

Abstract

Although the use of bio-control organisms for postharvest disease control has been studied for some time, commercial success without simultaneous use of chemical fungicides has been limited. This has mainly been due to an inability of the control organisms to out-compete the pathogens. In this study a different approach has been taken. A systemic resistance inducing compound (ISR2000™) was applied before harvest, to boost anti-fungal compounds in the fruit (citrus) rind. Postharvest, registered bio-control products (a yeast in the case of Navel oranges, and a bacteria for 'Valencias') was applied. Fruits were inoculated with *Penicillium digitatum* and pathogen growth evaluated after 10 days at 20°C and also after 30 days storage for Valencias'. Results were evaluated against Imazalil. It was found that anti-fungal compounds in the rind were enhanced by application of ISR2000™. As a treatment on their own, both ISR2000™ and the bio-control agents suppressed pathogen development, but were not commercially acceptable. In combination, however, results statistically similar to Imazalil were obtained. The ISR2000™ required three weeks to induce the maximum systemic resistance, and concentration required was higher in Valencias' than navels'. It is concluded that the principle of enhancing endogenous anti-fungal compounds using a systemic resistance inducer such as ISR2000™ makes it possible for commercially acceptable bio-control using competitive inhibition organisms. Work on avocado and mango for latent infections is showing promise.