

Title Butyl acetate and yeasts interact in adhesion and germination of *Botrytis cinerea* conidia in vitro and in fungal decay of golden delicious apple

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Abstract

Butyl acetate is a volatile aroma and flavor compound in apple. Conidia of three strains of *Botrytis cinerea*, a fungus that causes decay of apple fruit in postharvest storage, had greater adhesion to and greater germination on polycarbonate membrane filters on water inside sealed 500 cc glass jars that were injected with 4 ml butyl acetate than conidia not so exposed. Conidial germination was highly correlated with conidial adhesion. The yeasts *Sporobolomyces roseus* and *Cryptococcus laurentii*, but not *Saccharomyces cerevisiae*, reduced the adhesion and germination promoting effect of butyl acetate. Conidia did not readily utilize butyl acetate as a food source, as shown by lack of tetrazolium violet reduction, whereas *S. roseus* and *C. laurentii*, but not *S. cerevisiae* did. Butyl acetate added to suspensions of conidia increased the electrical conductivity of the suspensions and increased the loss of ^{14}C from ^{14}C -labeled conidia compared to conidia unexposed to butyl acetate. Uptake of [^{14}C] glucose by conidia was not increased by butyl acetate. Wounds of Golden Delicious apples inoculated with conidia (strain F-J-4) in a dilute solution of butyl acetate had greater decay than unexposed wounds. *S. roseus* and *C. laurentii*, but not *S. cerevisiae*, added with the conidia decreased the incidence or size of decay. Results indicated that butyl acetate increased conidial adhesion, stimulating conidial germination, and some yeasts can reduce this effect.