

ABSTRACT

Optimizing Hot Water Treatments for the Control of Fruit Fly and Anthracnose and the Maintenance of Quality in Mango Cultivars Julie and Long

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Fruit fly and anthracnose affect mango fruit quality and limit the development of a viable mango industry in Dominica. Different hot water treatments at varying temperatures and durations have been used internationally to control fruit fly and anthracnose but for each cultivar, research is necessary to identify the exact treatment temperature and duration required to control both problems. Hence, research on hot water treatments was conducted to select a single treatment which would kill fruit fly larvae, and control anthracnose infection but which did not affect the quality of mango fruits.

A locally constructed hot water tank was used to treat fruits of cvs. Julie and Long at temperatures ranging between 45°C and 55°C for 5 to 65 minutes.

Fruits were evaluated for the presence of fruit fly and anthracnose and for effects on physiological and biochemical processes occurring during ripening.

Treatments of 48°C for 35 minutes and 46°C for 45 minutes were selected as optimal treatments for simultaneous control of fruit fly and anthracnose in cvs. Julie and Long fruits respectively. It is suggested that fruit fly control can be achieved at shorter treatment durations in cvs. Julie and Long.

Research and Development Institute (CARDI) for their advice and encouragement given during Anthracnose control was temperature dependent. The greatest reduction was at the higher temperatures for short durations. However, short treatment durations did not control fruit fly. Hot water treatment did not give complete anthracnose control.

Facilities at the Produce Chemist Laboratory were used. Dr. David Crucefix, CARDI Cv. Long fruits treated with hot water developed more lenticel spotting, lost more fresh weight and had less texture compared to untreated fruits. Cv. Julie fruits were unaffected. Reduced acid content and increased TSS/acidity ratio which indicated advanced ripening occurred in treated fruits of both cultivars.

Consumers were unable to tell the difference between the taste and aroma of treated and untreated fruits of both cultivars.