. These results indicate that the application of Malic Hydrazide plus wax sprays significantly reduced IB, moisture loss and malic acid content in the crown leaves and the fruit.