

Title Effect of allyl isothiocyanate on antioxidants and fruit decay of blueberries
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Abstract

The effect of allyl isothiocyanate (AITC) on radical scavenging capacity, and fruit decay of blueberries var. Duke (*Vaccinium corymbosum* L.) was evaluated. Results from this study showed that AITC was effective in retarding blueberry decay during storage at 10 °C. However, AITC-treated fruit decreased the contents of total phenolics and anthocyanins. Compared to control, AITC-treated berries had lower scavenging capacities against radicals of oxygen radical absorbance capacity (pyroxyl radical; ORAC), hydroxyl radical scavenging capacity (OH) and 2,2-di(4-tert-octylphenyl)-1-picrylhydrazyl (DPPH), but promoted the accumulation of hydrogen peroxide (H₂O₂) radicals. The free radical scavenging properties of blueberry fruit with or without AITC treatment were also evaluated by electron spin resonance (ESR). Results of the ESR measurements confirmed that free radical scavenging capacities against OH, DPPH and were lower in treated fruit than in control un-treated fruit. The results from this study indicate that AITC does not promote antioxidant property or scavenging of constitutive reactive oxygen species (ROS), but paradoxically generates additional amounts of ROS to inhibit the growth and proliferation of microbial cells, thereby reducing decay in fruit tissue.