

## **Effect of pre-harvest calcium chloride applications on fruit calcium level and post-harvest anthracnose disease of papaya**

### **ABSTRACT**

Anthracnose disease of papaya, caused by *Colletotrichum gloeosporioides* Penz, can cause extensive postharvest losses. The goal of this research was to use pre-harvest calcium applications to reduce anthracnose disease. Six pre-harvest foliar calcium sprays were applied biweekly to papaya trees in experimental orchards at Universiti Putra Malaysia. Additional in vitro and in vivo tests were carried out to test the effect of calcium on fruit calcium content, spore germination, mycelial growth and disease severity. Calcium chloride at 1%, 1.5% and 2.0% concentrations significantly decreased spore germination. Calcium content of papaya fruit was significantly increased by calcium sprays at a concentration of 2.0% in 2012 and 2013. In vivo studies showed that increasing calcium content in fruit by calcium sprays at 1.5 and 2.0% concentrations significantly reduced anthracnose incidence of fruits during five weeks storage at  $12 \pm 2$  °C, and delayed initiation of disease symptoms by four weeks.

**Keyword:** Papaya; Anthracnose; Calcium; Disease incidence; Disease severity