

Title Effect of boron on the development of brown rot (*Monilinia laxa*) on peaches
Author T. Thomidis and E. Exadaktylou
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Abstract

Requirements of consumers for products with low residues of pesticides have increased the need for alternative disease management practices. The concentration of boron in fruit affects its quality, shelf life and the development of physiological disorders. However, the effect of boron on the susceptibility of peach to fruit rots has not been reported. This study investigated the effect of boron (Power B and Borax) on the development of *Monilinia laxa* on peaches (cv Andross). Mycelial growth of *M. laxa* was inhibited on potato dextrose agar supplemented with 750 $\mu\text{g ml}^{-1}$ of Borax or 1000 $\mu\text{g ml}^{-1}$ of Power B. The EC 50 values were 107.9 and 522.4 for Borax and Power B respectively. Field investigations showed that the incidence of peach infections by *M. laxa* was negatively correlated with the content of Boron in the leaves. Post-harvest dipping of peaches in Power B or Borax solution, at concentrations recommended by manufacturer (2 $\mu\text{g ml}^{-1}$ for Power B and 1 mg ml^{-1} for Borax), significantly reduced the development of *M. laxa*. Power B, at rates of 6 $\mu\text{g ml}^{-1}$, and Borax at rates of 3 mg ml^{-1} were the most effective in reducing infections by *M. laxa*. Finally, post-harvest dipping of fruit in Power B or Borax reduced losses of fruit weight and improved fruit firmness one month after storage, showing that boron increased the maintainability of peaches in cold storage. Peaches treated with 6 $\mu\text{g ml}^{-1}$ Power B or 3 mg ml^{-1} Borax had the highest flesh firmness and the lowest water losses, while untreated control peaches were the least firm. Generally, Borax was significantly less effective than Power B, but better than the control treatment.