Iberian PLANT BIOLOGY-2025

Murcia, Spain (1-4 julio, 2025)

AUDITORIO Y CENTRO DE CONGRESOS **VÍCTOR VILLEGAS**

50 AÑOS SEBP SOCIEDAD ESPAÑOLA de BIOLOGÍA de PLANTAS

XXVI MEETING OF THE SPANISH SOCIETY OF PLANT BIOLOGY

XIX SPANISH-PORTUGUESE CONGRESS ON PLANT BIOLOGY

Sociedade Portuguesa de Biologia de Plantas

ABSTRACT BOOK

www.iberianplantbiology2025.org

secretariat@iberianplantbiology2025.org

QR code edited and generated by www.pr.io

C0513 MAXIMIZING QUALITY AT HARVEST BY FOLIAR APPLICATION OF SORBITOL. EVALUATION OF DIFFERENT CONCENTRATIONS IN MEDITERRANEAN CROPS.

Aberto Guirao[1], Ander Solana-Guilabert[2], Juan Miguel Valverde[3], Domingo Martínez-Romero[4], ***Huertas Maria Diaz Mula*** *[5]*

[1]*Institute for Agro-food and Agro-environmental Research and Innovation (CIAGRO) - University Miguel Hernández (UMH), Ctra. Beniel km. 3.2, 03312 Orihuela, Alicante, Spain*
[2]*Institute for Agro-food and Agro-environmental Research and Innovation (CIAGRO) - University Miguel Hernández (UMH), Ctra. Beniel km. 3.2, 03312 Orihuela, Alicante, Spain*
[3]*Institute for Agro-food and Agro-environmental Research and Innovation (CIAGRO) - University Miguel Hernández (UMH), Ctra. Beniel km. 3.2, 03312 Orihuela, Alicante, Spain*
[4]*Institute for Agro-food and Agro-environmental Research and Innovation (CIAGRO) - University Miguel Hernández (UMH), Ctra. Beniel km. 3.2, 03312 Orihuela, Alicante, Spain*
[5]*Institute for Agro-food and Agro-environmental Research and Innovation (CIAGRO) - University Miguel Hernández (UMH), Ctra. Beniel km. 3.2, 03312 Orihuela, Alicante, Spain*

2 Text (Suggested structure: Objectives, Methods, Results and Conclusions (No Figures/Tables))

The objective of the study was to evaluate the effects of pre-harvest treatment with sorbitol (1% or 2%) on the quality, sugar and organic acid content and bioactive compounds of three different Mediterranean cultivars: table grape “Doña Maria”, blood orange “Sanguinello” and nectarine “Garcima”. In order to achieve this objective, physico-chemical quality parameters such as weight, colour, total soluble solids, and acidity were analysed. The composition and concentration of individual acids and sugars, as well as the concentration of total phenols and anthocyanins, and the antioxidant activity in their lipo- and hydro-soluble phases, were also investigated. The application of sorbitol to table grapes increased the weight of the berry in table grapes, while oranges and nectarines showed a slight decrease. Furthermore, the treated table grapes exhibited a change in colour. Both the concentration and profile of individual sugars is modified by the application of sorbitol. A slight reduction in total soluble solids was observed in the three species analysed, coinciding with the reduction in the ripeness index (RI) of the treated fruits, which could indicate a delay in ripening with the treatments. The profile of individual acids and sugars revealed an increase in the concentration of reducing sugars (glucose and fructose), especially in blood orange. However, in nectarines the concentration of sucrose decreased in the treated fruits. Regarding organic acids, tartaric acid showed a significant reduction in treated table grapes while malic acid concentrations increased in blood orange. Nectarine showed slight increases in succinic and ascorbic acids with Sor 2%, suggesting a positive effect on vitamin C concentration. With regard to total phenols, anthocyanins and antioxidant activity, the sorbitol treatment resulted in a significant positive effect on the plant species under study, particularly with respect to the concentration of phenols in treated table grapes. It was demonstrated that both, grapes and oranges, exhibited an increase in both water-soluble and lipo-soluble antioxidant activity. In nectarines, the accumulation of anthocyanins in the skin stood out. This finding suggests that the treatment led to an increased accumulation in this specific part of the fruit. In conclusion, the pre-harvest application of sorbitol affected the biochemical and physical components of each plant species differently, showing positive effects on weight, antioxidant activity, sugars and acids.

3 Keywords (up to a maximum of 3)

phenols, sugars and organic acids