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Extraction of kiwi seed oil: Soxhlet versus four different non-conventional techniques

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Abstract

Kiwi seed oil has a nutritionally interesting fatty acid profile, but a rather low oxidative stability, which requires careful extraction procedures and adequate packaging and storage. For these reasons and with the aim to achieve process intensification with shorter extraction time, lower energy consumption and higher yields, four different non-conventional techniques were experimented. Kiwi seeds were extracted in hexane using classic Soxhlet as well as under power ultrasound (US), microwaves (MWs; closed vessel) and MW-integrated Soxhlet. Supercritical CO_2 was also employed and compared to the other techniques in term of yield, extraction time, fatty acid profiles and organoleptic properties. All these non-conventional techniques are fast, effective and

safe. A sensory evaluation test showed the presence of off-flavours in oil samples extracted by Soxhlet and US, an indicator of partial degradation.

Keywords:

kiwi seed oil | ultrasound | microwaves | supercritical CO_2 | microwave-integrated Soxhlet | GC/MS

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