

### Abstract:

Laboratory investigations were carried out to test the hypothesis that internal browning and accumulation of malic acid in pineapple fruit results from activation of Crassulacian acid metabolism (CAM) and deficiency of potassium in the fruit, crown leaves and in bracts of the shell during the dark cold storage. Accumulation of malic acid in the fruit after harvest was decreased by spraying with 5% Ca(OH)<sub>2</sub> in combination with 10ppm abscisic acid under the exposure of fruits to incandescent light at 914 microwatts/cm<sup>2</sup> (300-700nm) at 20°-24°C for 24 hours.

The treatments arranged in a randomized complete design, consisted of spraying with 5% K<sub>2</sub>SO<sub>4</sub>, 5% Ca(OH)<sub>2</sub> and 10ppm Abscisic Acid plus wax sprays under the exposure of fruits to light at 20°-24°C for 24 hours. Fruits were stored in corrugated cardboard cartons for 1-4 weeks in a cold room (at 10 ± 2°C and 80-85% R.H), to reduce fruit core tissue deterioration and internal browning (IB). Potassium deficiency in the fruit and crown leaves was significantly reduced with the application of pre-harvest 5% K<sub>2</sub>SO<sub>4</sub> and post-harvest application of 5% Ca(OH)<sub>2</sub> in combination with 10ppm Abscisic Acid (ABA) plus commercial wax of paraffin-polyethylene spray (50ml) onto the whole fruit (crown + fruit) under the exposure to light for 24 hours at 20°C before cold storage. These results indicate that pre-harvest and post-harvest treatment of K<sub>2</sub>SO<sub>4</sub> significantly increased the flesh firmness and potassium content in the fruit. Calcium hydroxide in combination with ABA and wax sprays significantly reduced the intensity of IB, moisture loss and malic acid content in the crown leaves and in the fruit.