Title Effectiveness of fludioxonil in control storage decay on pomegranate fruit

Author S. D'Aquino, M. Schirra, A. Palma, A. Angioni, P. Cabras, A. Gentile and E. Tribulato

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Abstract

The efficacy of postharvest dip treatments with fludioxonil (FLU) of fruits of 'Primosole' pomegranate in decay control of artificially wounded fruits was investigated over 3 weeks of storage at 20°C, 90% relative humidity, while residual levels of FLU were detected at time 0 and after 2 weeks of storage. The incidence of decay in control fruits was approximately 60 and 100% after 1 and 2 weeks of storage, respectively. Hot water dipping for 3 min at 50°C resulted in about 45% reduction of decay after 1 week of storage with respect to untreated fruits, but after 2 weeks of storage 100% of fruits decayed. FLU treatments were very effective in controlling decay, caused by *Botrytis* spp. and *Penicillium* spp., during the first two weeks of storage, especially when applied at 150 mg/l at 50°C, but was less effective against heart rot, presumably caused by *Aspergillus niger* and *Alternaria* spp. Total residues were recovered from the skin of pomegranates, while the presence of FLU in the edible part was not detectable. Residue levels in fruit were affected either by FLU concentration and dip temperature. Following treatment, FLU applied at 20°C at the rate of 100 mg/l produced a residue of 0.25 mg/kg (active ingredient, whole fruit basis), this value increased respectively by 2.7 and 4.9 fold when FLU was applied at 300 or 600 mg/l. When FLU was applied at 25, 75 or 150 mg/l at 50°C residue levels were 0.22, 0.38 and 1.26 mg/kg. A reduction of about 30% of residues occurred after 2 weeks of storage only in fruit treated with 150 mg/l at 50°C or in those treated with 600 mg/l at 20°C of FLU, while little changes took place in the other treatments.