



UNIVERSITÀ  
POLITECNICA  
DELLE MARCHE



cost  
EUROPEAN COOPERATION  
IN SCIENCE & TECHNOLOGY



## P18

### **Efficacy of essential oil vapours in reducing postharvest rots of nectarines and effect on the fruit microbiome**

**REMOLIF G.<sup>1,2</sup>, SCHIAVON G.<sup>1,2</sup>, GARELLO M.<sup>1,2</sup>, BUONSENSO F.<sup>1,2</sup>,  
SPADARO D.<sup>1,2</sup>**

<sup>1</sup>Dipartimento di Scienze Agrarie, Forestali e Alimentari (DISAFA), Università di Torino, Largo Paolo Braccini 2, 10095 Grugliasco (TO); <sup>2</sup>AGROINNOVA, Centro interdipartimentale per l'innovazione in campo agro-ambientale, Largo Paolo Braccini 2, 10095 Grugliasco (TO), Italy

Essential oils (EOs) could be a promising alternative to synthetic fungicides to reduce postharvest decay. This work investigated the effectiveness of EO biofumigation using slow-release diffusers to control storage rots of nectarines, while also evaluating their effect on the fruit quality and microbiome. An *in vivo* screening trial was performed by treating nectarines, inoculated with *Monilinia fructicola*, with basil, fennel, lemon, oregano and thyme EOs. Fennel, lemon and basil EO showed the greatest inhibition activity after storage and were selected to be tested in efficacy trials using naturally contaminated nectarines. All treatments showed a significant rot reduction compared with the untreated control after 28 days of storage. Moreover, no evident phytotoxic effects were observed. EO vapours did not affect the overall fruit quality but showed a positive effect in reducing firmness loss. To determine the main compounds that might be responsible for antifungal activity, EO composition was analysed using GC-MS. Microbiome analysis showed that the abundance of some fungal genera was modified. Treatments were able to reduce the abundance of *Monilinia* spp., however basil EO seems to favour the presence of *Penicillium* spp. during shelf-life. Results provide new insights for the development of sustainable strategies for postharvest disease management.

**Keywords:** Biofumigation, metabarcoding, prunus persica, stone fruit