12th INTERNATIONAL CONGRESS OF PLANT PATHOLOGY

ICPP 2023

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LYON

20-25 August, France

BOOK OF ABSTRACTS

ISPP INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

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The International Society for Plant Pathology & the French Phytopathological Society

the chemical control treatment, making the antagonist as competitive as fungicides. All strains maintained a significative rot reduction at the end of shelf-life. The evaluation of postharvest quality parameters, including firmness, total soluble solids and titratable acidity showed that none of the three tested yeasts affected nectarine quality. A metabarcoding analysis was conducted to evaluate the effect of the treatments on the microbial population of the nectarines. Results proved that treatments with antagonistic yeasts represents a promising tool for reducing postharvest losses preserving the fruit quality.

C3.3-3

POSTHARVEST DECAY MANAGEMENT OF CITRUS IN THE UNITED STATES WITH CYPROCONAZOLE AND NATAMYCIN, NEW HIGHLY EFFECTIVE CONVENTIONAL AND ORGANIC FUNGICIDES, RESPECTIVELY

ADASKAVEG James. (1), FORSTER Helga. (1), NGUYEN Albert. (1)

(1) University of California, Riverside, Riverside, UNITED STATES

Text

Citrus postharvest decay management is challenging because Penicillium spp., the main postharvest pathogens, are at high risk for fungicide resistance development, few fungicides are effective against sour rot caused by Geotrichum citri-aurantii, and the crop is very susceptible to decay development. The demethylation inhibitor (DMI) cyproconazole was found to have incomplete cross resistance to the DMIs imazalil and propiconazole that are currently registered on citrus in the United States. It was significantly more effective than propiconazole in managing sour rot and more efficacious than imazalil in managing green mold caused by imazalil-resistant isolates of P. digitatum. Mixtures of cyproconazole and propiconazole at half rates were also effective against sour rot and more effective than imazalil to manage imazalil-resistant isolates. Registration of cyproconazole is pending. Packinghouse applications with the polyene natamycin reduced the incidence of sour rot and Penicillium decays to low levels, but for highest decay control, it will be best used in combination with other modes of action. Because the risk for resistance development against natamycin is considered low, its use in mixtures represents an effective anti-resistance measure. With the next-generation DMI cyproconazole and with several formulations of natamycin approved as organic treatments in the United States, a new era in postharvest decay management of citrus is on the horizon.

C3.3-4

REDUCING BROWN ROT AND MAINTAINING PLUM QUALITY DURING COLD STORAGE WITH COMPOSITE EDIBLE COATINGS CONTAINING AVOCADO SEED EXTRACT

LIMA DE SOUZA Ricardo. (1), ASGARIAN Zahra Sadat. (2), PÉREZ-GAGO Maria Bernardita . (1), PALOU Lluís. (1)

(1) Laboratori de Patologia, Centre de Tecnologia Postcollita (CTP), Institut Valencià d´Investigacions Agràries (IVIA), Montcada, SPAIN; (2) Grapevine Production and Genetic

Improvement Department, Iranian Grape and Raisin Institute, Malayer University, Malayer, IRAN (ISLAMIC REPUBLIC OF)

Text

Reduction of brown rot, caused by *Monilinia fructicola*, is a major challenge in the postharvest storage of fresh Japanese plums (*Prunus salicina* Lindl.), which are highly perishable. The use of plant extracts with antifungal properties could be a sustainable natural alternative to polluting chemical fungicides for brown rot control. An extract obtained from avocado seeds (AVS) was found to completely inhibit the in vitro fungal growth of *M. fructicola*. This extract was then incorporated into composite edible coating matrixes based on hydroxypropyl methylcellulose (HPMC) or Arabic gum (AG) as hydrocolloids and beeswax as lipid. Coated fruits were stored for 5 weeks at 1 °C, followed by 3 days at 7 °C and 5 days of shelf life at 20 °C, simulating cold storage, transportation, and shelf life, respectively. After cold storage, the HPMC-AVS and AG-AVS coatings reduced disease incidence by 30% with respect to uncoated control fruit and disease severity by 50 and 62%, respectively. After shelf life, AG-AVS significantly reduced disease incidence and severity by 13 and 42%, respectively. The coatings also reduced the fruit respiration rate, preserved fruit firmness and alleviated chilling injury symptoms. Additionally, the coatings had no impact on the fruit physicochemical and sensory quality, and AG-AVS improved fruit gloss. These findings show the potential of composite edible coatings incorporating AVS extract to reduce brown rot and preserve plum postharvest quality.

C3.3-5

MANAGEMENT OF BROWN ROT INFECTIONS ON STONE FRUIT USING EPIDEMIOLOGICAL KNOWLEDGE

TORRES Rosario. (1), CASALS Carla. (1), USALL Josep. (1), SEGARRA Joan. (2), DE CAL Antonieta. (3), TEIXIDÓ Neus. (1)

(1) IRTA, Lleida, SPAIN; (2) UdL, Lleida, SPAIN; (3) INIA-CSIC, Madrid, SPAIN

Text

Monilinia spp. is the main pathogen that affects stone fruit causing significant production losses, especially in seasons with favourable climatic conditions for disease development. In the last years, our research has been focused on epidemiological studies of Monilinia spp. in the ‘Valle del Ebro’ (Spain). The epidemiology of this pathogen has been deeply investigated in both under field and postharvest conditions. Studies conducted in the field provided the knowledge to develop a prediction model that define the brown rot epidemic pattern in this area. Likewise, the epidemiology in the packinghouse has shown the importance of the main postharvest handling operations and the influence of temperature and RH on conidia survival to develop the disease. Currently, the standard practices for controlling this disease are conducted by means of spray programs of synthetic fungicides in the field. From the epidemiological model, a practical warning system for fungicide applications in the field has been developed that includes parameters such as: i) fruit susceptibility, ii) the presence of inoculum in the field, and iii) climatological factors. This warning system has been validated for six seasons conducting a total of 38 trials on peach and nectarine crops in the ‘Valle del Ebro’. Our results suggest that the use of the proposed warning system will be an effective tool to control Monilinia spp. in stone fruit and allow a reduction of chemical treatments applied in the field.