

Abstract

A series of experiments were conducted to examine the effects of chemical and heat treatments on weight loss, fruit decay and total soluble solid of “Marss” and “Common” orange cultivars during two years both in cold and ambient storage. Wax emulsion (50 and 75%), imazalil (750 and 1,000 mg/L), 2, 4-D isopropylester (1,000 and 1,500 mg/L) and their combinations were applied to the fruits. Treated fruits were stored in cold and ambient storage for 3 and 5 month, respectively. Results showed that, fruit weight loss in ambient storage was higher than cold storage. Treatments with wax emulsion containing imazalil or 2, 4-D, were effective on reduction of weight loss in both storage conditions. During 3 and 5 month storage period, the highest and the lowest weight loss was found in nontreated and fruits treated with 75% wax, respectively. Imazalil was more effective than 2, 4-D and significantly reduced percentage of decayed fruits during storage. Wax treated fruits had lower total soluble solid than nontreated in ambient storage. In two years, fruits of both cultivars were dipped in spore suspension of *Penicillium digitatum* (1,000 spores/ml) and treated with warm air (36°C) for 24 and 36 hours and with hot water (25, 40 and 55°C) for 2.5 and 5 minutes. Results showed that only warm air at 24 hr significantly reduced percentage of decayed fruits during storage.