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Alternative means for controlling pomegranate postharvest decay

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Abstract

Pomegranate (*Punica granatum* L.) cultivation in southern Italy is gaining increasing interest due to favorable environmental conditions and the beneficial effects on human health. Both, in the field and postharvest product losses, especially in organic fruit production, represent the chief concern for this high-priced chain. Main postharvest pomegranate diseases are caused by latent pathogens that infect pomegranates during blooming stage (*Coniella granati*, *Alternaria* spp., *Botrytis* spp.), and secondarily by wound pathogens (*Penicillium* spp. and *Aspergillus* spp.) affecting fruit during processing from harvest until storage. The aim of this research was to test alternative control means and strategies suitable in organic pomegranate orchards, able to control postharvest decays reducing yield losses, and easily endorsed by the farmers. To control diseases caused by the above-mentioned fungal pathogens, the effectiveness of three alternative control means, already marketed, was evaluated on pomegranates cv Wonderful. Particularly, the effectiveness of a red seaweeds extract, a plant protein hydrolysate, and a chitosan solution were compared with fludioxonil+cyprodinil (chemical control) and water (not treated control). Three different methods of administration were tested: in the field spraying, postharvest dipping, and the combined treatments. After 4-months of cold-storage, incidence of stamina infections, and external and inner decays were assessed. Overall, results disclosed preharvest application of red algae extract as the most effective treatment in reducing both incidence and severity of postharvest decays. Inner decay incidence was significantly reduced by plant protein hydrolysate. Further in the field trials are in progress to confirm the results obtained.

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Keywords: Pomegranate, postharvest diseases, *Coniella granati*, *Alternaria* spp., *Botrytis* spp., control, seaweeds extract, plant protein hydrolysate, chitosan