

Fruit fly disinfestations of star fruit (*Averrhoa carambola* L.) using vapor heat treatment (VHT)

R. Hasbullah, E. Rohaeti, R. Syarief

Acta Horticulturae 1011: 147-153. 2013.

Abstract

This study was carried out to find out (1) mortality of the oriental fruit flies due to heat treatment, and (2) the effect of vapor heat treatment (VHT) on star fruit quality during storage. Oriental fruit fly of *B. carrambola* in the egg stage obtained from rearing in laboratory, while star fruits were bought from farmer in West Java. Mortality test of the fruit flies' egg was done by submerging the eggs into hot water at several levels of temperature (40-49°C) and exposure time (5-30 min). The experiment of VHT on star fruit was carried out at the temperature of 46.5°C for 10, 20 and 30 min. After treatment, the fruits were stored at temperature of 5, 15 and 28°C (90% relative humidity). The fruit quality was examined during storage consisting of respiration rate, weight loss, moisture content, color change, hardness, total soluble solid (TSS) and vitamin C. The results showed that mortality of fruit fly *B. carambola* reached 100% at heating for 30 min with minimal temperature of 43°C; while 100% mortality at 46°C heating was reached at a period of minimal 15 min. The VHT treated-fruit was not significantly affected in the fruit physiology as shown in the respiration pattern during storage. There were no significant changes in the fruit weight loss, moisture content, hardness, color, total soluble solid and vitamin C. Heat treatment significantly reduced disease attack caused by anthracnose and stem end rot. The VHT at temperature of 46.5°C for 20-30 min were effective to kill fruit flies infested in the star fruit. In addition, the VHT treated fruit followed by cold storage at temperature of 5-15°C were able to maintain the fruit quality during storage.