

Title Strategies for the use and enhancement of biological control of postharvest fruit decays
Author W.J. Janisiewicz
Citation ISHS Acta Horticulturae 864:241-247. 2010.
Keyword postharvest diseases; biocontrol; cold storage

Abstract

Biological control of postharvest decays (BCPD) has been used commercially on pome and citrus fruits since 1996 in the United States, and its use were later expanded to include cherries and seed potatoes. The spectrum of activity of these biocontrol products differs with respect to fruit type and maturity, stage of pathogen infection, and specific pathogen causing decay, and is not as broad as fungicides. Thus, commercial use of BCPD has been targeted for certain commodities and may even be limited to certain postharvest applications within a commodity. Unlike fungicides, currently registered biocontrol products are exempt from residue tolerance by the U.S. Environmental Protection Agency and can be used well into storage even to the point of packing fruit for shipment. Recent research has focused on improving biocontrol itself and/or combining BCPD with other alternative methods to synthetic fungicides. The efficacy of BCPD has been improved by developing antagonist mixtures, and manipulation of growth and formulations of antagonists. Manipulation of biocontrol mechanisms have not yet resulted in improved biocontrol. The potential of foreign antimicrobial genes introduced into antagonists is also being explored. Greater efficacy and broader spectrum of postharvest decay control on fruit was achieved by combining BCPD with heat treatment, GRAS substances, lytic enzymes, or the induction of resistance in fruit by physical or chemical means.