

# Postharvest use of natamycin to control *Alternaria* rot on blueberry fruit caused by *Alternaria alternata* and *A. arborescens*

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Postharvest Biology and Technology, Volume 172, February 2021, 111383

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## Abstract

*Alternaria* rot caused by *Alternaria alternata* and *A. arborescens* is a major postharvest disease affecting blueberries in California. The effectiveness of natamycin, a newly registered biofungicide in the United States, was evaluated for its potential as a postharvest treatment to control *Alternaria* rot. The baseline sensitivities to natamycin in *A. alternata* and *A. arborescens* were established. The effective concentrations of natamycin for 50 % reduction in growth relative to control ( $EC_{50}$ ) of 34 *A. alternata* isolates ranged from 0.640 to 1.032 mg L<sup>-1</sup> with a mean of  $0.778 \pm 0.097$  mg L<sup>-1</sup> for conidial germination, and from 2.660 to 4.330 mg L<sup>-1</sup> with a mean of  $3.390 \pm 0.435$  mg L<sup>-1</sup> for mycelial growth.  $EC_{50}$  values of natamycin for 34 *A. arborescens* isolates ranged from 0.540 to 1.335 mg L<sup>-1</sup> with a mean of  $0.950 \pm 0.162$  mg L<sup>-1</sup> for conidial germination, and from 0.610 to 3.430 mg L<sup>-1</sup> with a mean of  $1.920 \pm 0.637$  mg L<sup>-1</sup> for mycelial growth. For *A. alternata* isolates, the minimum inhibitory concentrations (MICs) for conidial germination were 5 mg L<sup>-1</sup> for 27 isolates and 10 mg L<sup>-1</sup> for 7 isolates, and the MICs for mycelial growth were 25 mg L<sup>-1</sup> for all 34 isolates. For *A. arborescens* isolates, the MICs for conidial germination were 10 mg L<sup>-1</sup> for 5 isolates and more than 10 mg L<sup>-1</sup> for 29 isolates, and the MICs for mycelial growth were 10 mg L<sup>-1</sup> for 6 isolates and 25 mg L<sup>-1</sup> for 28 isolates. Control tests on blueberry fruit inoculated with four isolates of each *Alternaria alternata* and *A. arborescens* showed that even a quarter concentration of the label rate of natamycin significantly reduced disease incidence and severity of *Alternaria* rot, regardless of application method or incubation condition. Our results suggest that natamycin can be an effective tool for control of postharvest *Alternaria* rot in blueberry.