Foods 2024 Conference

The 5th International Electronic Conference on Foods

28–30 October 2024 | Online

MDPI

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Effect of post-harvest UV-C radiation application on resveratrol and tannin concentrations in table grapes

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INTRODUCTION & AIM

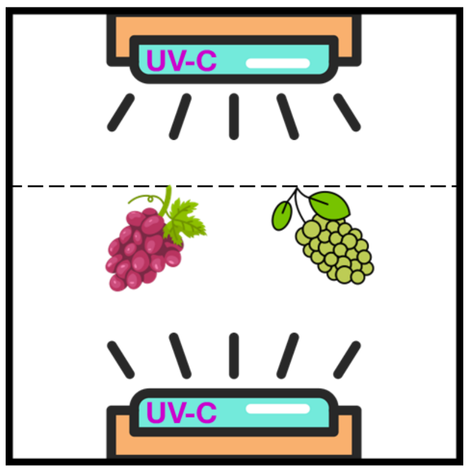
Table grapes (*Vitis vinifera* L.) are among the most consumed fruits due to their antioxidant power, which is based on their high concentration of compounds such as tannins and resveratrol[1].

The application of post-harvest treatments is necessary to increase the shelf life of this fruit, as well as to improve its organoleptic and nutritional properties[2].

The objective of this work was to determine the effect of UV-C radiation on the resveratrol and tannin content in two table grape cultivars during the storage period.

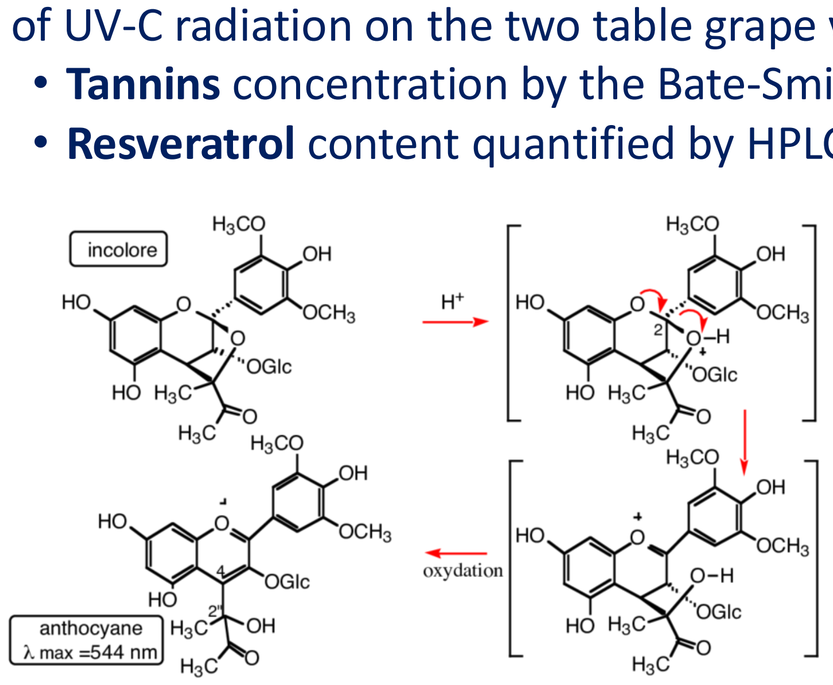
EXPERIMENTAL

Table grapes fruits of the **Red Globe** and **Moscatel** varieties were subjected to different doses of UV-C radiation (**0.3**, **0.6** and **1.2 kJ m^{-2}**) and subsequently stored for 24 and 96 h.



At 24 and 96h after UV-radiation, to evaluate the effect of UV-C radiation on the two table grape varieties:

- **Tannins** concentration by the Bate-Smith reaction[3].
- **Resveratrol** content quantified by HPLC[4].



RESULTS & DISCUSSION

- The effect that UV-C radiation had on the organoleptic and nutritional quality of table grapes was highly dependent on the variety.
- When UV-C radiation was applied at doses of 0.3 and 0.6 kJ m^{-2} the ripening process of the berries was slowed down, increasing the shelf life of these fruits.

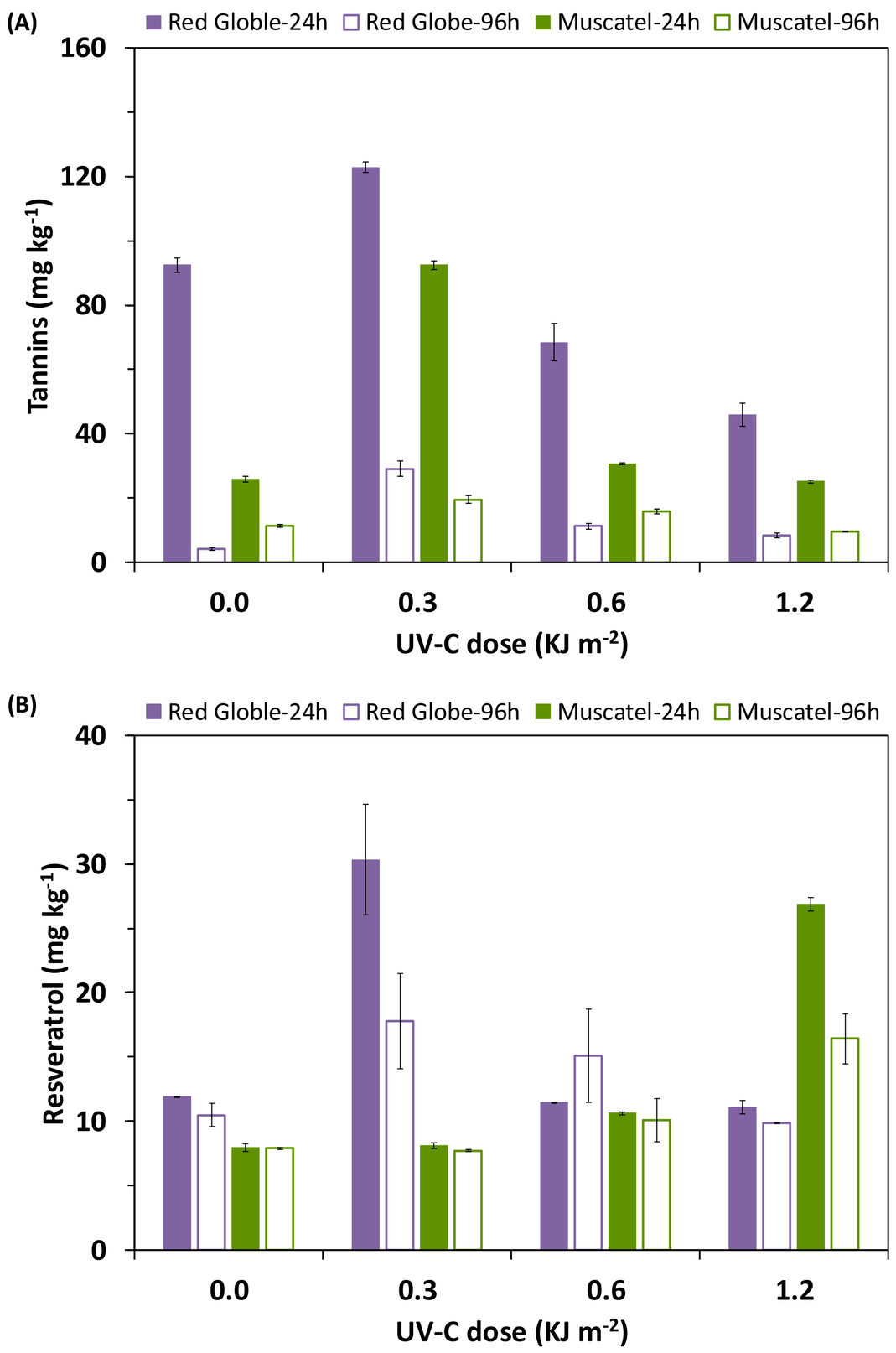


Figure 1. *Tannins content (A) and resveratrol concentration (B) in Red Globe (purple) and Moscatel (green) grapes for the different doses of UV-C radiation applied after 24 h (dark bars) and 96 h (blank bars) of storage. Each value is the mean of four replicates and the bars indicate the standard deviation.*

CONCLUSION

For the Red Globe variety, the 0.3 kJ m^{-2} dose was the most effective in terms of tannin and resveratrol content. Regarding the Moscatel variety, the most effective dose was 1.2 kJ m^{-2}, even with a reduced shelf life. It is concluded that further studies on radiation doses, radiation time and storage conditions are necessary to establish scalable results.

REFERENCES

1. LWT 2021, 149, 111791.
2. South African Journal of Botany 2023, 154, 273-281.
3. Phytochemistry 1973, 12(4), 907-912.
4. Journal of Agricultural and Food Chemistry 2001, 49(1), 210-215.