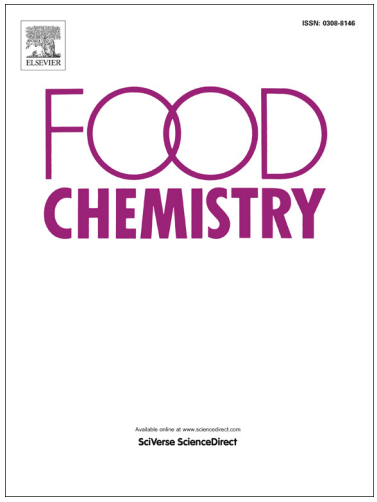

Short communication

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Optimization of ultrasonic assisted extraction of fatty acids from Aesculus hippocastanum fruit by response surface methodology

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Abstract

The effectiveness of ultrasound-assisted extraction (UAE) of *Aesculus hippocastanum* fruit oil was investigated using *methanol* as a solvent. The study compared extraction yields using UAE and methanol with soxhlet. The effects of three extraction parameters, namely temperature, time and the ratio of solvent (volume) to plant material (weight) were optimized using both a Box–Behnken design (BBD) and response surface methodology (RSM). The highest extraction yields were obtained for UAE at 60°C and 56.5 minutes with a ratio of solvent to plant material weight of 45:1. The extraction yield using UAE varied by 21.82% (w/ w) but was, regardless, significantly greater than Soxhlet extraction.

Keywords

Aesculus hippocastanum fruit; Ultra sonic assisted extraction; fatty acids; response surface methodology

1. Introduction

Aesculus hippocastanum, also known as horse chestnut, Spanish chestnut, buckeye and seven leaves tree (Oszmiański, Kalisz, & Aneta, 2014), is a deciduous tree that grows up to 35 metres