

Use of resistance inducers to control storage decay of sweet cherry

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Abstract

Postharvest decay can cause severe losses of sweet cherry in storage, and the use of synthetic fungicides is not allowed after harvest on this crop. Therefore, the effectiveness of alternative means for the control of postharvest decay of sweet cherry was tested in vitro and in vivo. When amended to potato dextrose agar, oligosaccharides, benzothiadiazole, chitosan, calcium plus organic acids (COA), and nettle macerate reduced the growth of *Monilinia laxa*, *Botrytis cinerea* and *Rhizopus stolonifer*. Treatments of sweet cherries three days before harvest or soon after harvest with oligosaccharides, benzothiadiazole, chitosan, COA, nettle extract, fir extract, laminarin, or potassium bicarbonate reduced brown rot, gray mold, Rhizopus rot, Alternaria rot, blue mold, and green rot of cherries kept 10 d at 20±1°C, or 14 d at 0.5±1°C and then exposed to 7 d of shelf life at 20±1°C. Among these resistance inducers, when applied either preharvest or postharvest, chitosan was one of the most effective in reducing storage decay of sweet cherry, and its antimicrobial activity in vitro and in field trials was comparable to that of the fungicide fenhexamid. Benzothiadiazole was more effective when applied postharvest than with preharvest spraying. These resistance inducers could represent good options for organic growers and food companies, or they can complement the use of synthetic fungicides in an integrated disease management strategy.