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High power ultrasound frequency for olive paste conditioning: Effect on the virgin olive oil bioactive compounds and sensorial characteristics

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Abstract

High power ultrasound (HPU) treatment of olive paste is used to enhance malaxation or as alternative to malaxer. Because previous laboratory scale experiments were conducted at different frequencies, its necessary to determine the best work frequency for future application at industrial scale. For these reasons experiment of HPU treatment applying three different frequencies 20, 40 and 80 kHz were carried out and compared with a reference without treatment. The virgin olive oil (VOO) were extracted after treatments by two procedures: HPU application and direct centrifugation and HPU application followed by malaxation and centrifugation. HPU treatment did not show alteration on the VOO fatty acid composition and phenolic compounds. The volatile compounds, related to the positive sensorial attribute, showed levels similar to those from conventional malaxation and those related to the off flavours were not observed. The HPU treatment gave Extra VOO with a more equilibrated sensorial profile.

Key words: High Power Ultrasound Frequency, Virgin Olive Oil, Fatty Acid, Phenolic compounds, Volatile Compounds, Sensory Characteristics.

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