

Abstract:

Storage at temperatures below 8°C causes severe peel pitting of 'Fortune' mandarin fruit. Foliar spray of trees with fertilizers containing nitrogen, calcium and potassium 4 weeks before harvest reduced significantly the appearance of peel disorders after storage at 4 and 8°C. The severity of chilling injury increased by lowering temperature and prolonging storage duration. Preharvest spray of calcium nitrate and potassium nitrate improved the mineral content of fruit peel at harvest. Rind firmness and juice acid content were higher in treated fruit over the control. The effect of treatments on the other internal parameters such as rind thickness, juice content, TSS and TSS/A ratio, was not significant. Peroxidase activity increases continuously at 4°C over the period of storage and the highest activity was observed in non-treated fruit. By contrast at 8°C POD activity increased in the first phase followed by a sharp decline in the second phase. The responses support the correlation of chilling sensitivity of the tissue and the induction of antioxidant enzyme. The results were confirmed by ELISA test and polyacrylamide gel electrophoresis (SDS-PAGE).