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Influence of drying on the texture of solar dried pears

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Texture is the result of complex interactions among food components, and the changes in texture occurring during the processing of plant materials or certain physiological events have been related to tissue and cell microstructural changes [1].

The texture parameter, together with appearance and flavour, are the organoleptic quality attributes which determine the acceptability of a food by the consumer. Hence, there has been a great interest in the development of methods to predict and control the texture of plant-based foods, particularly in relation to processing treatments. Instrumental texture profile analysis (TPA) is one of the methods to determine the texture by simulating or imitating the repeated biting or chewing of a food.

The pears used in the present study are of the Portuguese variety S. Bartolomeu, which is traditionally dried, and they were dried peeled but uncut. However, unlike in the traditional method the pears were not dried under open-air sun exposure, and, alternatively, were dried in two different systems: solar stove with forced convection (STFC) and solar stove with natural convection (STNC). The drying was carried out until the pears reached a desirable moisture content of about 20 % (wet basis). Before drying, along the process and at the end, samples were used from both drying systems to evaluate their textural properties. The texture profile analysis to all the samples was performed using a Texture Analyser, and the textural properties: hardness, springiness, cohesiveness, and chewiness were then calculated after standard equations.

The objective of the present work is, on one hand, to evaluate how the textural attributes change along time during the drying operation and, on the other hand, to compare the two drying methods used.

From the results obtained is possible to see that the drying operation greatly affects the textural properties of the pears, so that the hardness diminishes very much along drying, for both the drying systems tested.

Acknowledgments

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References

[1] Marsilio V, Lanza B, Campestre C & De Angelis M. *Journal of the Science of Food and Agriculture* **80** (2000) 1271.