

**Title** Control of green mold of stored oranges by phenolic compounds  
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### **Abstract**

Since stored citrus fruit are very sensitive to the development of green mould caused by *Penicillium digitatum* (Pers.: Fr.) Sacc. The application of fungicides is worldwide diffused to reduce losses. However, fungicides are facing some obstacles: i) increasing public concern regarding contamination of perishables with fungicidal residues, ii) development of resistant strains in the pathogen population, and iii) disposal of exhausted water. The present study deals with the potential control of green mold of oranges by postharvest application of phenolic compounds. Quercetin, scopoletin and scoparone, found in several agricultural commodities and associated with stress response, were evaluated for their ability to control green mould incidence and severity when exogenously applied on oranges cv Navelina. Twenty µg/µl of phenolics solutions were applied per each wound. Oranges were lately wound-inoculated with *P. digitatum* ( $5 \times 10^4$  conidia/ml) and stored at  $16 \pm 1^\circ\text{C}$  for 14 days. Disease incidence and severity were evaluated at two days intervals. On phenolic-treated oranges symptom appearance was delayed and after 10 days of incubation, quercetin, scopoletin and scoparone reduced incidence of decay and disease severity by 40-60% and 60-70%, respectively, as compared to the control, being scoparone the most active. On the basis of the available results, these compounds might represent an interesting alternative to synthetic fungicides. Small and large scale trials are needed to validate the results and to elucidate their possible mode of action.