

INNOVATIVE TECHNOLOGIES TO INCREASE BIOACTIVE COMPOUNDS IN CARROTS OF THE CHANTENAY VARIETY

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INTRODUCTION & AIM

Carrots are a functional food ingredient with different nutraceuticals compounds such as carotenoids and phenols. Postharvest treatments (cutting and UV-C radiation) can increase the content of bioactive compounds in carrots, prior to their incorporation as an ingredient in food formulations.

The objective in the present work was to evaluate the effect of cutting (shredding) and different doses of UV-C radiation on the color, phenolic and antioxidants compounds from carrots of Chantenay variety.

METHOD

- ✓ With Chantenay carrots variety was work, obtained from Santiago del Estero producers, in Argentina.
- ✓ Washed, disinfected with NaClO (200 ppm- 5 min) and drained.
- ✓ The ends of the carrots were cut and grated using a food processor.
- ✓ Treatments:
 - C (control): grated carrots.
 - T1: incubation (I) at 25°C for 24 h.
 - T2 to T4: applied UV-C doses: 10, 25 and 50 kJ m^{-2} .
 - T5 to T7: incubation after UV-C doses.
 - T8 to T10: incubation before being treated with UV-C doses.

Determinations

- ✓ Instrumental color with the L* (luminosity), a* (red tones) and b* (yellow tones) parameters.
- ✓ Total phenolics compounds (TPC) Folin Ciocalteu ($\text{mg gallic acid g}^{-1}$).
- ✓ Antioxidants compounds (AC) by DPPH (% Inhibition).

RESULTS & DISCUSSION

- ✓ No significant differences were observed in the color parameters.
- ✓ Fig 1 show the TPC values for the different treatments.

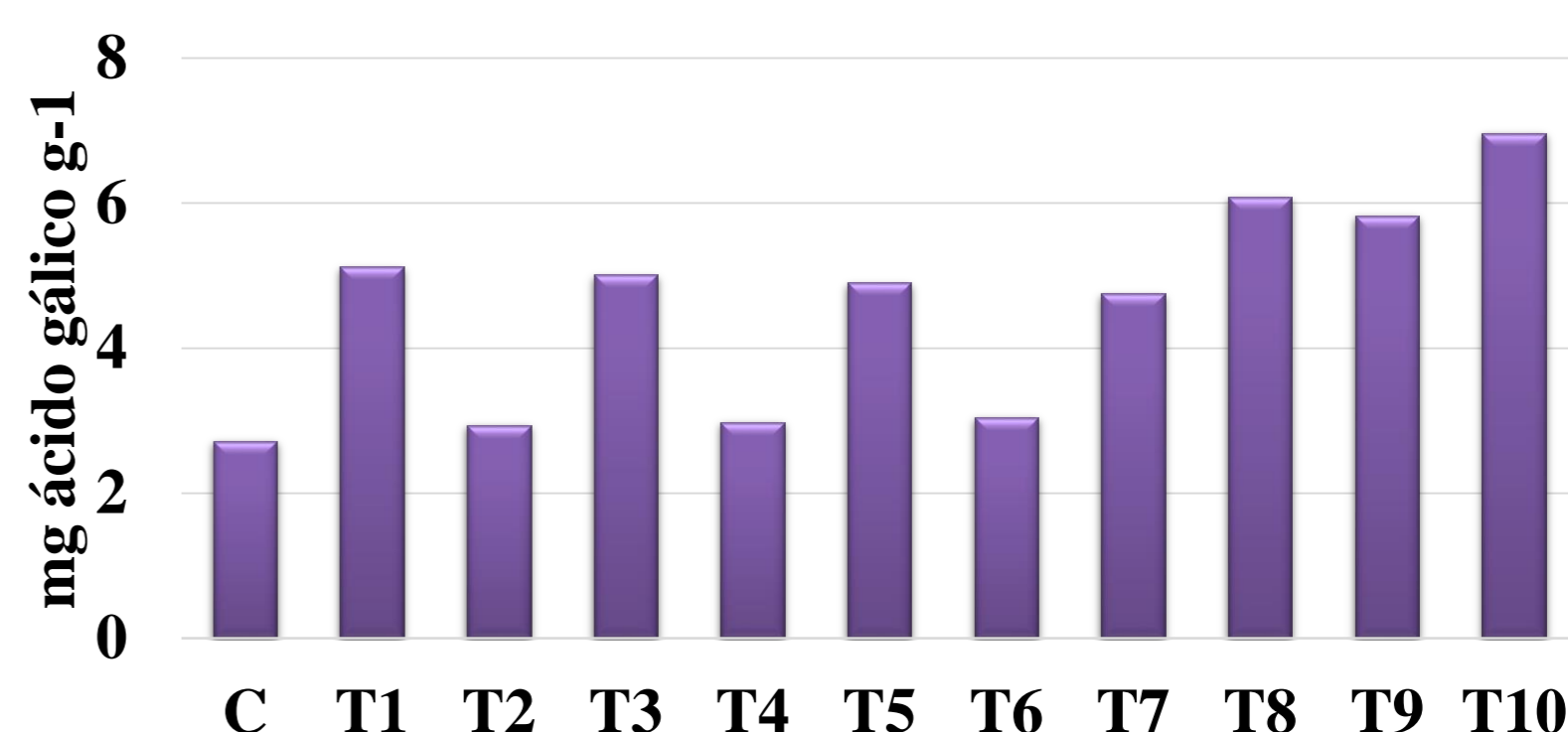


Fig. 1: Total phenolic content of different treatments with incubation and UV-C doses on grated carrot.

- ✓ All treatments showed higher TPC values with respect to the C (2.71 mg g^{-1}).
- ✓ UV-C treatments registered an increase of approximately 10%.
- ✓ Treatments with UV-C and I combined shows an increase significantly higher: 56 and 45% (T5 to T10).
- ✓ T10 show the highest value (6.97 mg/g).
- ✓ Fig 2 show the AC values for the different treatments.

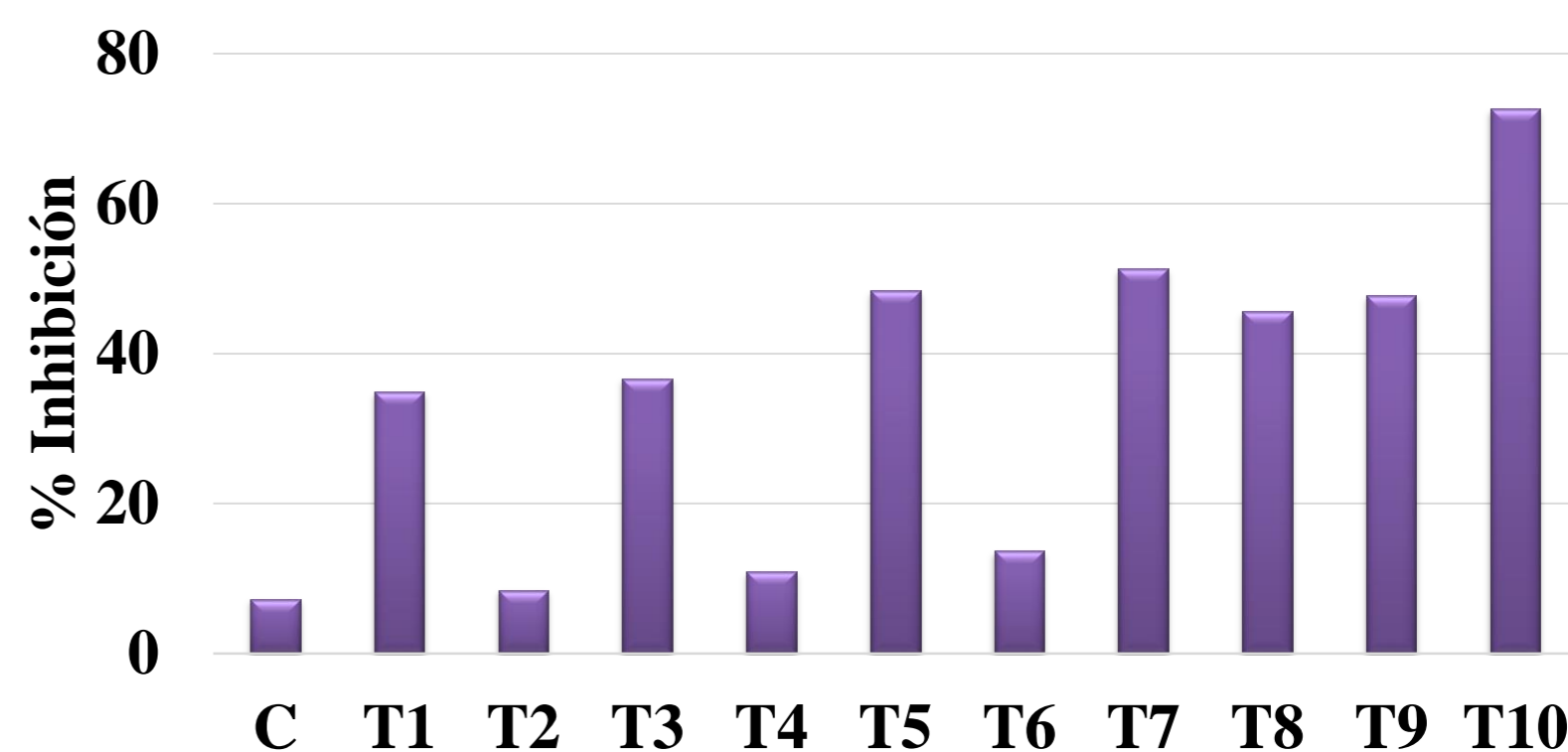


Fig. 1: Antioxidant compounds of different treatments with incubation and UV-C doses on grated carrot.

- ✓ AC presented a similar behavior to the TPC values.

CONCLUSION

These results we could indicate that the application of stress by cutting, incubation and UV-C radiation would induce a higher accumulation of bioactive compounds which would improve the functional properties of grated carrots.