UNIVERSITI PUTRA MALAYSIA

PRODUCTION, PROPERTIES AND APPLICATION OF BLENDS OF PALM STEARIN WITH PALM KERNEL OLEIN, SUNFLOWER OIL OR ANHYDROUS MILKFAT TRANSESTERIFIED BY LIPASES

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By

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LIST OF ABBREVIATIONS

TG	triglycerides
FFA	free fatty acids
SMP	slip melting point
SFC	solid fat content
PS	palm stearin
PKO	palm kernel olein
SO	sunflower oil
AMF	anhydrous milkfat
XRD	x-ray diffraction
GRAS	Generally Recognised As Safe
E	experimental
C	commercial
PV	peroxide value
CP	cone penetrometry
EM20	experimental table margarine stored at 20°C
EM30	experimental table margarine stored at 30°C
CM20	commercial table margarine stored at 20°C
CM30	commercial table margarine stored at 30°C
VE	viscoelastic
LVE	linear viscoelastic region
FA	fatty acids
MG	monoglycerides
DG	diglycerides
TLC	Thin Layer Chromatography
GC	Gas Chromatography
HPLC	High Performance Liquid Chromatography
AOCS	American Oil Chemist Society
C12:0	lauric acid

C14:0	myristic acid
C16:0	palmitic acid
C16:1	palmitoleic acid
C18:0	stearic acid
C18:1	oleic acid
C18:2	linoleic acid
C18:3	linolenic acid
C22:1	erucic acid
sp.	species
PUFA	polyunsaturated fatty acids
EFA	essential fatty acids
HMG	high melting glycerides
POL	1-palmitoyl-2-oleoyl-linoleoyl glycerol
POP	1,3-dipalmitoyl-2-oleoyl glycerol
SOS	1,3-distearoyl-2-oleoyl glycerol
PLP	1,3-dipalmitoyl-2-linoleoyl glycerol
SOO	1-stearoyl-dioleoyl glycerol
POS	1-palmitoyl-2-oleoyl-stearoyl glycerol
PLL	1-palmitoyl-dilinoleoyl glycerol
SOS	1,3-distearoyl-2-oleoyl glycerol
OOL	1,2-dioleoyl-linoleoyl glycerol
LOO	1-linoleoyl-dioleoyl glycerol
LOP	1-linoleoyl-2-oleoyl-palmitoyl glycerol
PPS	1,2-dipalmitoyl-stearoyl glycerol
PPP	tripalmitin
OOO	triolein
S	saturated
U	unsaturated
DTA	differential thermal analysis
DSC	differential scanning calorimetry

G′	storage modulus
G″	loss modulus
G*	complex shear modulus
tan δ	tan delta
η	shear viscosity
η′	dynamic viscosity
% TGR	percent triglyceride remaining
SFI	solid fat index
NMR	nuclear magnetic resonance
HTST	high temperature short time
UHT	ultra high temperature
CBS	cocoa-butter substitute
$[TGI_t]$	concentration of triglycerides that increase in value at reaction time, t
$[TGI_0]$	concentration of triglycerides that increase in value at the start of reaction
X	rate of transesterification
v/v	volume/volume
w/w	weight/weight
IV	iodine value
MP	melting point
LMF	low melting fraction
MMF	middle melting fraction
HMF	high melting fraction
LMP	last melting peak
PORIM	Palm Oil Research Institute of Malaysia
FAME	fatty acid methyl esters
FID	flame ionisation detector
GLM	general linear model
τ_y	yield stress

k	consistency coefficient
n	shear rate index