

### Pine nuts authenticity in the Portuguese market

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Pine nuts, the edible seed of the pine tree (*Pinus* spp.), are a valuable commodity in the international market, with Portugal attaining the fourth position with the exclusive production of *Pinus pinea*. Pine nuts from different pine species differ in size, nutritional value, taste, and therefore commercial values, making it necessary to grant their authenticity. Following recent reports on pine nut mislabelling in European markets, mainly with those of Asiatic origin, the main objective of the present work was to characterize the quality and authenticity of the pine nuts sold in the Portuguese market.

Samples (n=15) were analysed for their main morphological and chemical characteristics (seed weight and seed size, moisture, lipid, proteins, ash, total soluble sugars, fatty acid composition, vitamin E, phytosterols, total phenolic and antioxidant activity).

The morphological characterization showed highly homogeneous fruits. The chemical assays showed also a very consistent composition, with 48.9 ±1.0% of lipids, of which 85.1 ±0.5% were unsaturated, with an increased protein content of 30.6 ±1.0%, all on a fresh weight basis. The sterol composition was also decidedly constant, as was the vitamin E and total phenolic content. All the results were within those reported for *P. pinea*. Complementary, a genetic study allowed to identify samples species (*Pinus pinea*) and confirm its authenticity.

The results achieved are indicative of the inexistence of mislabelling, with all samples being classified as *Pinus pinea*.

**Acknowledgments:** Acknowledgements to FCT, for the financial support through PEst-C/EQB/LA0006/2011. Carla Santos, and Rebeca Cruz acknowledge their FCT grants.