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1 Evaluation of physical parameters of walnut and walnut products obtained by cold pressing

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7 Abstract

8 The differences in walnut cultivars related to their chemical composition have been widely
9 reported. These chemical differences result in the differences in the physical parameters of the
10 walnut oils and walnut defatted flours (DF) obtained from cold pressing. In this study, the
11 physical parameters of walnut kernels, walnut oils and DF obtained from nine different
12 cultivars are analysed. Additionally, the effect of the genotype, the crop year and the
13 interaction between both on the color parameters of walnut oil and DF is studied. The
14 obtained results show that oil color is mainly determined by the crop year, while the colour of
15 DF is determined by the genotype, the crop year and the interaction of between them. L* is
16 the most useful parameter for cultivar discrimination if two crop years are considered. Among
17 the physical parameters of walnut products, oil viscosity can be considered a parameter of oil
18 quality because it shows strong correlations with the oil fatty acid profile and the
19 concentration of specific triglycerides (LLL, OLO and POO). Physical parameters have been
20 reported to be crucial for consumers and for the food industry and should be considered as
21 quality parameters of walnut by-products.

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23 Keywords: crop year, walnut oil, walnut flour, viscosity, CIELCH

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