VII Postharvest Unlimited Congress

Abstract book

0.30 - 0.45					
Page		8.30 - 8.45		Opening	
12.00-13.30	1ay	8.45- 9.15		Keynote Toine Timmermans	
12.00-13.30		9.15 - 10.00		Keynote Ernst Woltering	
12.00-13.30		10.00 - 10.30	Coffee & poster viewing		
Podium 13.30 - 15.00 PHU session 1 Invited Pedreschi Physiology 1 PHU session 2 Invited Mishra Quality Measurements 1 PHU session 2b PHU session 2b PHU session 3b PHU session 3b Invited: Fanourakits Physiology 1 Preharvest conditions 1 Physiology 1 Preharvest conditions 1 Physiology 2 Preharvest conditions 1 PHU session 3b Invited: Fanourakits PHU session 4b PHU session 5b PHU session 5c Physiology 2 Excursion NPEC/Phenomea/Unifarm Excu	2	10.30 - 12.00	Plemary session: Thijs Defraeye, Rick van de Zedde, Bart Nicolai		
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13.30 - 15.00			Podium	Momentum 2-3	Momentum 1
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15.45 - 17.15	DAY		Physiology 1	Postharvest Pathogens 1	Invited: Çelikei
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		17.00 - 18.00		Farewell drinks, Restaurant Omnia	



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



XII Postharvest Ornamentals

ISHS International Symposium 14-16 May 2023 - Wageningen, NL Session: PHU9a-4

Effect of shellac coating on the properties of egg white protein (EWP) films for cherry tomato packaging

<u>Victor Baquero Aznar</u>, Avenida de Montañana 930, 50059 Zaragoza Zaragoza, Spain; vbaquero@cita-aragon.es (presenting author) Maria Luisa Salvador, Fac. de Veterinaria. C Miguel Servet, 177, 50013 Zaragoza, Spain; mlsalva@unizar.es (co-author) Jaime Gonzalez-Buesa, CITA Aragon. Avenida de Montañana 930, 50059 Zaragoza, Spain; jgonzalez@cita-aragon.es (co-author)

Abstract

Egg white protein (EWP) films have limited applications for the modified atmosphere packaging of fresh fruits and vegetables due to their poor water vapour barrier properties compared to commonly used petroleum-based polymers. There are some strategies to improve this drawback such as nanoparticles addition, layer intercalation, or coatings application. Shellac is a natural non-toxic polymer with good film-forming properties, biodegradability, and noted moisture resistance. For these reasons, in this study shellac was used as coating material for EWP films obtained by compression moulding and was applied in two thicknesses (24 and 40 µm) on one or both sides of the film. The objective was to improve the barrier properties of these films and bring them closer to those of bio-based commercial films such as polylactic acid (PLA), and to compare them with those of petroleum-based materials such as oriented polypropylene (OPP). At 23 °C, the oxygen transmission rate (OTR) of EWP films was lower than that of PLA and OPP films, while the water vapor transmission rate (WVTR) was significantly higher. Shellac coating reduced the WVTR of EWP films up to values close to those of PLA and did not change OTR at 50% relative humidity. The colour of coated EWP films differs from that of commercial films, especially in lightness and in yellowish tone, which decreased and increased, respectively, with the thickness and number of coating layers. Cherry tomatoes were kept for 20 days at 4 °C in bags made with these films to verify with real-product situations these improvements. The product experienced a similar weight loss in shellac-coated EWP packages compared with that of PLA, so in this regard it could be considered an alternative to this commercial film. However, further improvement needs to be addressed in order to make them comparable to water barrier properties of OPP.