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BOOK OF ABSTRACTS

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P3.3-005

IN VITRO INHIBITION OF FUNGI CAUSING POSTHARVEST GRAY AND BLUE MOLDS ON FRESH HORTICULTURAL PRODUCE BY AGRICULTURAL BY-PRODUCT EXTRACTS

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Text

Botrytis cinerea (BC) and *Penicillium expansum* (PE), the causal agents of gray and blue molds on several fresh fruits and vegetables, are among the most important postharvest pathogens worldwide. Agricultural by-products can be rich in bioactive compounds, many with antifungal properties. They could be a sustainable alternative to chemical pesticides used to control postharvest fungal diseases. The extraction of value-added compounds from agricultural by-products contributes to circular economy and the EU Green Deal as well. Almond skin (AMS) and avocado seed (AVS) extracts were obtained using ultrasound-assisted extraction and their total phenolic content and total antioxidant capacity were determined. The capacity of extracts to inhibit BC and PE was investigated using a microtiter assay. AVS showed the highest inhibition capacity, with 99% inhibition of both BC and PE, while AMS inhibited BC and PE by 65 and 99%, respectively. The results suggest that the presence of phenols and antioxidants in the extracts may be responsible for the antifungal activity and that these by-product extracts have potential as novel eco-friendly antifungal agents for the management of postharvest diseases. Further in vivo studies are needed to validate these findings.

P3.3-006

GROWTH INHIBITION OF COLLETOTRICHUM MUSAE USING PLANT ESSENTIAL OILS ENCAPSULATED IN METAL ORGANIC FRAMEWORKS NANOPOROUS MATERIALS

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Text

Being highly perishable, ‘Cavendish’ banana fruits are affected by economically important postharvest diseases, like crown rot and anthracnose, which are caused by *Colletotrichum musae*. Fungicide treatment is considered as an effective management strategy however, its repeated applications pose risk to consumers’ health, environment, and even fungal population. The use of plant essential oils (EOs), like thymol and limonene, are extensively studied as an alternative control method due to its antimicrobial properties. In this proof-of-concept study, thymol and limonene were encapsulated in metal organic frameworks (MOFs) nanoporous materials (ZIF-8 and UiO-66) for sustained release that shall limit fungal diseases. An optimized protocol was developed to achieve a high encapsulation efficiency of EOs in