VII Postharvest Unlimited Congress

Abstract book

DAY 1 - 15 May	8.30 - 8.45	Opening		
	8.45- 9.15	Keynote Toine Timmermans		
	9.15 - 10.00	Keynote Ernst Woltering		
	10.00 - 10.30	Coffee & poster viewing		
	10.30 - 12.00	Plenary session: Thijs Defraeye, Rick van de Zedde, Bart Nicolai		
	12.00-13.30	Lunch & poster session 1		
		Podium	**Momentum 2-3**	**Momentum 1**
	13.30 - 15.00	PHU session 1a Invited: Pedreschi	PHU session 1b	PHO session 1 Invited: Çelikel
		Physiology 1	Postharvest Pathogens 1	
	15.00 - 15.45	Coffee & poster viewing		
	15.45 - 17.15	PHU session 2a Invited: Mishra	PHU session 2b	PHO session 2 Invited: Fanourakis
		Quality Measurements 1	Storage and technology 1	
DAY 2 - 16 May	9.00 - 10.15	PHU session 3a Invited Bovy	PHU session 3b	PHO session 3 Invited: Arens
		Preharvest conditions 1	Sensory & nutrition	
	10.15 - 11.00	Coffee & poster viewing		
	11.00 - 12.15	PHU session 4a Invited: Lukasse	PHU session 4b	PHO session 4
		Logistics and modelling	Pre-harvest treatments 1	
	12.15 - 14.00	Lunch & poster session 2 & business meeting Ornamentals (momentum 1)		
	14.00 - 15.30	PHU session 5a	PHU session 5b	PHO session 5 Invited: Verdonk
		Quality Measurements 2	Physiology 2	
	15.30 - 17.00	Excursion NPEC/Phenomea/Unifarm	Excursion NPEC/Phenomea/Unifarm	Excursion NPEC/Phenomea/Unifarm
	19.00 - 22.30	Conference dinner, WICC		
DAY 3 - 17 May	9.00 - 10.30	PHU session 6a Invited: Farneti	PHU session 6b	PHU session 6c
		Physiology 3	Preharvest conditions 2	Postharvest Pathogens 2
	10.30 - 11.00	Coffee & poster viewing		
	11.00 - 12.30	PHU session 7a	PHU session 7b	PHU session 7c
		Quality Measurements 3	Postharvest treatments 1	Chilling and disorders 1
	12.30 - 14.00	Lunch & poster session 3 & business meeting Unlimited (momentum 2-3)		
	14.00 - 15.00	PHU session 8a	PHU session 8b	PHU session 8c
		Chilling and disorders 2	Packaging and coating 1	Storage and technology 2
	15.00 - 15.30	Coffee & poster viewing		
	15.30 - 16.30	PHU session 9a	PHU session 9b	PHU session 9c
		Packaging and coating 2	Postharvest treatments 2	Storage and technology 3
	16.30 - 17.00	Closing ceremony		
	17.00 - 18.00	Farewell drinks, Restaurant Omnia		

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ISHS International Conference
14-18 May 2023 - Wageningen, NL

XII Postharvest Ornamentals
ISHS International Symposium
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Session: PHU9b-1

Developing and applying post-harvest technological solutions for reducing food loss and waste along the EU supply chain: our contribution to the SISTERS project

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Abstract

In 2017, global food loss and waste (FLW) accounted for 29% of the total primary food production (about 1.9 Gt of food) corresponding to 2.6 Gt CO2-eq. of greenhouse gas emissions (1). Such loss negatively affects air, soil, and water pollution, and consequently, impacts adversely biodiversity and climate (2). Reducing FLW is critical to achieve healthy diets and sustainable food systems, and it has been recognized by the UN as a key pathway to reach different Sustainable Development Goals. The EU SISTERS project aims to design and implement a set of innovative tools to reduce FLW generated in the Food Value Chain in Europe. In this work we would like to give a project overview by focusing on the undergoing activities and the preliminary results obtained in the postharvest domain. In the fresh produce sector, food packaging can help reducing FLW and extending product shelf-life by preventing damage during transportation, enabling heat dissipation, maintaining its flavor and nutritional value and preventing pathogen contaminations and dehydration (3,4). However, due to environmental concerns for littering and plastic in the oceans, social resistance to plastic packaging materials is raising. Bio-based and home compostable (BBHC) packaging is an innovative solution that could help both reducing plastic waste problem and preserving food freshness (5). In this vein, the project is developing a new packaging containing polybutylene adipate terephthalate (PBAT) an enzyme additive to enhance materials composability and antioxidants extracted from food waste. The packaging performance will be validated by microbiological (challenge tests) chemical and sensory analysis. In parallel, the project is investigating EU consumers' engagement and BBHC acceptance. A literature review was conducted to identify and analyze the main barriers to the spread of BBHC packaging indicating that the five main barriers for consumers are: lack of knowledge and understanding, negative beliefs and skepticism, concern and neophobia towards new technologies and materials, poor engagement on the "green" theme and a lack of access to appropriate waste management infrastructures. A consumer's survey (N > 1000) is currently ongoing in 6 European countries to investigate behaviors, attitudes and knowledge of the European consumer regarding food waste and eco-sustainable packaging. Finally, a new logistic solution for fresh products transportation has been developed (i.e. Bulkbox). By combining passive modified atmosphere packaging (MAP) and an innovative sensors system the Bulkbox is a reusable container which aims to reproduce ideal transport conditions. By logging the most important storage parameters including temperature, relative humidity, CO2 and O2 concentrations and other relevant volatile organic compounds (VOCs) like ethylene, the sensor system allows a constant monitor of

transport conditions. The Bulkbox performance in extending the shelf-life of fruits and vegetables is currently under validation by performing truck container transportation (> 1700 km) and shelf-life testing both at refrigerated and room temperatures of four fresh products: mushrooms (Agaricus bisporus), bell peppers (Capsicum annuum) , spinaches (Spinacia oleracea) and strawberries (Fragaria X ananassa). Quality parameters including color, texture, respiration rates, volatile organic compounds emissions and sensory characteristics are currently under evaluation. Overall, the project results will be used to improve the sustainability of fresh produces transportations and of the packaging used to preserve food while reducing their potential negative impacts. References: 1. Guo XZ, Broeze J, Groot JJ, Axmann H, Vollebregt M. A Worldwide Hotspot Analysis on Food Loss and Waste, Associated Greenhouse Gas Emissions, and Protein Losses. Sustainability. 2020;12(18). 2. Springmann M, Clark M, Mason-D'Croz D, Wiebe K, Bodirsky BL, Lassaletta L, et al. Options for keeping the food system within environmental limits. Nature. 2018;562(7728). 3. Verghese K, Lewis H, Lockrey S, Williams H. Packaging's Role in Minimizing Food Loss and Waste Across the Supply Chain. Packag Technol Sci. 2015;28(7). 4. Atta OM, Manan S, Shahzad A, Ul-Islam M, Ullah MW, Yang G. Biobased materials for active food packaging: A review. Food Hydrocoll. 2022;125. 5. Almenar E, Samsudin H, Auras R, Harte J. Consumer acceptance of fresh blueberries in bio-based packages. J Sci Food Agric. 2010;90(7). 6. Herbes C, Beuthner C, Ramme I. Consumer attitudes towards biobased packaging n A cross-cultural comparative study. J Clean Prod. 2018;194.