Abstract

The yeast *Metschnikowia fructicola*, ethanol, and sodium bicarbonate (SBC), alone or in combinations, were applied to table grapes on vines 24 h before harvest to control the incidence of postharvest diseases. In four experiments, all significantly reduced the total number of decayed berries caused by *Botrytis cinerea*, *Alternaria* spp., or *Aspergillus niger* after storage for 30 days at 1° C followed by 2 days at 20°C. In three experiments, a mean gray mold incidence (caused by *B. cinerea*) of 34.2 infected berries per kilogram among untreated grape was reduced by *Metschnikowia fructicola* at 2 × 107 CFU/ml, ethanol at 50% (vol/vol), or SBC at 2% (wt/vol) to 12.9, 8.1, or 10.6 infected berries per kilogram, respectively. Ethanol, SBC, and SO2 generator pads were similarly effective. *M. fructicola* effectiveness was not improved when combined with ethanol or SBC treatments. Ethanol and yeast treatments did not harm the appearance of the grapes. *M. fructicola* and SBC left noticeable residues, and SBC caused some visible phytotoxicity to the rachis and berries. Ethanol applied at 50% (vol/vol) reduced epiphytic fungal and bacterial populations by about 50% compared with controls. *M. fructicola* populations persisted on berries during storage when applied alone or after ethanol treatments, whereas SBC reduced its population significantly.