



Análise de óleo essencial de
melaleuca por cromatografia a gás
acoplada a espectrometria de
massas

Sinergia-Soluções em Tecnologia Química

Departamento de Química

UFV- Universidade Federal de Viçosa

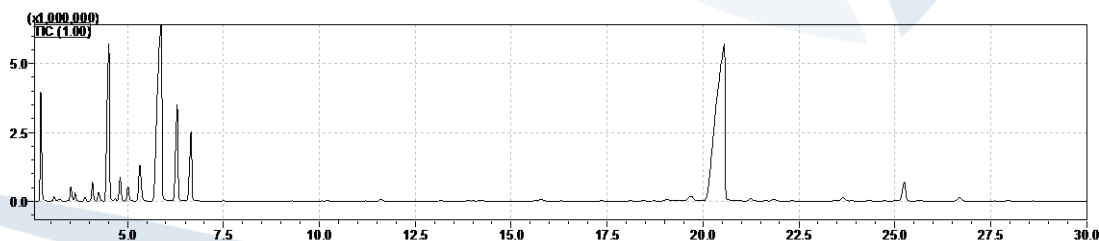
SINERGIA

Análises Cromatográficas da amostra de óleo de melaleuca

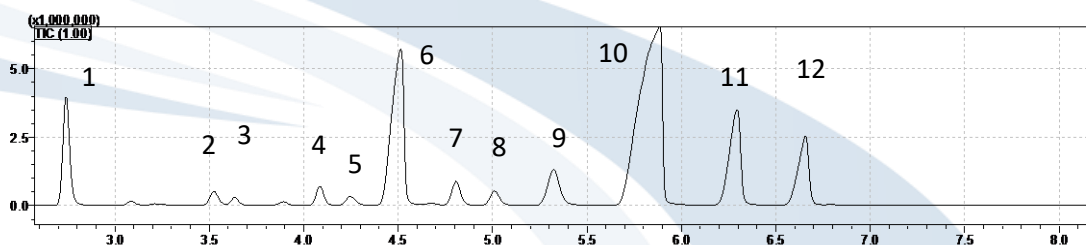
1) Da metodologia de análise

A composição química das amostras foi obtida por análises qualitativas. A análise de GC foi realizada em um equipamento da marca Shimadzu, modelo GC-2010 Plus, equipado com um processador de dados. Utilizou-se uma coluna capilar Carbowax (30 m de comprimento \times 0,250 mm de diâmetro interno \times 0,25 μ m de espessura).

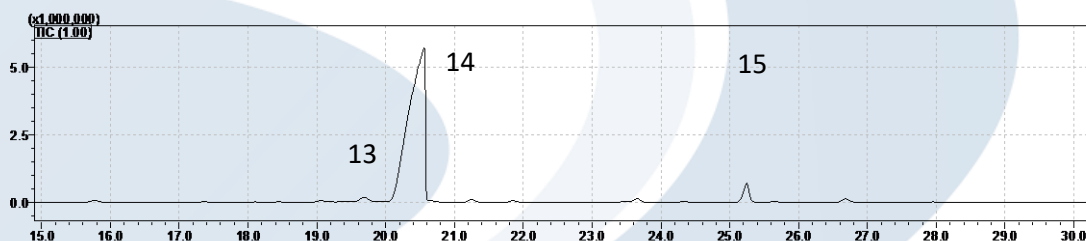
Além disso, O programa de temperatura da coluna foi: 60°C a 220°C à 2,0°C/min. As temperaturas do injetor e do detector foram mantidas em 250°C, o gás de arraste utilizado foi o hélio na pressão de 5,0 psi, em uma taxa de fluxo de entrada 3 mL/min e de fluxo total 20,2 mL/min. O volume injetado das amostras foi de 0,4 μ L com um Split de 1:100. As análises no MS foram realizadas em um equipamento da marca Shimadzu, modelo GCMS – QP2010 Ultra, operando em 70eV, e a temperatura da fonte de íon foi mantida em 200 °C.



Cromatograma da amostra



Ampliação do cromatograma



A coluna escrita representa a porcentagem correspondente ao composto analisado comparado com o banco de dados da biblioteca do aparelho. Ademais, os tempos de retenção e porcentagem de área relativa estão explicitados na tabela abaixo.

Pico	Composto	Tempo de retenção	% área relativa
1	α - pireno	2.74	4.39
2	β - pireno	3.52	0.63
3	Sabineno	3.63	0.29
4	β - mirceno	4.08	0.88
5	α - thujeno	4.24	0.49
6	α - terpineno	4.51	11.08
7	Limoneno	4.80	1.23
8	β - felandreno	5.01	0.77
9	1,8 - cineol	5.32	2.53
10	γ - terpineno	5.88	23.79
11	p - cimeno	6.29	6.36
12	α - terpinoleno	6.65	4.36
13	Aromadendrene	19.68	0.62
14	4 - terpineol	20.56	40.82
15	α - terpineol	25.25	1.76

A identificação dos componentes foi realizada, a partir da fragmentação das suas massas, por comparação dos espectros de massa dos compostos aos espectros das bibliotecas de referência Adams e NIST (Adams, 2008; NIST, 1990), armazenados na base de dados do MS.

Pico 1

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	97	<input checked="" type="checkbox"/>	.ALPHA.-PINENE, (-) \$\$ Bicyclo[3.1.1]hept-2-	136	C10 H16	WILEY7.LIB
2	96	<input type="checkbox"/>	.ALPHA.-PINENE, (-) \$\$ Bicyclo[3.1.1]hept-2-	136	C10 H16	WILEY7.LIB
3	95	<input type="checkbox"/>	(1R)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene \$	136	C10H16	NIST11s.lib
4	95	<input type="checkbox"/>	1R-.alpha.-Pinene \$\$ 1R-.alpha.-Pinene \$\$ Bi	136	C10H16	NIST08s.LIB
5	95	<input type="checkbox"/>	.ALPHA.-PINENE, (-) \$\$ Bicyclo[3.1.1]hept-2-	136	C10 H16	WILEY7.LIB
6	95	<input type="checkbox"/>	.alpha.-Pinene \$\$ Bicyclo[3.1.1]hept-2-ene, 2,	136	C10H16	NIST11s.lib
7	95	<input type="checkbox"/>	.alpha.-Pinene \$\$ Bicyclo[3.1.1]hept-2-ene, 2,	136	C10H16	NIST08.LIB
8	95	<input type="checkbox"/>	.alpha.-Pinene \$\$ Bicyclo[3.1.1]hept-2-ene, 2,	136	C10H16	NIST11.lib
9	95	<input type="checkbox"/>	Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl, (-) /	136	C10H16	NIST08.LIB

Pico 2

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	91	<input checked="" type="checkbox"/>	.beta.-Pinene \$\$ Bicyclo[3.1.1]heptane, 6,6-di	136	C10H16	NIST11.lib
2	91	<input type="checkbox"/>	.beta.-Pinene \$\$ Bicyclo[3.1.1]heptane, 6,6-di	136	C10H16	NIST08.LIB
3	91	<input type="checkbox"/>	2-BETA-PINENE \$\$ Bicyclo[3.1.1]heptane, 6	136	C10 H16	WILEY7.LIB
4	91	<input type="checkbox"/>	Linalyl acetate \$\$ 1,6-Octadien-3-ol, 3,7-dimet	196	C12 H20 O2	WILEY7.LIB
5	90	<input type="checkbox"/>	2-BETA-PINENE \$\$ Bicyclo[3.1.1]heptane, 6	136	C10 H16	WILEY7.LIB
6	90	<input type="checkbox"/>	Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylen	136	C10H16	NIST11s.lib
7	90	<input type="checkbox"/>	Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylen	136	C10H16	NIST08s.LIB
8	90	<input type="checkbox"/>	2-BETA-PINENE \$\$ Bicyclo[3.1.1]heptane, 6	136	C10 H16	WILEY7.LIB
9	90	<input type="checkbox"/>	(1).beta.-Pinene \$\$ 6,6-DIMETHYL-2-METHYL	136	C10 H16	WILEY7.LIB

Pico 3

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	85	<input checked="" type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
2	85	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
3	84	<input type="checkbox"/>	2-BETA-PINENE \$\$ Bicyclo[3.1.1]heptane, 6	136	C10 H16	WILEY7.LIB
4	84	<input type="checkbox"/>	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methyl	136	C10H16	NIST11.lib
5	84	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
6	84	<input type="checkbox"/>	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methyl	136	C10H16	NIST08.LIB
7	83	<input type="checkbox"/>	1R-.alpha.-Pinene \$\$ 1R-.alpha.-Pinene \$\$ Bi	136	C10H16	NIST08s.LIB
8	83	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
9	82	<input type="checkbox"/>	.alpha.-Pinene \$\$ Bicyclo[3.1.1]hept-2-ene, 2	136	C10H16	NIST11.lib

Pico 4

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	92	<input checked="" type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10 H16	WILEY7.LIB
2	92	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10 H16	WILEY7.LIB
3	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10 H16	WILEY7.LIB
4	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10H16	NIST08s.LIB
5	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10H16	NIST11s.lib
6	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10 H16	WILEY7.LIB
7	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10H16	NIST08.LIB
8	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10H16	NIST11.lib
9	91	<input type="checkbox"/>	.beta.-Myrcene \$\$ 1,6-Octadiene, 7-methyl-3-	136	C10 H16	WILEY7.LIB

Pico 5

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	89	<input checked="" type="checkbox"/>	l-Phellandrene \$\$ 1,3-Cyclohexadiene, 2-meth	136	C10 H16	WILEY7.LIB
2	88	<input type="checkbox"/>	.alpha.-Phellandrene \$\$ 1,3-Cyclohexadiene,	136	C10H16	NIST11s.lib
3	88	<input type="checkbox"/>	.alpha.-Phellandrene \$\$ 1,3-Cyclohexadiene,	136	C10H16	NIST08s.LIB
4	87	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10 H16	WILEY7.LIB
5	87	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10H16	NIST11s.lib
6	87	<input type="checkbox"/>	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)	136	C10H16	NIST08s.LIB
7	87	<input type="checkbox"/>	.alpha.-Thujene \$\$ Bicyclo[3.1.0]hex-2-ene, 2-	136	C10 H16	WILEY7.LIB
8	87	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10 H16	WILEY7.LIB
9	87	<input type="checkbox"/>	.ALPHA-PHELLANDRENE ee	136	C10 H16	WILEY7.LIB

Pico 6

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	95	<input checked="" type="checkbox"/>	.alpha.-Terpinene \$\$ 1,3-Cyclohexadiene, 1-m	136	C10 H16	WILEY7.LIB
2	95	<input type="checkbox"/>	.ALPHA.-TERPINOLENE \$\$ Cyclohexene, 1-	136	C10 H16	WILEY7.LIB
3	95	<input type="checkbox"/>	(+)-4-Carene \$\$ 4,7,7-Trimethylbicyclo[4.1.0]h	136	C10H16	NIST11.lib
4	95	<input type="checkbox"/>	(+)-4-Carene \$\$ 4,7,7-Trimethylbicyclo[4.1.0]h	136	C10H16	NIST08.LIB
5	95	<input type="checkbox"/>	.DELTA.-4-CARENE \$\$ Bicyclo[4.1.0]hept-2-e	136	C10 H16	WILEY7.LIB
6	95	<input type="checkbox"/>	Bicyclo[4.1.0]hept-2-ene, 3,7,7-trimethyl- \$\$ 2-	136	C10H16	NIST08.LIB
7	95	<input type="checkbox"/>	(+)-2-Carene	136	C10H16	NIST11.lib
8	95	<input type="checkbox"/>	Bicyclo[4.1.0]hept-2-ene, 3,7,7-trimethyl- \$\$ 2-	136	C10H16	NIST08s.LIB
9	95	<input type="checkbox"/>	(-)-2-CARENE \$\$	136	C10 H16	WILEY7.LIB

Pico 7

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	93	<input checked="" type="checkbox"/>	l-Limonene \$\$ Cyclohexene, 1-methyl-4-(1-met	136	C10 H16	WILEY7.LIB
2	93	<input type="checkbox"/>	D-Limonene \$\$ Cyclohexene, 1-methyl-4-(1-me	136	C10H16	NIST11s.lib
3	92	<input type="checkbox"/>	Cyclohexene, 1-methyl-4-(1-methylethenyl)- (C	136	C10 H16	WILEY7.LIB
4	92	<input type="checkbox"/>	Limonene \$\$ Cyclohexene, 1-methyl-4-(1-meth	136	C10H16	NIST08s.LIB
5	92	<input type="checkbox"/>	Limonene \$\$ Cyclohexene, 1-methyl-4-(1-meth	136	C10H16	NIST11s.lib
6	92	<input type="checkbox"/>	dl-Limonene \$\$ Cyclohexene, 1-methyl-4-(1-me	136	C10 H16	WILEY7.LIB
7	91	<input type="checkbox"/>	Cyclohexanol, 1-methyl-4-(1-methylethenyl)-, a	196	C12H20O2	NIST08s.LIB
8	91	<input type="checkbox"/>	Cyclohexanol, 1-methyl-4-(1-methylethenyl)-, a	196	C12H20O2	NIST11s.lib
9	91	<input type="checkbox"/>	beta-Terpinol acetate \$\$ Cyclohexanol, 1-met	196	C12 H20 O2	WILEY7.LIB

Pico 8

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	90	<input checked="" type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
2	90	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
3	89	<input type="checkbox"/>	.beta.-Phellandrene \$\$ Cyclohexene, 3-methyl	136	C10 H16	WILEY7.LIB
4	89	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
5	88	<input type="checkbox"/>	.beta.-Phellandrene \$\$ Cyclohexene, 3-methyl	136	C10 H16	WILEY7.LIB
6	88	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB
7	88	<input type="checkbox"/>	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methyl	136	C10H16	NIST08.LIB
8	88	<input type="checkbox"/>	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methyl	136	C10H16	NIST11.lib
9	88	<input type="checkbox"/>	Sabinene \$\$ Bicyclo[3.1.0]hexane, 4-methylen	136	C10 H16	WILEY7.LIB

Pico 9

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	95	<input checked="" type="checkbox"/>	1,8-Cineole \$\$ 2-Oxabicyclo[2.2.2]octane, 1,3,	154	C10 H18 O	WILEY7.LIB
2	95	<input type="checkbox"/>	EUCALYPTOL (1,8-CINEOLE) \$\$	154	C10 H18 O	WILEY7.LIB
3	95	<input type="checkbox"/>	1,8-Cineole \$\$ 2-Oxabicyclo[2.2.2]octane, 1,3,	154	C10 H18 O	WILEY7.LIB
4	95	<input type="checkbox"/>	1,8-Cineole \$\$ 2-Oxabicyclo[2.2.2]octane, 1,3,	154	C10 H18 O	WILEY7.LIB
5	93	<input type="checkbox"/>	1,8-Cineole \$\$ 2-Oxabicyclo[2.2.2]octane, 1,3,	154	C10 H18 O	WILEY7.LIB
6	93	<input type="checkbox"/>	Eucalyptol \$\$ Cineole \$\$ 2-Oxabicyclo[2.2.2]o	154	C10H18O	NIST08.LIB
7	93	<input type="checkbox"/>	Eucalyptol \$\$ Cineole \$\$ 2-Oxabicyclo[2.2.2]o	154	C10H18O	NIST11.lib
8	93	<input type="checkbox"/>	Eucalyptol \$\$ Cineole \$\$ 2-Oxabicyclo[2.2.2]o	154	C10H18O	NIST11s.lib
9	93	<input type="checkbox"/>	Eucalyptol \$\$ Cineole \$\$ 2-Oxabicyclo[2.2.2]o	154	C10H18O	NIST08s.LIB

Pico 10

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	97	<input checked="" type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10 H16	WILEY7.LIB
2	97	<input type="checkbox"/>	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)	136	C10H16	NIST08s.LIB
3	97	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10H16	NIST11s.lib
4	96	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10H16	NIST11s.lib
5	96	<input type="checkbox"/>	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)	136	C10H16	NIST08s.LIB
6	95	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10 H16	WILEY7.LIB
7	95	<input type="checkbox"/>	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)	136	C10H16	NIST08s.LIB
8	95	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10H16	NIST11s.lib
9	95	<input type="checkbox"/>	.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-	136	C10 H16	WILEY7.LIB

Pico 11

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	95	<input checked="" type="checkbox"/>	Benzene, 1-methyl-3-(1-methylethyl)- (CAS) m-	134	C10 H14	WILEY7.LIB
2	95	<input type="checkbox"/>	Benzene, 1-methyl-3-(1-methylethyl)- \$\$ m-Cym	134	C10H14	NIST08s.LIB
3	95	<input type="checkbox"/>	Benzene, 1-methyl-3-(1-methylethyl)- \$\$ m-Cym	134	C10H14	NIST11s.lib
4	95	<input type="checkbox"/>	Benzene, 1-methyl-4-(1-methylethyl)- \$\$ p-Cym	134	C10H14	NIST08s.LIB
5	95	<input type="checkbox"/>	p-Cymene \$\$ Benzene, 1-methyl-4-(1-methylet	134	C10H14	NIST11s.lib
6	94	<input type="checkbox"/>	Benzene, methyl(1-methylethyl)- (CAS) Cymol \$	134	C10 H14	WILEY7.LIB
7	94	<input type="checkbox"/>	Benzene, 1-methyl-2-(1-methylethyl)- (CAS) 1-	134	C10 H14	WILEY7.LIB
8	94	<input type="checkbox"/>	Benzene, 1-methyl-4-(1-methylethyl)- (CAS) p-C	134	C10 H14	WILEY7.LIB
9	94	<input type="checkbox"/>	Benzene, 1-methyl-3-(1-methylethyl)- \$\$ m-Cym	134	C10H14	NIST08.LIB

Pico 12

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	96	<input checked="" type="checkbox"/>	.ALPHA.-TERPINOLENE \$\$ Cyclohexene, 1-	136	C10 H16	WILEY7.LIB
2	95	<input type="checkbox"/>	.ALPHA.-TERPINOLENE \$\$ Cyclohexene, 1-	136	C10 H16	WILEY7.LIB
3	95	<input type="checkbox"/>	Cyclohexene, 1-methyl-4-(1-methylethylidene)-	136	C10H16	NIST08.LIB
4	95	<input type="checkbox"/>	Cyclohexene, 1-methyl-4-(1-methylethylidene)-	136	C10H16	NIST11.lib
5	95	<input type="checkbox"/>	Cyclohexene, 4-methyl-3-(1-methylethylidene)-	136	C10H16	NIST08.LIB
6	95	<input type="checkbox"/>	Cyclohexene, 4-methyl-3-(1-methylethylidene)-	136	C10 H16	WILEY7.LIB
7	95	<input type="checkbox"/>	Cyclohexene, 4-methyl-3-(1-methylethylidene)-	136	C10H16	NIST11.lib
8	94	<input type="checkbox"/>	.ALPHA.-TERPINOLENE \$\$ Cyclohexene, 1-	136	C10 H16	WILEY7.LIB
9	94	<input type="checkbox"/>	.ALPHA.-TERPINOLENE \$\$ Cyclohexene, 1-	136	C10 H16	WILEY7.LIB

Pico 13

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	87	<input checked="" type="checkbox"/>	(+)-Aromadendrene \$\$ 1H-Cycloprop[e]azulen	204	C15 H24	WILEY7.LIB
2	86	<input type="checkbox"/>	1H-Cycloprop[e]azulene, decahydro-1,1,7-trim	204	C15H24	NIST08s.LIB
3	86	<input type="checkbox"/>	Alloaromadendrene \$\$ 1H-Cycloprop[e]azulen	204	C15H24	NIST11s.lib
4	86	<input type="checkbox"/>	Alloaromadendrene \$\$ 1H-Cycloprop[e]azulen	204	C15 H24	WILEY7.LIB
5	85	<input type="checkbox"/>	1R,3Z,9s-4,11,11-Trimethyl-8-methylenebicycl	204	C15H24	NIST11.lib
6	85	<input type="checkbox"/>	1R,3Z,9s-4,11,11-Trimethyl-8-methylenebicycl	204	C15H24	NIST08.LIB
7	84	<input type="checkbox"/>	Alloaromadendrene \$\$ 1H-Cycloprop[e]azulen	204	C15 H24	WILEY7.LIB
8	84	<input type="checkbox"/>	1H-3a,7-Methanoazulene, octahydro-1,9,9-trim	204	C15H24	NIST08.LIB
9	84	<input type="checkbox"/>	1H-3a,7-Methanoazulene, octahydro-1,9,9-trim	204	C15H24	NIST11s.lib

Pico 14

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	96	<input checked="" type="checkbox"/>	Terpinen-4-ol \$\$ 3-Cyclohexen-1-ol, 4-methyl-1	154	C10H18O	NIST11s.lib
2	96	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-	154	C10H18O	NIST08s.LIB
3	96	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (	154	C10 H18 O	WILEY7.LIB
4	96	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (	154	C10 H18 O	WILEY7.LIB
5	95	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (	154	C10 H18 O	WILEY7.LIB
6	95	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-,	154	C10H18O	NIST11.lib
7	95	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (	154	C10 H18 O	WILEY7.LIB
8	95	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-,	154	C10H18O	NIST08.LIB
9	94	<input type="checkbox"/>	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (	154	C10 H18 O	WILEY7.LIB

Pico 15

Hit	Similar	Regi	Compound Name	Mol Wt	Formula	Library
1	90	<input checked="" type="checkbox"/>	.BETA. FENCHYL ALCOHOL \$\$	154	C10 H18 O	WILEY7.LIB
2	90	<input type="checkbox"/>	3-Cyclohexene-1-methanol, .alpha.,.alpha.,4-tri	154	C10 H18 O	WILEY7.LIB
3	89	<input type="checkbox"/>	.ALPHA. TERPINEOL \$\$	154	C10 H18 O	WILEY7.LIB
4	89	<input type="checkbox"/>	3-Cyclohexene-1-methanol, .alpha.,.alpha.,4-tri	154	C10 H18 O	WILEY7.LIB
5	88	<input type="checkbox"/>	3-Cyclohexene-1-methanol, .alpha.,.alpha.,4-tri	154	C10 H18 O	WILEY7.LIB
6	87	<input type="checkbox"/>	(+).ALPHA.-TERPINEOL \$\$ (+).alpha.-Terpi	154	C10 H18 O	WILEY7.LIB
7	87	<input type="checkbox"/>	3-Cyclohexene-1-methanol, .alpha.,.alpha.,4-tri	154	C10 H18 O	WILEY7.LIB
8	87	<input type="checkbox"/>	L.alpha.-Terpineol \$\$ 3-Cyclohexene-1-metha	154	C10H18O	NIST11s.lib
9	87	<input type="checkbox"/>	3-Cyclohexene-1-methanol, .alpha.,.alpha.,4-tri	154	C10H18O	NIST08s.LIB



Ricardo Natalino




Analista

Página de assinaturas



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