Abstract:

The most common and serious disease which occurs in Italy during storage and marketing of citrus fruit is green mold incited by Penicillium digitatum Sacc. Current decay control procedures have always relied on the application of synthetic chemical fungicides. The use of chemical fungicides for postharvest disease control is under close scrutiny due to growing consumer concern about pesticide residues along with the development of pathogen resistance to approved pesticides. Therefore there is an emerging interest to develop alternative non-chemical means of decay control. This paper addresses an overview on the effectiveness of some of the novel approaches emerging as possible alternatives to synthetic fungicides with special emphasis on our Institute's findings. The enhancement of host defense mechanisms at the wound site, holding fruit at temperatures and humidity conducive to wound healing and detrimental to the pathogen development (curing), the potential of biocontrol yeast Candida oleophila, the utilization of heated solution of free-residue compounds (soda ash, ethanol) alone or as part of an integrated pest management (IPM) system, and hot water treatments (hot water dipping and short hot water brushing) has been evaluated on lemon and orange fruits holding incipient (24 hours) P. digitatum infections. All treatments were evaluated for peel injuries and quality parameters. Although alternative treatments decrease the incidence of green mold decay they, in some instances, do not provide control of previously established infections to an extent similar to synthetic fungicides and do not offer adequate residual protection on their own, so they would be best used in combination with a treatment that can act on existing infections and improve residual protection.