

CRUSHED EGGPLANT: GAMMA IRRADIATION VS. SOUS VIDE

Farias, M^{1,2}, Gutierrez, D^{1,2}, Cova C.³, Vaudagna S.^{4,5}, Rodriguez, S^{1,2}

1-CIBAAL-CONICET-UNSE.; 2- ICyTA – FAYA-UNSE-Santiago del Estero, Santiago del Estero, Argentina; 3-CNEA, Ezeiza, Buenos Aires. 4- ITA-INTA; 5-ICyTeSAS-UEDD INTA-CONICET, Buenos Aires, Argentina. Contact mail: silviadepece@hotmail.com

INTRODUCTION & AIM

Eggplants are particularly rich in antioxidant compounds, which have been linked to various health benefits.

The objective of this research was to evaluate and compare the effect of gamma irradiation (IR) and the sous vide (SV) technique on the sensory shelf life and compounds with antioxidant capacity in crushed eggplant.

METHOD

Eggplant (*Solanum melongena*) of the black nite variety from the province of Buenos Aires-Argentina.

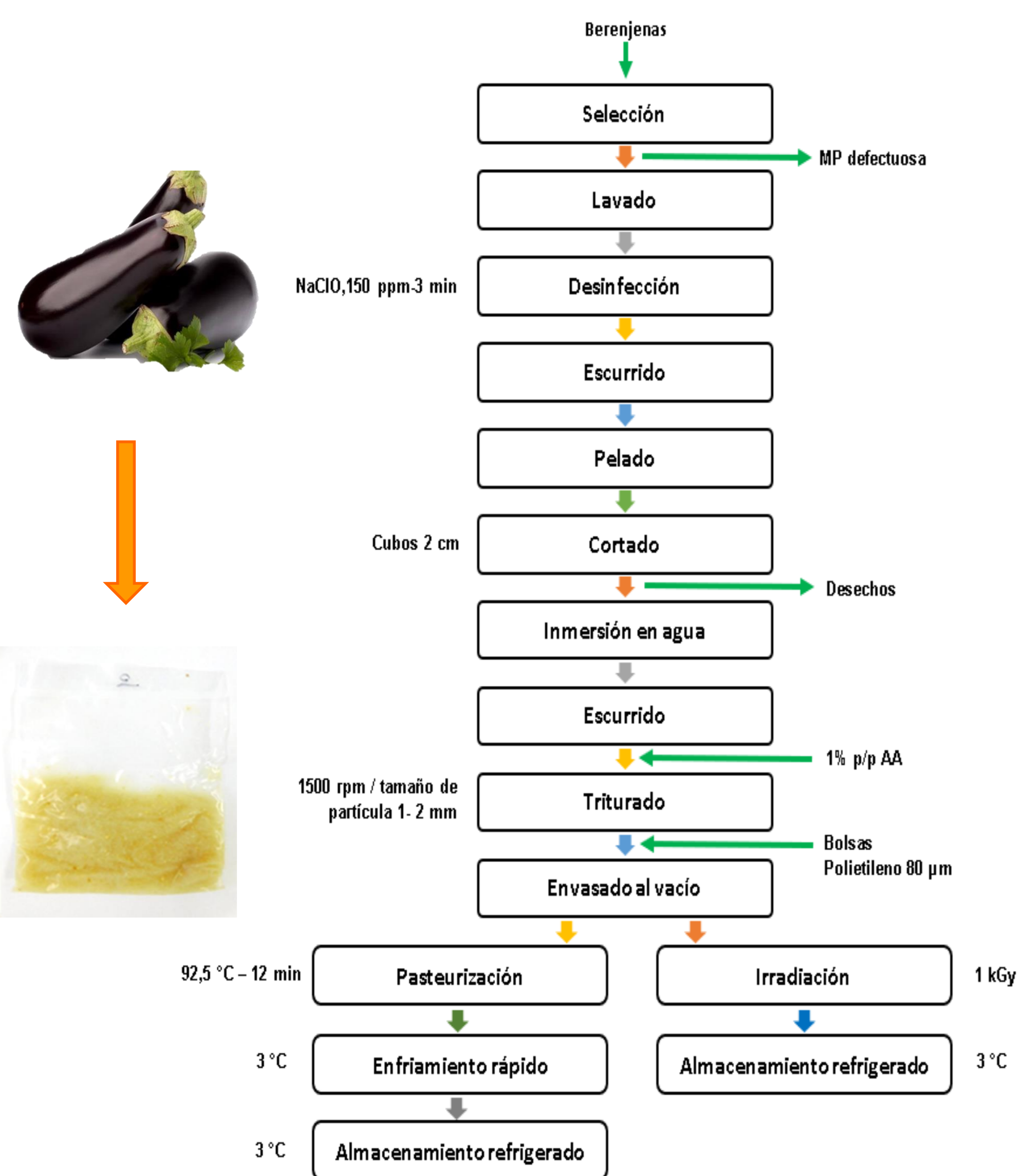


Figure 1: Diagram of the process of making eggplant puree

DETERMINATIONS

All samples were stored at 3 °C for 70 days, and periodically were extracted and the following were evaluated: sensory characteristics (general appearance, browning, texture and odor) using a numerical assessment test, with a trained panel of 12 judges and antioxidant capacity (DPPH• method).

RESULTS & DISCUSSION

- ✓ Regarding the sensory characteristics, for all the attributes evaluated the samples treated with SV (93°C-12 min) showed better results ($P < 0.05$) than the irradiated ones.
- ✓ The sensory shelf life was 5 days for the IR limited by the odor attribute, and 60 days for the SV limited by the texture.
- ✓ On the other hand, no significant differences were observed in the initial values of antioxidant capacity in both treatments. However, for the IR samples, a 58% decrease in content was observed with respect to its initial value on day 5, while for the SV samples it remained practically constant ($P > 0.05$) until the end of storage.

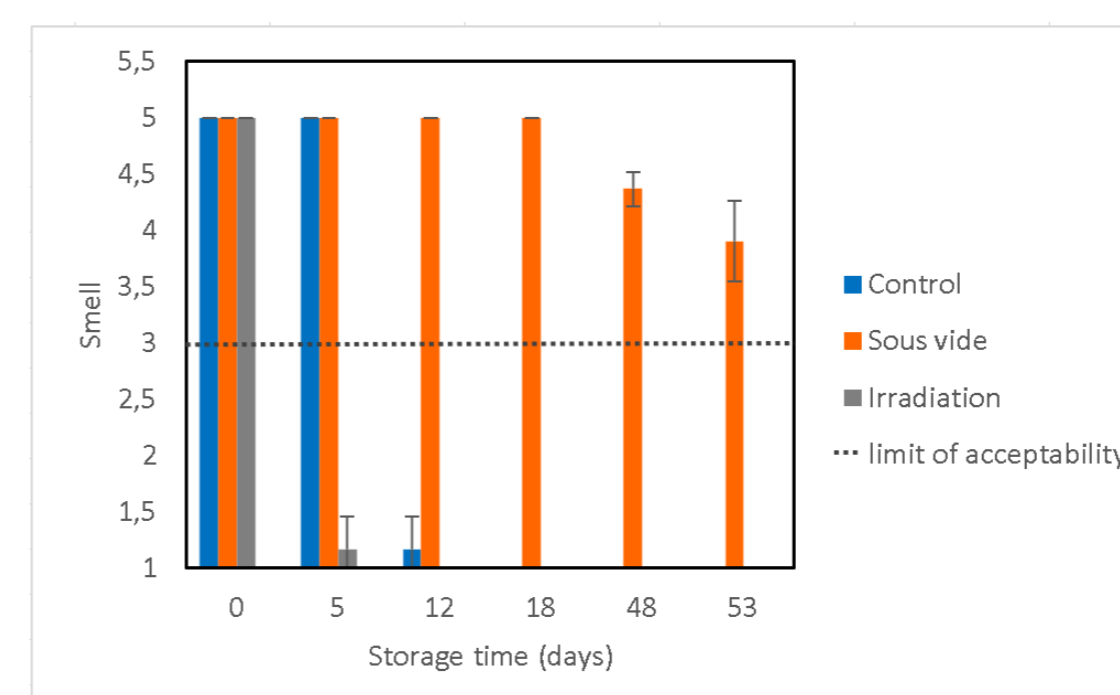


Figure 2: Odor evolution during refrigerated storage time at 3 °C, of sous vide and irradiated eggplant puree samples.

Figure 3: Texture evolution during refrigerated storage time at 3 °C, of sous vide and irradiated eggplant puree samples.

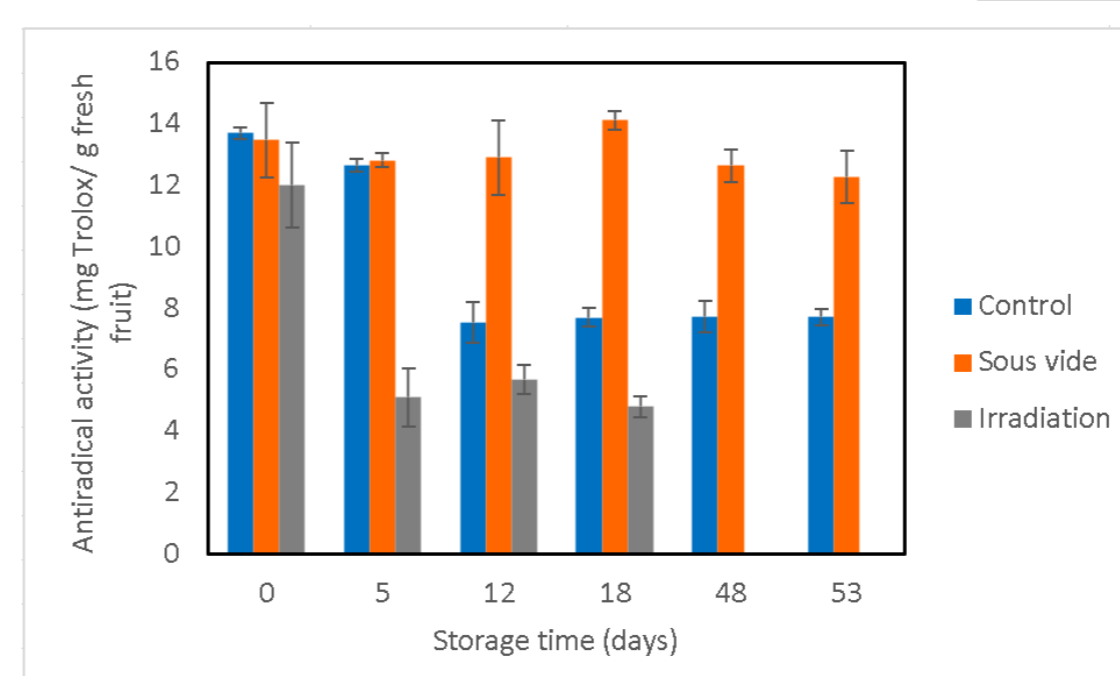
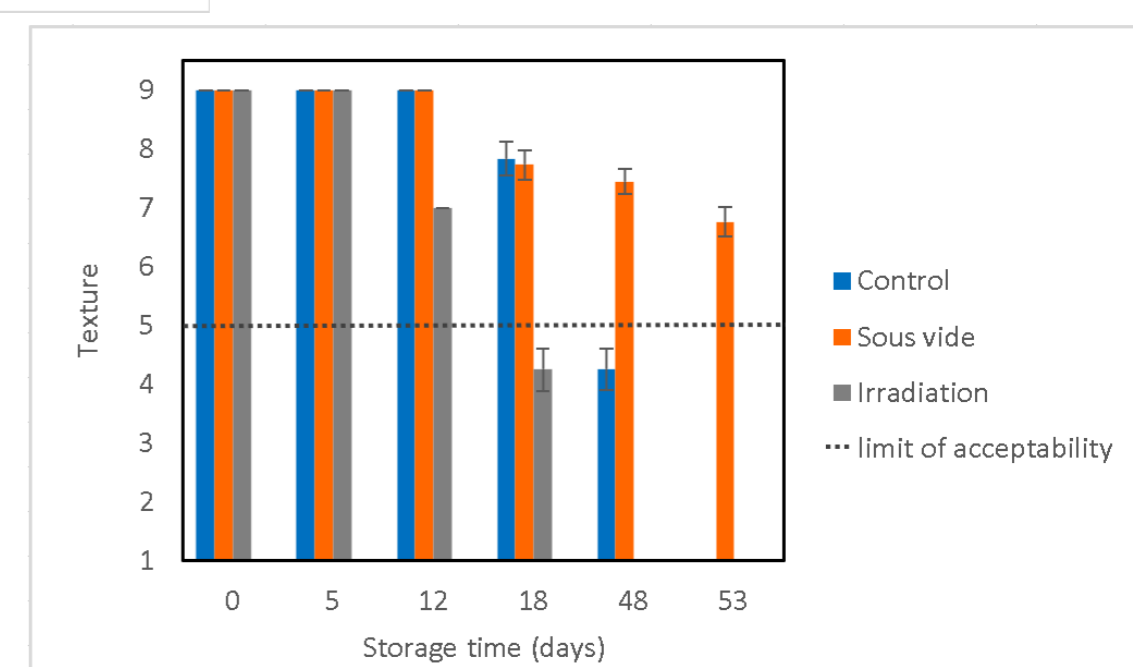


Figure 4: Evolution of antiradical activity during refrigerated storage time at 3 °C, of sous vide and irradiated eggplant puree samples.

CONCLUSION

The irradiation treatment applied (1 kGy) was not the most appropriate from a sensory point of view.

It is feasible to process eggplant puree sous vide delaying the oxidation of the tissue, and preserving its sensory quality during 60 days.

FUTURE WORK

It is necessary to study the effect of other radiation doses and optimize the process.