

XXIII Encontro Nacional da SPQ



Aveiro 12 a 14 de Junho de 2013

Evaluation of total phenolic compounds and antioxidant activity for the drying of bananas and pears

Raquel P. F. Guiné,^{a,b} Fernando J. Gonçalves,^{a,b} Mariana Alves,^b Solange Oliveira,^b Maria João Barroca,^c Paula M. R. Correia^{a,b}

^aCI&DETS – Instituto Politécnico de Viseu, Campus Politécnico, 3504-510 Viseu, Portugal; ^bDep. Indústrias Alimentares – Escola Superior Agrária de Viseu, Quinta da Alagosa, 350-606 Viseu, Portugal; ^cCERNAS/ISEC, Instituto Politécnico de Coimbra, Quinta da Nora, 3030-199 Coimbra, Portugal.

Chemically, the phenolic compounds are cyclic benzene compounds having one or more hydroxyl groups directly associated to the ring structure. While they contain alcohol groups, they do not show properties of alcohols. The phenols can be distinguished into two groups: non-flavonoids and flavonoids.^[1-4]

Bananas cv. nana and pears cv. D. Joaquina were subject to drying (at 70 °C) for comparison of their properties with the corresponding fresh fruits. All samples were obtained from 5 g of product and 6 successive extractions were performed for each sample (three with methanol and three with acetone solution (40% v/v)), for 1 hour each in an ultrasonic bath. The phenolic content of the different extracts was determined by Folin-Ciocalteu reagent, and the results expressed as gallic acid equivalents. The antioxidant capacity was estimated using the ABTS method, and the results expressed as trolox equivalents. All results were expressed in dry basis, to allow a direct comparison.

The results revealed that both fruits studied showed some degree of degradation of the phenolic compounds and consequently a decrease in the antioxidant activity when submitted to drying. Comparing the fresh fruits with those dried at 70 °C, it was found that the amount of reduction in total phenolic content was about 45% for bananas and 59% for pears, while the decrease in the antioxidant activity was around 33% for bananas and 53% for pears.

Acknowledgments: Thanks to Fundação para a Ciência e Tecnologia (FCT) and research centre CI&DETS (Viseu) for financial support (PEst-OE/CED/UI4016/2011).

References

- [1] Jackson, R. S. Wine Science. Academic Press, California, USA, 1994.
- [2] Carvalho, J.; Gosmann, G.; Schenkel, E. Compostos fenólicos simples e heterosídicos. Farmacognosia: da planta ao medicamento. 2. Ed. Porto Alegre/ Florianópolis: da UFSC/ da Universidade, 2001.
- [3] Carughi, A. Health benefits of sun-dried raisins. Health research and studies center. Sun-Maid Growers, California, EUA, 2008.
- [4] Zuanazzi, J. Flavonóides. Compostos fenólicos simples e heterosídicos. Farmacognosia: da planta ao medicamento. 2. Ed. Porto Alegre/ Florianópolis: da UFSC/ da Universidade, 2001.