

Title Higher degree of susceptibility to chilling injury in Queen type pineapples is probably due to its weaker antioxidant system as compare to Cayenne type pineapples

Author Korakot Chanjirakul and Jingtair Siriphanich

Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Chilling injury; antioxidant; pineapple

Abstract

Queen type pineapples cv. Tratseethong and Cayenne type cv. Pattavia were stored at 10 and 25°C for up to 3 weeks. Tratseethong developed internal browning symptom at 10°C after 1 week, while it took 2 weeks in Pattavia. At 10°C, electrolyte leakage increased from about 40% at the beginning in both pineapples to 65% in Tratseethong and 50% in Pattavia at the end of storage. Tratseethong was also found to have higher lipid peroxidation than that in Pattavia. From the beginning and throughout the experiment, Tratseethong had about 30% lower total free radicals scavenging capacity than Pattavia. Singlet and superoxide radical scavenging capacity in the two cultivars was similar, but Tratseethong had 40% higher hydroxyl radical scavenging capacity than Pattavia. Ascorbate peroxidase activity in both pineapples decreased during storage, but Tratseethong had lower enzyme activity than Pattavia throughout the experiment. The ratio between unsaturated and saturated fatty acid increased in both cultivars from about 1.6 at the beginning to more than 2 after one week of storage at both 10 and 25°C. The increase was due to the increase in linolenic and petroselenic acids, and the decrease in palmitic acid content. Polyphenol oxidase activity of Tratseethong, which showed more severe symptoms, increased 5 fold after one week of storage at 10°C and remained stable, while there was only a 2 folds increase in Pattavia. Peroxidase activity in Tratseethong pineapple increased 6 fold after one week and 8 fold after 2 weeks of storage, while there was only a 2 folds increase in Pattavia. The results suggested that the higher degree of susceptibility of Tratseethong pineapple to chilling injury is probably due to its weaker antioxidant system than that in Pattavia.