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Abstract

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

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