

**Title** Reducing decay and chilling injury in stored lemons with hot water dip, curing and plastic film wrapping

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#### **Abstract**

In this study, the effect of post-harvest hot water dip (at 53°C for 3 and 6 min; at 48°C for 12, 24 and 48 min), curing (at 42°C for 24 h; at 48°C for 12 h) and plastic film wrapping on the chilling injury, decay and post-harvest quality of 'Kibris' lemons [*Citrus limon* (L.) Burm. f.] during six months storage at 8°C and 10°C and subsequent one week of simulated shelf-life at 20°C was investigated. The lemons were not degreened, waxed, or treated with any post-harvest fungicides before or after storage. Considerable control of chilling injury and decay occurred both during storage and simulated shelf-life with all hot water dip and curing treatments. Beneficial effects of plastic film wrapping were observed after curing at 48°C for 12 h on chilling injury and curing of fruit at 42°C for 24 h on decay. Weight loss, juice yield, total soluble solids and total soluble solids/acid ratio were higher in cured + plastic film wrapped fruit than hot water dipped + plastic film wrapped fruit, but titratable acid, ascorbic acid, peel color and overall qualities were different for hot water dip and curing treatments. No detrimental effects, on quality parameters of lemons, were observed after either hot water dip or curing. Overall, it was concluded that pre-storage short period hot water dip, curing and plastic film wrapping, used as an alternative treatment to chemical control of lemons, effectively induced tolerance to chilling injury without impairing any other quality attributes.