Document details

Journal of Food, Agriculture and Environment
Volume 15, Issue 3-4, July-October 2017, Pages 20-25

The use of analytical techniques for qualitative differentiation of lipids extracted from cheese samples and lard (Article)

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Abstract

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A study was carried out to differentiate three different types of cheese lipids from lard using GC-MS, Fourier transform infrared (FTIR) spectrometry and Differential Scanning Calorimetry (DSC). Sample of the cheese lipids and lard were extracted and analyzed using these three instruments. Results showed that all three cheese types were found to possess short chain fatty acids (C4 to C12) while these were totally absent in lard. FTIR spectroscopy corresponds to the wavenumbers at 3007, 1140 –1070, 756 and 720 cm–1 in the spectrum were useful to differentiate between these cheese lipid types and lard. DSC cooling and heating curves displayed considerable differences in their profiles that can be helpful to distinguish the three cheese lipid types from lard. It could be concluded that GC-MS, FTIR spectroscopy and DSC are rapid and steadfast techniques for the detection of non-halal and/or non-kosher lipids in the cheese.

Author keywords

Cheese DSC Food adulteration FTIR spectroscopy GC-MS Halal Lard

Indexed keywords

EMTREE drug terms: lard linoleic acid oleic acid palmitic acid short chain fatty acid stearic acid

EMTREE medical terms: analytic method Article cheese differential scanning calorimetry fatty acid analysis fermented milk product infrared spectroscopy lipid composition lipid extraction liquid liquid extraction mass fragmentography nonhuman quality control reflectometry thermal analysis

Chemicals and CAS Registry Numbers:

lard, 61789-99-9; linoleic acid, 1509-85-9, 2197-37-7, 60-33-3, 822-17-3; oleic acid, 112-80-1, 115-06-0; palmitic acid, 57-10-3; stearic acid, 57-11-4, 646-29-7

Funding details

Funding number	Funding sponsor	Acronym	Funding opportunities
RIGS 15-011-0011	International Islamic University Malaysia	IIUM	See opportunities by IIUM
	International Islamic University Malaysia	IIUM	See opportunities by IIUM

Funding text

The authors would like to express their gratitude to the International Islamic University Malaysia (IIUM), The Research management Center (RMC) at IIUM for the financial support under the research project RIGS 15-011-0011 as well as the Department of Biotechnology Engineering and the International Institute for Halal Research and Training (INHART) at IIUM for providing necessary lab facilities and active cooperation during this research work.

ISSN: 14590255
Source Type: Journal
Original language: English
Document Type: Article
Publisher: WFL Publisher Ltd.

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