12th INTERNATIONAL CONGRESS OF PLANT PATHOLOGY

ICPP 2023

ONE HEALTH
for all plants, crops and trees

LYON

20-25 August, France

BOOK OF ABSTRACTS

ISPP INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

www.icpp2023.org

SFP Société Française de Phytopathologie

The International Society for Plant Pathology & the French Phytopathological Society

CHITOSAN AND OTHER EDIBLE COATINGS TO EXTEND SHELF LIFE, MANAGE POSTHARVEST DECAY, AND REDUCE LOSS AND WASTE OF FRESH FRUITS AND VEGETABLES

ROMANAZZI Gianfranco. (1), MOUMNI Marwa. (1)

(1) Marche Polytechnic University, Ancona, ITALY

Text
Fresh fruits and vegetables contain high percentage of water and continue metabolic activity after being harvested, resulting in ripening, increased sensitivity to decay-causing fungi, and consequent loss and waste. Edible coatings are prepared from naturally occurring renewable sources and can contribute to reducing waste, respecting environment, and consumer health. Chitosan and other edible coatings (such as shellac, carboxymethyl cellulose, hydroxypropyl methylcellulose, bee wax, and glycerol) form a thin layer surrounding fresh produce that acts as a protective agent, extending shelf life, and have the potential to control their ripening process and maintain nutritional properties of the coated product. Chitosan and other edible coatings can have antimicrobial, film-forming and eliciting activities, that additively or synergistically prevent fungal decay, keep the quality, and reduce fresh product waste.

This work was conducted within the framework of the PRIMA StopMedWaste Project

P3.3-030

ANTIFUNGAL ACTIVITY OF NATURAL EXTRACTS AND ESSENTIAL OILS AGAINST MONILINIA FRUCTICOLA IN VITRO AND AS INGREDIENTS OF PECTIN-BASED EDIBLE COATINGS FOR POSTHARVEST PRESERVATION OF COLD-STORED NECTARINES

QUINTANILLA VÁZQUEZ Paloma. (1,2), **SETTIER RAMÍREZ Laura. (1)**, ÁLVAREZ Victoria. (3), TABERNER ROSELLO Verónica. (1), PALOU VALL Lluís. (1), PÉREZ GAGO María Bernardita. (1)

(1) Centre de Tecnologia Postcollita (CTP), Institut Valencià d´Investigacions Agràries (IVIA), Valencia, SPAIN; (2) Vicerectorat d'Investigació, Universitat Politècnica de València (UPV), Valencia, SPAIN; (3) Grupo Investigación en Ingeniería en Alimentos, Facultad de Ingeniería, Universidad Nacional de Mar del Plata, Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Mar Del Plata, ARGENTINA

Text
The in vitro antifungal activity of different natural extracts and essential oils against Monilinia fructicola, the causal agent of brown rot of stone fruits, was evaluated as mycelial growth reduction on amended PDA plates. The most effective agents [lemongrass (LG), geraniol (GE), and Commiphora myrrha (MY)] were selected as antifungal ingredients of composite edible coatings (ECs) formulated with citrus pectin and beeswax. ECs were applied in in vivo curative experiments to 'Lucibella' nectarines artificially inoculated about 24 h before with M. fructicola. The EC with 0.2% GE was the most effective, with disease incidence reductions of 80 and 55% after 3 and 4 weeks of storage at 1 °C and 90% RH, respectively. Furthermore, this GE-EC reduced brown rot severity by up to 93% after 3 weeks. The LG-EC (0.4%) also reduced disease severity by 77% after 3 weeks. Regarding fruit quality, all tested ECs

significantly reduced fruit weight loss and maintained higher firmness than control nectarines after 4 weeks at 1 °C plus 3 days at 20 °C, without adversely affecting the fruit physicochemical (titratable acidity, soluble solids content, and volatiles content) and sensory (overall flavor, off-flavors, firmness, and external aspect) quality. Moreover, the MY-EC provided higher gloss than the rest of ECs. These results can contribute to the development of new safe and eco-friendly commercial antifungal ECs to control major diseases and preserve postharvest quality of stone fruits.

P3.3-031

MANAGEMENT OF GUAVA ANTHRACNOSE THROUGH SYNTHETIC FUNGICIDES AND MEDICINAL PLANT EXTRACTS

TAHIR Muhammad Faran. (1), RAJPUT Nasir Ahmed. (1), ATIQ Muhammad. (1), KACHELO Ghalib Ayaz. (1), WAHAB Muhammad. (1), NAWAZ Ahmad. (1), SHAHEEN Hafiz Muhammad Usama. (1)

(1) University of Agriculture, Faisalabad, Faisalabad, PAKISTAN

Text

Guava (Psidium guajava) is a tropical fruit that is widely cultivated in many parts of the world, particularly in India, Brazil, Mexico, and Southeast Asia. It is rich source of nutrients with various health benefits. Guava is susceptible to range of pathogen that can affect its growth, yield and quality. One of the most common and devastating diseases of guava is anthracnose cause by colletotrichum gloeosporioides. The goal of the current research was to check the efficacy of synthetic fungicides and medicinal plants extract against Guava anthracnose. For this purpose five synthetic fungicides (Chlorothalonil, Mancozeb, Thiophanate-methyl, Azoxystrobin and Difenoconazole) at three concentrations (100, 200, 300 ppm) and five medicinal plants extract (Ocimum sanctum, Datura stramonium, Curcuma longa L, Piper nigrum and Azadirachta indica) at 5, 10, 15% concentrations were evaluated under in vitro conditions using poisoned food technique. Results revealed that among synthetic fungicides difenoconazole was found highly effective with least mycelial growth (8.75mm) followed by Mancozeb, Azoxystrobin, Thiophanate-methyl and Chlorothalonil, while among medicinal plants maximum growth inhibition was recorded by Piper nigrum (13.45mm) at highest 15% concentration followed by Curcuma longa L, Azadirachta indica, Datura stramonium, Ocimum sanctum. The findings of our study suggested that botanical extracts and fungicides could be efficiently used against anthracnose of guava.

P3.3-032

INNOVATIVE SUSTAINABLE TECHNOLOGIES TO EXTEND THE SHELF LIFE OF PERISHABLE MEDITERRANEAN FRESH FRUIT, VEGETABLES, AND AROMATIC PLANTS AND TO REDUCE WASTE: THE EXPERIENCE OF PRIMA STOPMEDWASTE PROJECT

ROMANAZZI Gianfranco. (1), TZORTZAKIS Nikolaos. (2), IPPOLITO Antonio. (3), ALLAGUI Mohamed Bechir. (4), SPADARO Davide. (5), KINAY TEKSUR Pervin . (6), PÉREZ-GAGO María Bernardita. (7), KILIC Mahmut. (8), MONTESINOS Clara . (9), XYLIA Panayiota. (2), MINCUZZI Anna Maria . (3), GARELLO Marco. (5), REMOLIF Giulia. (5),