ISOLATION AND IDENTIFICATION OF STEROLS IN PALM OIL AND THEIR ANALYSIS BY GC AND GC-MS

HAN AI CHEN

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ISOLATION AND IDENTIFICATION OF STEROLS IN PALM OIL AND THEIR ANALYSIS BY GC AND GC-MS

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BY
HAN AI CHEN

SUPERVISED BY
DR. KAMAL AZIZ KETULY

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF MALAYA
KUALA LUMPUR
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ABSTRACT

The unsaponifiable matters were separated from crude palm oil, crude palm kernel oil, and crude palm fibre oil. The sterol fractions were isolated by preparative thin layer chromatography and were then analysed by gas chromatography and combined gas chromatography-mass spectrometry. Qualitative separations of sterols are illustrated. Tables are presented showing the sterol composition determined in the oils, values obtained for individual contents are in broad agreement with other published results. There were no major differences between crude palm oil, crude palm kernel oil and crude palm fibre oil with respect to their sterols composition. β-sitosterol was found as the most predominant component in the sterol fraction from all oils. Sitostanol and ergosterol, of which their existence was not reported in any previous studies on palm oil, were found in the crude palm fibre oil samples, but were not detected in the crude palm oil and crude palm kernel oil samples.

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ABBREVIATIONS

Appx.	appendix
BSTFA	N,O-bis(trimethylsilyl)-trifluoroacetamide
cm	centimetre
CPO	crude palm oil
CPKO	crude palm kernel oil
CPFO	crude palm fibre oil
FID	flame ionisation detector
Fig.	Figure
g	gram (s)
GC	gas chromatography
GC-MS	gas chromatography-mass spectrometry
HDL	high-density lipoprotein
HPLC	high-performance liquid chromatography
kg	kilogram (s)
i.d.	internal diameter
LDL	low-density lipoprotein
MS	mass spectrometry
µg	microgram (s)
µl	microlitre (s)
Me	methyl
mg	miligram (s)
ml	mililitre (s)

mm	milimetre (s)
m.p.	melting point
MW	molecular weight
m/z	mass/ion charge
NMR	nuclear magnetic resonace
PORIM	Palm Oil Research Institute of Malaysia
ppm	part per million
v/v	volume over volume
w/v	weight over volume
SIM	selected ion monitoring
TIC	total ion chromatogarm
TLC	thin layer chromatography
TMS	trimethylsilyl ethers
TMSCl	trimethylchlorosilane

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