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BOOK OF ABSTRACTS

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EVALUATION OF CHITOSAN ALONE OR MIXED WITH SODIUM METABISULFITE IN CONTROLLING POSTHARVEST FRUIT DECAY

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Text

Fruit decay during postharvest storage is a critical issue that have required efficient biological treatments to reduce waste. In this study, fruit of apple (var. Golden) and of citrus (vars. Maltaise, Thompson and Clementine) were separately inoculated with each of the fungal species Botrytis cinerea, Penicillium italicum and Penicillium digitatum. Results showed that 'Thompson' and to a lesser extend 'Maltaise' were the most sensitive to rots of Penicillium digitatum and Botrytis cinerea. Apple fruit were the least susceptible mainly to Penicillium digitatum. The least pathogenic fungal species was Penicillium italicum whatever the kind of fruit. To reduce decay incidence, aqueous solution of Chitosan (chitoplant at 1%), sodium metabisulfite (at 0.5%) and mixture of both compounds (1% and 0.5% respectively) were applied on 'Maltaise' and 'Golden' inoculated respectively with Penicillium digitatum and Botrytis cinerea. Fruit were disinfected, injured and inoculated with the target pathogen. After 2 h incubation, fruit were dipped for 1 min in the solution already prepared and incubated at room temperature. Results showed that chitosane was slightly effective compared to sodium metabisulfite in decreasing fruit rot diameter. Mixture of both compounds showed a depressive effect compared to each single product.
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P3.3-022

POSTHARVEST FUNGAL DISEASES OF POMEGRANATES IN SOUTHERN ITALY

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Text

High-value trade and favorable climate have encouraged pomegranate cultivation and processing in Italy, where Akko and Wonderful are the most widespread cultivars. In this agro-industrial chain, fungal pathogens are chiefly responsible for product losses. Most of the infections happen in the field during blooming, remaining latent till storage and sale; important losses can be caused also by pathogens getting entrance during harvest and postharvest due to wounds created by "wound" fungi, pests, and abiotic damages. Being a minor crop, conventional and alternative fungicides are scarce, making control of fungal pathogens very difficult. To reduce disease incidence, description of mold symptoms and characterization of fungal etiological agents represent a key-step. Disease incidence of fungal species from symptomatic fruit was assessed according to morphological and molecular features. Main fungal diseases were gray mold, blue mold, black heart, black spot, anthracnose, and dry rot. Results showed latent pathogens as the main cause of rots, being

the most abundant *Alternaria alternata*, *Coniella granati*, and *Botrytis cinerea*. Furthermore, among wound pathogens different species within *Penicillium* and *Talaromyces* genera were recorded. Other genera involved in minor postharvest diseases were *Aspergillus*, *Colletotrichum*, and *Cytospora*. To develop effective control strategies, knowledge of pomegranate fungal pathogens is needed facilitating decision systems to play a leading role.

P3.3-023

EXPLORING THE POTENTIAL OF NATURAL AND SYNTHETIC PHOTOSENSITIZING COMPOUNDS FOR ECO-FRIENDLY MANAGEMENT OF GRAY MOLD IN STRAWBERRIES

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Text

Gray mold is a major menace in fruit crops including cultivable strawberries, caused by cryptic species of fungal pathogen *Botrytis*. Quiescent infection during flowering and fruit ripening resulting in postharvest losses. Persisting usage of fungicides in management of this disease possesses threat to the environment. Photodynamic inactivation of fungi using certain light-absorbing compounds could be an alternative approach. Photosensitizer candidates ranging from compounds of plant origin, food-grade additives, and commercial dyes were screened. These compounds were initially categorized based on its absorption spectra ranging from 250-800 nm wavelengths. The mixture of conidia-photosensitizer candidates was then irradiated with light wavelengths ranges between UV-B (8 µmol/m2/s for 10min) to green, blue, and red (≈120 µmol/m2/s for 30min). Treated samples were inoculated on the surface of potato dextrose agar media and incubated with 18h photoperiod to observe the colony growth, morphology, and intensity over a period of 4 days. Similar experiment was repeated with successful candidates, and germination assays were carried out 6h post-treatment followed by ROS measurement and radical scavenging assays. Preliminary results showed that curcumin, new methylene blue and rose bengal dyes has strong photosensitizing ability in suppressing *B. cinerea* under *in vitro* conditions with blue, red, and green light respectively. The outcomes will be validated further by *in planta* studies.

P3.3-024

EFFICACY OF BIOFUMIGATION WITH ESSENTIAL OILS IN THE CONTROL OF POSTHARVEST ROTS OF NECTARINES

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