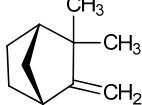
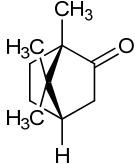
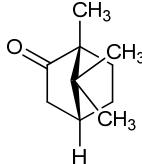
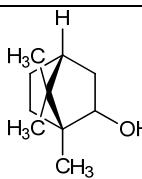
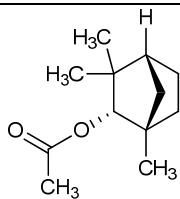
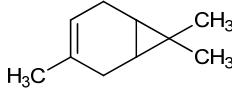
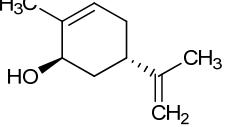
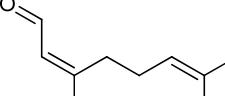
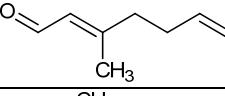
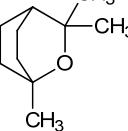
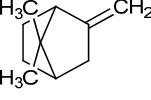
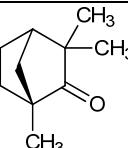


The constituents identified from the essential oil (EO) extracted from flower (F), leaves (L) and stem (S) of *Michelia alba*

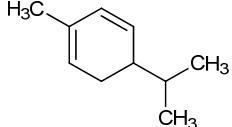
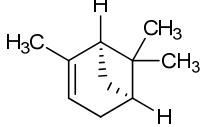
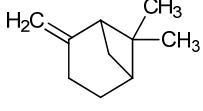
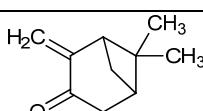
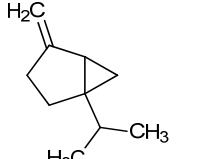
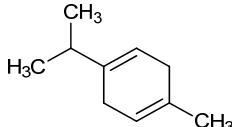
Class	Constituents	Chemical structure	F	L	S	Types of EO	Reference
Monoterpene	1. camphene		/	/	/	steam distillation	(Bi-yao and Dan, 1982; Huang et al., 2009a; Huang et al., 2009b)
	2. camphor		/			Thai China Flavors & Fragrances Co., Ltd	(Songsamoe et al., 2017)
	3. (+)-2-bornanone			/	/	steam distillation	(Huang et al., 2009a)
	4. borneol		/	/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	5. borneol, acetate			/	/	steam distillation	(Huang et al., 2009a)

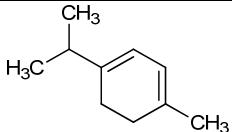
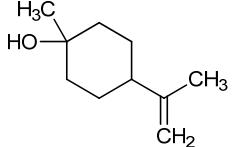
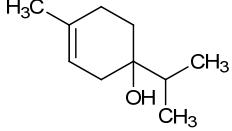
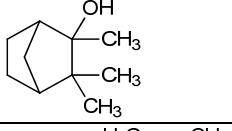
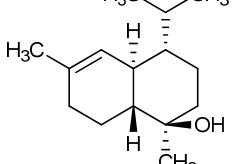
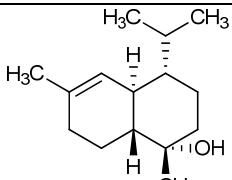
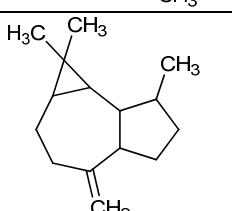
	6. 3-carene		/		steam distillation	(Bi-yao and Dan, 1982)
	7. trans-carveol		/		steam distillation	(Bi-yao and Dan, 1982)
	8. cis-citral		/	/	steam distillation	(Huang et al., 2009a)
	9. trans-citral		/	/	steam distillation	(Huang et al., 2009a)
	10. eucalyptol / 1,8-cineole		/	/	steam distillation	(Huang et al., 2009a) (Bi-yao and Dan, 1982; Huang et al., 2009a; Huang et al., 2009b)
	11. α -fenchene		/	/	steam distillation	(Huang et al., 2009b)
	12. (R)-fenchone		/		Thai China Flavors & Fragrances Co., Ltd	(Songsamoe et al., 2017)

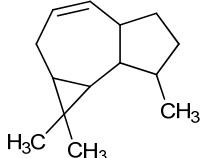
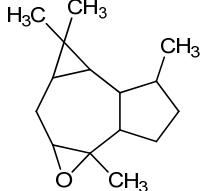
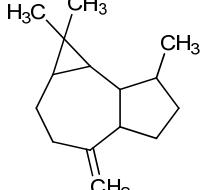
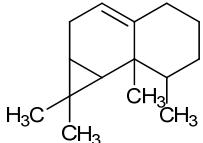
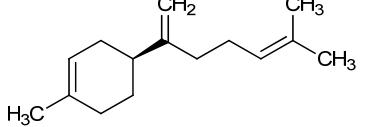
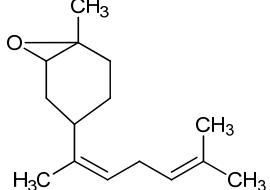
	13. geranyl acetate		/	/	steam distillation	(Huang et al., 2009b)
	14. (2Z,6Z)-octa-2,6-dien-1-y acetate		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	15. <i>cis</i> -geraniol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	16. <i>trans</i> -geraniol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	17. methyl geranate		/		steam distillation	(Huang et al., 2009a)
	18. α -limonene diepoxide			/	steam distillation	(Huang et al., 2009a)
	19. (S)-limonene		/		Thai China Flavors & Fragrances Co., Ltd	(Songsamoe et al., 2017)
	20. limonene		/		steam distillation	(Bi-yao and Dan, 1982)
	21. epoxylinalool		/	/	hexane extraction,	(Pensuk et al., 2007; Huang et al.,

					steam distillation	2009a; Huang <i>et al.</i> , 2009b)
22.	limonene oxide		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
23.	cis-linalool oxide		/	/	steam distillation	(Bi-yao and Dan, 1982; Pensuk <i>et al.</i> , 2007; Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
24.	trans-linalool oxide		/	/	steam distillation	(Bi-yao and Dan, 1982; Pensuk <i>et al.</i> , 2007; Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
25.	linalool		/	/	steam distillation	(Bi-yao and Dan, 1982; Pensuk <i>et al.</i> , 2007; Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b; Songsamoe <i>et al.</i> , 2017)

	26. 8-hydroxy linalool		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
	27. cis-p-2,8-menthadien-1-ol		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
	28. α -myrcene		/	/		(Huang <i>et al.</i> , 2009b; Songsamoe <i>et al.</i> , 2017)
	29. β -myrcene		/	/	steam distillation	(Bi-yao and Dan, 1982; Huang <i>et al.</i> , 2009a)
	30. nopol		/		steam distillation	(Huang <i>et al.</i> , 2009b)
	31. cis-ocimene / (Z)- ocimene		/		steam distillation , hexane extraction	(Pensuk <i>et al.</i> , 2007)
			/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
	32. trans-ocimene / (E)-ocimene		/		steam distillation , hexane extraction	(Pensuk <i>et al.</i> , 2007)

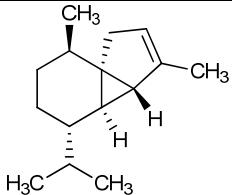
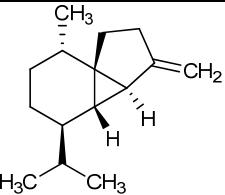
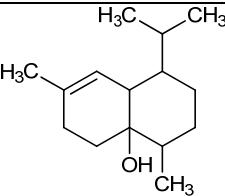
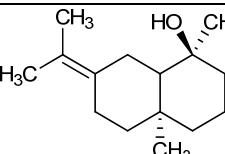
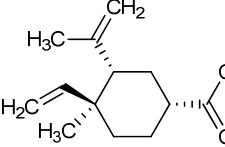
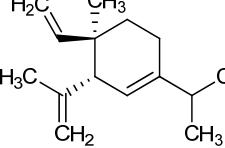
			/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
33. phellandrene			/		steam distillation	(Bi-yao and Dan, 1982)
34. α -pinene			/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
35. β -pinene			/	/	steam distillation	(Bi-yao and Dan, 1982; Huang <i>et al.</i> , 2009a)
36. pinen-3-one				/	steam distillation	(Huang <i>et al.</i> , 2009a)
37. (+)-sabinene			/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
38. γ -terpinene			/		steam distillation	(Huang <i>et al.</i> , 2009b)

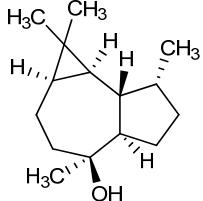
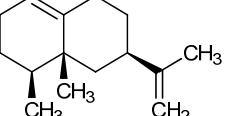
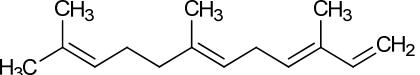
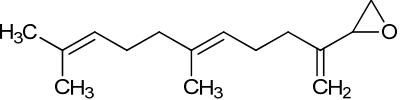
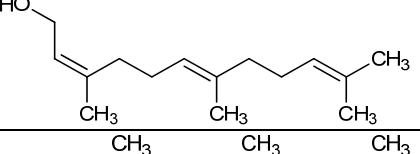
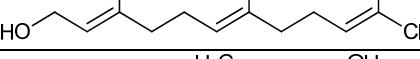
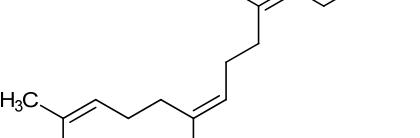
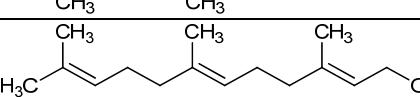
	39. α -terpineol		/	/	steam distillation	(Huang et al., 2009b)
	40. cis- β -terpineol		/	/	steam distillation	(Huang et al., 2009b)
	41. 4-terpineol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	42. 2,3,3- trimethyl-2-norbornanol		/	/	steam distillation	(Huang et al., 2009b)
sesquiterpene	43. α -cadinol		/	/	steam distillation	(Huang et al., 2009a)
	44. T-cadinol			/	steam distillation	(Huang et al., 2009a)
	45. aromadendrene			/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)

	46. (-)-isoaromadendrene		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	47. isoaromadendrene epoxide		/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
	48. decahydro-1,1,7-trimethyl-4-methylene-1 H-cycloprop[e]azulene		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	49. aristolene		/	/	steam distillation	(Bi-yao and Dan, 1982)
	50. β-bisabolene		/	/	steam distillation	(Bi-yao and Dan, 1982; Huang <i>et al.</i> , 2009a)
	51. trans-Z-α -bisabolene epoxide		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)

	52. α -cadinene		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	53. δ -cadinene		/		steam distillation	(Bi-yao and Dan, 1982)
	54. (+)- δ -cadinene			/	steam distillation	(Huang <i>et al.</i> , 2009a)
	55. 1 α -cadin-4-en-10-ol			/	steam distillation	(Huang <i>et al.</i> , 2009b)
	56. trans-caryophyllene		/		steam distillation	(Pensuk <i>et al.</i> , 2007)

	57. cis-caryophyllene		/	/	steam distillation	(Bi-yao and Dan, 1982)
	58. caryophyllene oxide		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	59. α -chamigrene		/	/	steam distillation	(Huang et al., 2009b)
	60. β -chamigrene		/	/		(Huang et al., 2009a)
	61. copaene		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	62. α -copaen-11-ol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)

	63. α -cubebene		/	/	/	steam distillation	(Bi-yao and Dan, 1982; Huang et al., 2009a; Huang et al., 2009b)
	64. β -cubebene		/	/	/	steam distillation	(Huang et al., 2009a) (Bi-yao and Dan, 1982; Huang et al., 2009a)
	65. cubenol		/	/	/	steam distillation	(Bi-yao and Dan, 1982; Huang et al., 2009a; Huang et al., 2009b)
	66. eudesm-7(11)-en-4-ol		/	/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	67. β -elemene		/			steam distillation	(Huang et al., 2009b)
	68. δ -elemene		/			steam distillation	(Huang et al., 2009b)

	69. epiglobulol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	70. eremophila-1(10),11 -diene		/	/	steam distillation	(Huang et al., 2009b)
	71. α -farnesene		/	/	steam distillation	(Huang et al., 2009b)
	72. E-farnesene epoxide		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	73. (2Z, 6E)-farnesol		/	/	steam distillation	(Huang et al., 2009b)
	74. (2E, 6E)-farnesol		/	/	steam distillation	(Huang et al., 2009b)
	75. cis farnesol		/	/	steam distillation	(Huang et al., 2009a)
	76. trans-farnesol		/	/	steam distillation	(Huang et al., 2009a)

	77. germacrene D		/	/	/	steam distillation, enfleurage method	(Pensuk et al., 2007; Huang et al., 2009a; Huang et al., 2009b)
	78. 8-isopropenyl-1,5-dimethyl-cyclodeca-1,5-diene		/	/		steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	79. α -humulene		/	/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	80. isoledene		/	/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	81. ledene oxide-(II)				/	steam distillation	(Huang et al., 2009a)
	82. ledol				/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)

	83. longipinocarvone		/	/	steam distillation	(Huang et al., 2009b)
	84. trans-longipinocarveol			/	steam distillation	(Huang et al., 2009a)
	85. β -muurolene			/	steam distillation	(Huang et al., 2009a)
	86. γ -muurolene			/	steam distillation	(Huang et al., 2009a)
	87. T-muurolol			/	steam distillation	(Huang et al., 2009a)
	88. nerolidol		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)

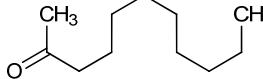
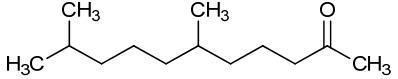
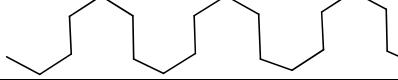
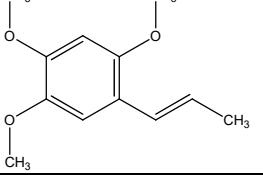
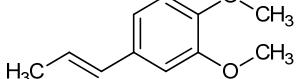
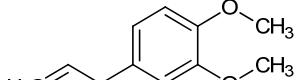
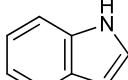
	89. (+)-sativene		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	90. sativene			/	steam distillation	(Huang <i>et al.</i> , 2009b)
	91. selina-6-en-4-ol		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	92. α -selinene		/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
	93. β -selinene		/		steam distillation	(Bi-yao and Dan, 1982)
	94. eudesma-4(14), 11-diene		/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)

	95. spathulenol		/	/	steam distillation	(Huang et al., 2009b)
	96. (-)-spathulenol		/	/	steam distillation	(Huang et al., 2009a)
	97. (+)-spathulenol		/	/	steam distillation	(Huang et al., 2009a)
	98. (5E,9E)-12-methyl-1,5,9,11-tridecatetraene		/	/	steam distillation	(Huang et al., 2009b)
	99. viridiflorol		/	/	steam distillation	(Huang et al., 2009b)
	100. widdrol		/	/	steam distillation	(Huang et al., 2009a)

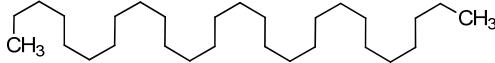
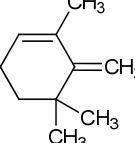
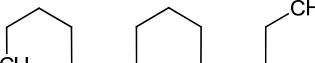
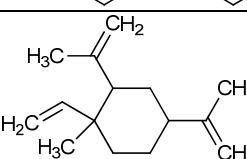
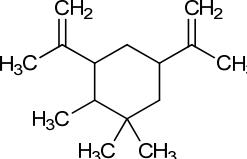
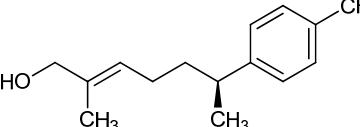
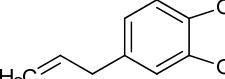
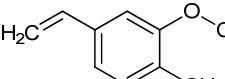
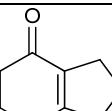
	101. α -ylangene		/	/	steam distillation	(Bi-yao and Dan, 1982)
Diterpene	102. phytol			/	steam distillation	(Huang et al., 2009b)
Macro Diterpene	103. β -4,8,13-duvatriene-1,3-diol			/	steam distillation	(Huang et al., 2009a)
fatty acid	104. benzenepropanoic acid, methyl ester		/		steam distillation	(Huang et al., 2009b)
	105. 2-hydroxy-benzoic acid methyl ester			/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	106. 2-methyl butanoic acid		/		enfleurage method, hexane extraction	(Pensuk et al., 2007)

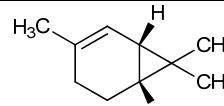
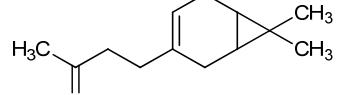
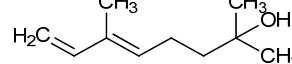
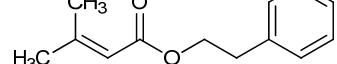
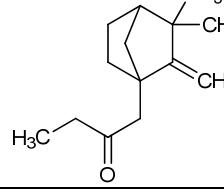
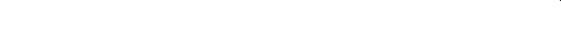
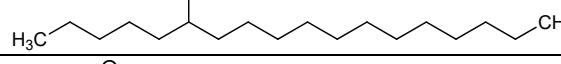
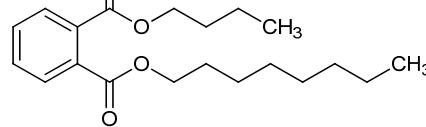
	107. 11,14,17-eicosatrienoic acid, methyl ester		/	/		
	108. ethyl-2-methyl butyrate		/		steam distillation , enfleurage method,	(Pensuk <i>et al.</i> , 2007)
	109. methyl 2-methylbutyrate		/		steam distillation , enfleurage method, Water distillation	(Bi-yao and Dan, 1982) (Pensuk <i>et al.</i> , 2007; Punjee <i>et al.</i> , 2009)
	110. 2-methylbutyl-2-methylbutyrate		/		enfleurage method	(Pensuk <i>et al.</i> , 2007)
	111. phenylethyl-2-methyl butyrate		/		enfleurage method	(Pensuk <i>et al.</i> , 2007)
	112. palmitic acid / hexadecanoic acid / <i>n</i> -hexadecanoic acid		/		enfleurage method, steam distillation	(Pensuk <i>et al.</i> , 2007; Huang <i>et al.</i> , 2009b)
				/	steam distillation	(Huang <i>et al.</i> , 2009b)
	113. nonadecanoic acid			/ /	steam distillation	(Huang <i>et al.</i> , 2009a)

	114. linolenic acid, methyl ester		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
	115. 9,12-octadecadienoic acid methyl ester		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
Fatty acid methyl ester	116. 13-docosenoic acid methyl ester			/	steam distillation	(Huang <i>et al.</i> , 2009a)
Alcohol	117. phenylethyl alcohol		/		steam distillation	(Pensuk <i>et al.</i> , 2007)
	118. 2-octenol			/	steam distillation	(Huang <i>et al.</i> , 2009b)
	119. (9E,12E,15E)-9,12,15-octadecatrien-1-ol		/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
	120. 9,12,15-octadecatrien-1-ol	Same as #95	/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
allyl	121. <i>p</i> -propenylanisole			/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
allylbenzene	122. eugenol		/	/	steam distillation, MeOH extract	(Bi-yao and Dan, 1982; Pensuk <i>et al.</i> , 2007; Lo <i>et al.</i> , 2010)

alkyl	123. 2-undecanone		/	/	/	steam distillation	(Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
	124. 6,10-dimethyl-2-undecanone				/	steam distillation	(Huang <i>et al.</i> , 2009a)
alkane	125. eicosane			/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
phenylpropanoid	126. α -asarone				/	steam distillation	(Huang <i>et al.</i> , 2009a)
	127. methyl isoeugenol / Isoeugenyl methyl ether		/			steam distillation	(Bi-yao and Dan, 1982)
	128. methyl eugenol / eugenol methyl ether			/	/	steam distillation	Bi-yao and Dan, 1982) (Huang <i>et al.</i> , 2009a; Huang <i>et al.</i> , 2009b)
					/		hexane extraction
polycyclic heteroarene	129. indole (1H-indole)		/	/		enfleurage method, steam distillation	(Pensuk <i>et al.</i> , 2007; Huang <i>et al.</i> , 2009b)

ester	130. methyl benzoate		/		hexane extraction	(Pensuk et al., 2007)
	131. phenyl-2-methyl benzoate		/		hexane extraction	(Pensuk et al., 2007)
	132. acetic acid, 2-phenyl ethyl ester		/		steam distillation	(Huang et al., 2009b)
	133. propanoic acid, 2-phenylethyl ester		/		steam distillation	(Huang et al., 2009b)
bicyclic aromatic organic compound	134. phthalan /1,3-dihydroisobenzofuran		/	/	steam distillation	(Huang et al., 2009b)
Aldehyde	135. butanal			/	steam distillation	(Huang et al., 2009a)
	136. benzeneacetaldehyde			/	steam distillation	(Huang et al., 2009a)
	137. octanal			/	steam distillation	(Huang et al., 2009b)
Alkyl-Aldehyde	138. pentanal			/	steam distillation	(Huang et al., 2009a)
Hydrocarbon	139. estragole		/	/	steam distillation	(Huang et al., 2009a; Huang et al., 2009b)
	140. n-heptacosane		/	/		

	141. <i>n</i> -octacosane		/	/	steam distillation	(Huang et al., 2009b)
	142. 1,5,5-trimethyl-6-methylene-1-cyclohexane		/	/	steam distillation	(Huang et al., 2009b)
	143. <i>n</i> -pentadecane		/	/	steam distillation	(Huang et al., 2009b)
	144. 2,4-diisopropenyl-1-methyl-1-vinylcyclohexane		/	/	steam distillation	(Huang et al., 2009b)
	145. (2 α , 3 β , 5 β)-1,1,2-trimethyl-3,5-bis(1-methylethenyl)cyclohexane		/	/	steam distillation	(Huang et al., 2009b)
fatty alcohols	146. (+,-)-nuciferol		/	/	steam distillation	(Huang et al., 2009b)
Bezene	147. 5-(2-propenyl)-1,3-benzodioxole		/	/	steam distillation	(Huang et al., 2009b)
Phenols	148. 2-methoxy-4-vinylphenol		/	/	steam distillation	(Huang et al., 2009b)
Ketone	149. 1,2,3,5,6,7-hexahydroinden-4-one			/	steam distillation	(Huang et al., 2009b)

Monoterpene	150. 2-(acetyl methyl)-(+)-3-carene		/	/	steam distillation	(Huang <i>et al.</i> , 2009b)
Monoterpene	151. 10-(acetyl methyl)-(+)-3-carene		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
Monoterpene	152. ocimenol		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
Ester	153. 3-methyl-2-butenoic acid,-phenylethyl ester		/	/	steam distillation	(Huang <i>et al.</i> , 2009a)
Ketone	154. 4-Camphenylbutan-2-one			/	steam distillation	(Huang <i>et al.</i> , 2009a)
Alcohol	155. Z,Z-8,10-Hexadecadien-1-ol			/	steam distillation	(Huang <i>et al.</i> , 2009a)
Alkane	156. 6-methyloctadecane			/	steam distillation	(Huang <i>et al.</i> , 2009a)
Diester	157. butyl octyl phthalate			/	steam distillation	(Huang <i>et al.</i> , 2009a)