

## Invited Speakers

### Sciforum-054978: Postharvest Disease Control and Quality Maintenance of Fresh Fruits and Vegetables by Antifungal Edible Coatings

Lluís Palou, María B. Pérez-Gago

<sup>1</sup> Centre de Tecnologia Postcollita (CTP), Institut Valencià d'Investigacions Agràries (IVIA), 46113 Montcada, València, Spain

Weight loss, physiological disorders, and postharvest diseases are the main causes of economic losses of fresh fruits and vegetables after harvest. Synthetic waxes, commonly amended with chemical fungicides, are currently often applied before cold storage or commercialization to reduce these losses. However, the continuous use of such agrochemicals is arising important health and environmental issues due to the presence of chemical residues on/in the fruit. Therefore, safe and cost-effective alternatives for postharvest preservation of horticultural products should be found and commercially implemented. Composite edible coatings (ECs), formulated with hydrocolloids (polysaccharides such as cellulose derivatives, alginates, pectins, gums, and peptides or proteins) and lipids (e.g., acylglycerols, fatty acids, natural waxes), have the potential to substitute synthetic waxes because they can regulate both fruit transpiration and respiration during storage. In addition, they can be formulated with specific food-grade antifungal ingredients to provide activity against pathogens that cause postharvest diseases. Thus, these resulting antifungal ECs can be a useful solution for both physiological and pathological issues causing postharvest losses. Antifungal ingredients of synthetic ECs can be low-toxicity chemical compounds and biological control agents (antagonistic strains of some bacteria, yeasts, or filamentous fungi). The former include natural or synthetic chemicals approved as food additives or generally recognized as safe (GRAS) compounds, such as some inorganic or organic salts (e.g., carbonates, sorbates, benzoates) and some essential oils, plant extracts, or antimicrobial peptides and proteins. Other natural ECs, such as chitosan or *Aloe* spp. gels, show inherent antifungal activity but can also be formulated with additional antifungal ingredients. Antifungal ECs can be applied after harvest as part of non-polluting integrated disease management (NPIDM) programs for postharvest decay control and quality maintenance of fresh fruits and vegetables.



© 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).