

Title Use of resistance inducers for the control of postharvest decay of strawberry
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Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey.
256 pages.
Keyword Strawberry; gray mold; postharvest diseases

Abstract

Strawberry (*Fragaria ananassa* Duch.) is a perishable fruit, mainly after the harvest, because it is susceptible to mechanical injury, desiccation, decay and physiological disorders. Gray mold, caused by *Botrytis cinerea* Pers., and Rhizopus rot, which is induced by *Rhizopus stolonifer* (Ehrenb.) Vuill. are the most important postharvest diseases of strawberries (1). Both diseases can induce severe losses of fruit both in the field and during long-distance transport and storage. *B. cinerea* is an eurithermic pathogen, which can develop at 0°C, while *R. stolonifer* requires at least 4-5°C. They are very dangerous after cold storage, during shelf life at room temperature, they can cause nesting, as spreading from a single infected berries to the other close fruit. Request from consumers for fruit free of chemical preservatives and the appearance of fungal isolates that are resistant to fungicides, together with the lack of registered compounds that are allowed for use on harvested strawberries have stimulated the search for safer alternatives. These have included the application of resistance inducers. The use of natural biopolymers as chitosan is known to control postharvest diseases of strawberry (2). This biopolymer can form a film on the surface of treated fruit and increase plant resistance triggering the activity of enzymes (e.g. phenylalanine ammonia-lyase - PAL, chitinase, β -1,3 glucanase) involved in the disease response (2,4). It has been effective both when applied after the harvest and with application in the field (3,4). Such treatments are effective in the control of gray mold and Rhizopus rot during storage. In preharvest application, the best results have been obtained by treatments at full bloom and whitening fruit (4). Moreover, several other commercial and experimental resistance inducers have been effective in the control of gray mold and Rhizopus rot, included a chitosan formulation easy to dissolve in water. The application of these treatments represents a very interesting approach for conventional agriculture, and one of the few possibilities that are permitted for the management of postharvest decay of organic strawberries.