

# XXI ENCONTRO GALEGO-PORTUGUÉS DE QUÍMICA

18 al 20 de noviembre de 2015  
Pazo da Cultura de Pontevedra  
*Galicia (España)*



**Colegío Oficial de  
Químicos de Galicia**



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PORTUGUESA  
DE QUÍMICA**



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- CP4 Synthesis and properties of mixed valence ceramic oxides with Perovskite structures.
- CP5 Elaboración de Tecnosoles "a la carta" como alternativa para la valorización de residuos.

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## Postharvest quality of fresh-cut watercress: impact of non-thermal treatments based on inert-gas and ionizing radiation

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Ready-to-eat vegetables are having a growing consumer acceptance for attending to contemporary requirements of convenience, safety and wholesomeness. The growth of this sector has led to the introduction of new food products and the implementation of more efficient and sustainable postharvest technologies<sup>1</sup>. In this sense, the suitability of modified atmosphere packaging (MAP) and post-packaging gamma irradiation for preserving quality parameters of fresh-cut watercress (*Nasturtium officinale* R. Br.) during cold storage was evaluated.

Wild samples of watercress were rinsed in tap water and a portion was immediately analyzed (fresh control). The remaining fresh material was packaged under nitrogen- and argon-enriched atmospheres, air (passive MAP) and vacuum. Air-packaged samples were then irradiated at doses up to 5 kGy in a cobalt-60 chamber. All packaged samples were stored at 4 °C for 7 days. The quality analyses included color, total soluble solids, pH, macronutrients, the individual profiles of sugars, organic acids, tocopherols and fatty acids, and total phenolics and flavonoids. Four *in vitro* assays based on different reaction mechanisms were also performed to evaluate the antioxidant capacity.

After assessing the effect on the individual quality parameters, it was possible to conclude that argon-enriched atmospheres and the 2 kGy dose were suitable choices for preserving quality attributes of watercress during cold storage<sup>2</sup>. However, samples irradiated at 5 kGy revealed chemical profiles more prone to exert positive health effects. Thereby, advantageous effects induced by modified atmospheres and ionizing radiation in the quality of fresh-cut watercress were highlighted, justifying the inclusion of this vegetable in human diets.

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### References

- (1) Pinela, J.; Ferreira, I.C.F.R. *Crit. Rev. Food. Sci. Nutr.* **2015**, In press.
- (2) Pinela, J.; Barreira, J.C.M.; Barros, L.; Antonio, A.L.; Carvalho, A.M.; Oliveira, M.B.P.P.; Ferreira, I.C.F.R. *Postharvest Biol. Tec.* **2015**, In press.

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D Joao Carlos Martins Barreira. , ha participado en el *XXI Encontro Galego-Portugués de Química*, celebrado en el Pazo da Cultura de Pontevedra (España), del 18 al 20 de noviembre de 2015, presentando la comunicación *“Postharvest quality of fresh-cut watercress: impact of non-thermal treatments based on inert-gas and ionizing radiation “*

Para que conste y a los efectos oportunos, se expide el presente documento.

En Vigo, a 18 de noviembre de 2015



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