Abstract

Low temperature (0-2.2°C) quarantine treatments are currently requited for Spanish citrus export shipments to markets such as the US or Japan to satisfactorily control the Mediterranean fruit fly *Ceratitis capitata* (Diptera: Tephrifidae). Quality of some cultivars, however, is adversely affected by such treatments because the fruit is sensitive to chilling injury. As a potential alternative treatment, we. exposed waxed and thiabendazole-treated Clemenules mandarins to X-irradiation at 0.2 and 0.4 kGy at the facilities of the company BGS in Bruchsal (Germany). External, internal and sensory quality of irradiated and control fruit were evaluated after 2 days at 20°C and after 12 days at 5°C plus an additional 7-day shelf life period at 20°C. At both evaluation dates, while rind color index and firmness were significantly lower on irradiated then on control fruit, maturity index was higher. However, the magnitude of these differences had no practical impact. Juice yield was not affected by the treatments. Although ethanol and acetaldehyde contents were significantly higher on treated than on control fruit, ethanol content on fruit irradiated at 0.4 kGy did not exceed 103 mg per 100 ml of juice. After cold storage, flavor of clementines irradiated at 0.4 kGy was rated slightly lower by semitrained panelists. After 2 days at 20°C, slight and moderate rind browning was noticed in fruit irradiated at 0.2 and 0.4 kGy, respectively. Surprisingly, the same fruit did not show such rind staining after cold storage. As e conclusion, fruit quality was not adversely affected by X-irradiation.