Solvent extraction of ginger oleoresin using ultrasound

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Abstrak

The use of ultrasound in extraction process creates novel and interesting methodologies, which are often complementary to conventional extraction methods. In the present study, the use of ultrasound to extract oleoresin from ginger (Zingiber officinaleR.) was investigated. The extraction was performed by using ethanol as solvent in the presence of ultrasonic irradiations operating at frequency of 42 kHz at extraction temperature of 60oC. The oleoresin extracted was in the form of dark thick liquid with specific ginger flavor. Based on GC-MS analysis, the use of ultrasound was not give an effect on alteration of main component in ginger oleoresin. The main component in extracted ginger oleoresin was zingerone. Gingerol as one of the pungent principle of the ginger oleoresin was not detected due to decomposition of gingerol at a temperature above 45oC. Extraction rate of ultrasound-assisted extraction was about 1.75 times more rapid than a conventional system based on soxhlet. The scanning electron microscopy images provided more evidence for the mechanical effects of ultrasound, mainly appearing on cells? walls and shown by the destruction of cells, facilitating the release of their contents.