

**Title** Optimization of hot water treatment for domestic sea shipment of 'Sunrise' papaya fruits  
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**Citation** Abstracts of 7<sup>th</sup> International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.  
**Keywords** papaya; hot water treatment

### **Abstract**

'Sunrise' papaya fruits are widely grown in the southern part of the Philippines and shipped to Metro Manila for 3-5 days. While minimal fruit decay occurred upon arrival in Metro Manila, incidence and severity of decay increase as ripening progresses. The recommended hot water treatment (HWT) to reduce disease on papaya is 49-51°C for 10 minutes which according to papaya grower-shippers is time-consuming. Various time-temperature combinations were tested in this study and were conducted in South Cotabato to simulate actual shipment. The temperatures tested were 53,55 and 57°C and with dipping times of 1,3, and 5 minutes. The recommended HWT (50°C for 10 minutes) and delayed HWT (dHWT, 50°C for 10 minutes) were also done. High HWT temperature (57°C) and long dipping time (5 minutes) resulted in poor color development with fruits not attaining full yellow peel color after 9 days at ambient condition. However, the lowest incidence and severity of anthracnose among the different treatments done immediately after harvest was observed in fruits treated at 57°C for 5 minutes. Notable results were also observed in fruits treated at 53°C for 5 minutes with better peel color development and fair disease control. Delaying the application of hot water treatment resulted in the lowest disease incidence and severity. Sweetness rating of ripe papaya fruits was not affected by the different treatments but highest rating was observed from fruits treated at 57°C for 5 minutes with total soluble solids content of 11.5°Brix. Results of the present study are not yet conclusive and further trials are recommended.