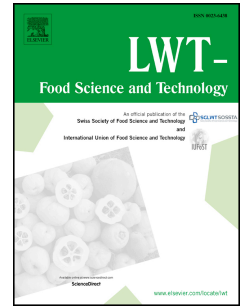


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Influence of temperature in the extraction of nut oils by means of screw pressing

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1 Influence of temperature in the extraction of nut oils by means of screw pressing

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6 Abstract

7 The extraction of vegetable oils by means of screw pressing is considered a cold
8 extraction method. However, this type of machinery needs the nozzle to be pre-
9 heated, during which separation of the oil occurs so that it is produced in a satisfactory
10 manner. In this study, the screw press extraction of almond, pistachio and walnut oil
11 has been evaluated, analysing the effect of the temperature applied in the barrel and
12 the selected rotational speed on the oils obtained. When applying low temperatures in
13 the heating ring, the friction of the raw material led almond and pistachio oils to reach
14 temperatures of approximately 60 °C, with somewhat lower temperatures reached in
15 walnut oil. However, at higher temperatures (up to 200 °C), the oil temperature was
16 not increased above 84 °C due to the cooling produced by the continuous supply of
17 raw material. Increasing the rotational speed decreased the contact time of the
18 material with the heater ring, decreasing the output temperature. Generally, the
19 rotational speed had a larger effect on oil temperature than did the temperature
20 applied in the heating ring. The results show that the contents of fatty acids and sterols
21 are not affected by the nut oil extraction temperature; however, the physicochemical
22 parameters of regulated quality are affected.

23
24 Keywords: vegetable oils, thermocouples, regulated quality, cold pressed

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