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IOP Conference Series: Materials Science and Engineering
Volume 778, Issue 1, 30 April 2020, Article number 012172
26th Regional Symposium on Chemical Engineering, RSCE 2019; Kuala Lumpur; Malaysia; 30
October 2019 through 1 November 2019; Code 159475

Review : A Comparison of Conditions for the Extraction of Vegetable and Essential Oils Via Microwave-Assisted Extraction (Conference Paper)

(Open Access)

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Abstract

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Microwave Assisted Extraction (MAE) has been utilized in extracting a myriad of phytochemicals, lipids, carbohydrates, and proteins. This extraction method essentially takes advantage of water present inside cells by exciting the molecules hence increasing the internal temperature and pressure till the cells bursts. MAE is studied extensively due to its advantages over other typical extraction methods; especially in essential oil extraction. However, there is not many researches on using MAE to extract vegetable oil. Essential and vegetable oils are both derived from plants, but the characteristics of both oils differs. Therefore, the proper conditions for MAE extraction of the oils are different. This paper reviews the MAE conditions such as extraction time, power of microwave, solvent to feed ratio, and the set-up of microwave equipment. This paper attempts to show the differences between the MAE conditions between vegetable and essential oil extraction. The challenges faced by MAE is also discussed briefly with suggestions to overcome them. The Internet of Things is also discussed for its implementation in a scaled up MAE reactor. © 2020 IOP Publishing Ltd.

SciVal Topic Prominence ⓘ

Topic: Essential oils | Microwaves | Hydrodistillation HD

Prominence percentile: 91.008 ⓘ

Author keywords

essential oil lipid Microwave assisted extraction phytochemicals vegetable oil

Funding details

Funding sponsor	Funding number	Acronym
	FRGS19-065-0673,FRGS/1/2018/TK02/UIAM/02/4	

Funding text

The authors acknowledge the support by the minister of higher education of Malaysia (MOHE) for the Fundamental Research Grant Scheme (FRGS) (FRGS/1/2018/TK02/UIAM/02/4 (FRGS19-065-0673)).

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