

GC/MS BATCH NUMBER: CA4103

ESSENTIAL OIL: CHAMOMILE GERMAN CO2

BOTANICAL NAME: MATRICARIA RECUTITA

ORIGIN: GERMANY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF GERMAN CHAMOMILE CO2 OIL	%
cis-SPIROETHER	12.3
OLEIC ACID	11.4
TRANS- β -FARNESENE	6.4
α -BISABOLOL	5.8
LINOLEIC ACID	3.5
PALMITIC ACID	3.1
TRANS-SPIROETHER	2.2
HERNIARIN	1.7
α -BISABOLOL OXIDE A	1.2
CHAMAZULENE	1.0

Comments from Robert Tisserand: Smells intensely of fresh Matricaria recutita flowers! Constituents are in expected amounts.

Date : December 11, 2017

SAMPLE IDENTIFICATION

Internal code : 17L05-PTH1-1-CC

Customer identification : Chamomile German CO2 - Germany - CA4103711R

Type : Essential oil

Source : *Matricaria recutita*

Customer : Plant Therapy

ANALYSIS

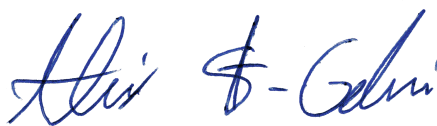
Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Identifications double-checked by GC-MS

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-12-11

Checked and approved by :



Alexis St-Gelais, M. Sc., chimiste 2013-174

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Acetic acid	0.57	660	0.15	0.21	1376	6.26	Aliphatic acid
Ethyl 2-methylbutyrate	2.26	847	0.01				Aliphatic ester
Isovaleric acid	2.74	883	0.03				Aliphatic acid
2-Methylbutyric acid	2.84	891	0.02	6.03	1618	13.29*	Aliphatic acid
Sabinene	4.13	969	0.01				Monoterpene
para-Cymene	5.13	1025	0.02	0.02	1206	3.67	Monoterpene
Limonene	5.22	1030	0.03	0.03	1142	2.84	Monoterpene
cis-β-Ocimene	5.34	1037	tr	0.02	1185	3.40*	Monoterpene
trans-β-Ocimene	5.52	1046	0.01	0.01	1200	3.60	Monoterpene
γ-Terpinene	5.71	1057	0.02	[0.02]	1185	3.40*	Monoterpene
Artemisia ketone	5.77	1060	0.04	0.04	1286	4.86	Monoterp. ketone
Artemisia alcohol	6.21	1084	0.02	0.02	1444	7.61	Monoterp. alcohol
α-Isocomene	18.29	1366	0.04	0.04	1457	7.93	Sesquiterpene
β-Caryophyllene	20.56	1400	0.07	0.07	1517	9.46	Sesquiterpene
Capric acid	21.45	1410	0.26	0.41	2192	42.21	Fatty acid
trans-β-Farnesene	24.66	1449	6.40	[6.03]	1618	13.29*	Sesquiterpene
γ-Murolene	25.49	1458	0.04	0.04	1609	12.83	Sesquiterpene
Germacrene D	25.63	1460	0.42	[6.03]	1618	13.29*	Sesquiterpene
β-Selinene	26.24	1467	0.06	[6.03]	1618	13.29*	Sesquiterpene
Bicyclogermacrene	26.85	1475	0.09	0.07	1638	14.33	Sesquiterpene
γ-Cadinene	28.69	1497	0.06	0.02	1664	15.70	Sesquiterpene
β-Bisabolene	28.83	1498	0.02	0.04	1655	15.20	Sesquiterpene
(E,E)-α-Farnesene	29.06	1502	0.15	0.19	1690	17.01*	Sesquiterpene
δ-Cadinene	29.32	1505	0.11	0.11	1669	15.98	Sesquiterpene
β-Sesquiphellandrene	30.18	1517	0.05	[0.19]	1690	17.01*	Sesquiterpene
Caryophyllene oxide	33.80	1568	0.04	0.03	1841	26.84	Sesquiterp. ether
Spathulenol	33.98	1571	0.25	0.73	2009	36.71*	Sesquiterp. alcohol
α-Bisabolol oxide B	37.84	1645	0.67	[0.73]	2009	36.71*	Sesquiterp. alcohol
α-Bisabolone oxide	38.93	1672	0.13	0.10	2036	37.69	Sesquiterp. alcohol
α-Bisabolol	39.57	1688	5.76	5.13	2124	40.44	Sesquiterp. alcohol
Chamazulene	40.64	1719	1.00	0.75	2219	42.89*	Azulene
Herniarin	41.21	1736	1.67	1.32	2883	55.97	Coumarin
α-Bisabolol oxide A	41.46	1744	1.24	1.10	2288	44.51	Sesquiterp. alcohol
Myristic acid	43.11	1796	0.31	0.28	2620	51.30	Fatty acid
Phytone	44.48	1846	0.03	0.02	2073	38.83	Aliphatic ketone
cis-Spiroether	45.83	1895	12.32	10.15	2737	53.41	Polyne
trans-Spiroether	46.37	1917	2.15				Polyne
Methyl palmitate	46.81	1934	0.08	0.08	2164	41.46	Fatty acid ester
(Z)-Tibetin spiroether	47.36	1956	0.33				Polyne
Palmitic acid	48.43	1999	3.09	3.32	2836	55.17	Fatty acid
Phytol	50.98	2109	0.07	0.08	2582	50.57	Diterp. alcohol

Oleic acid	52.45	2176	11.40	11.03	3120	59.86	Fatty acid
Linoleic acid	52.57	2181	3.46	2.85	3070	59.06	Fatty acid
Docosane	52.87	2195	0.55	[0.75]	2219	42.89*	Alkane
Tricosane	54.95	2294	0.15	0.19	2309	44.97	Alkane
Tetracosane	57.05	2397	0.15	0.08	2410	47.15	Alkane
Pentacosane	58.89	2492	0.37	0.34	2513	49.23	Alkane
Hexacosane	60.76	2592	0.04	0.05	2608	51.06	Alkane
Heptacosane	62.52	2691	0.08	0.08	2690	52.56	Alkane
Total identified			53.47%	45.08%			

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

Note: no correction factor was applied

OTHER DATA

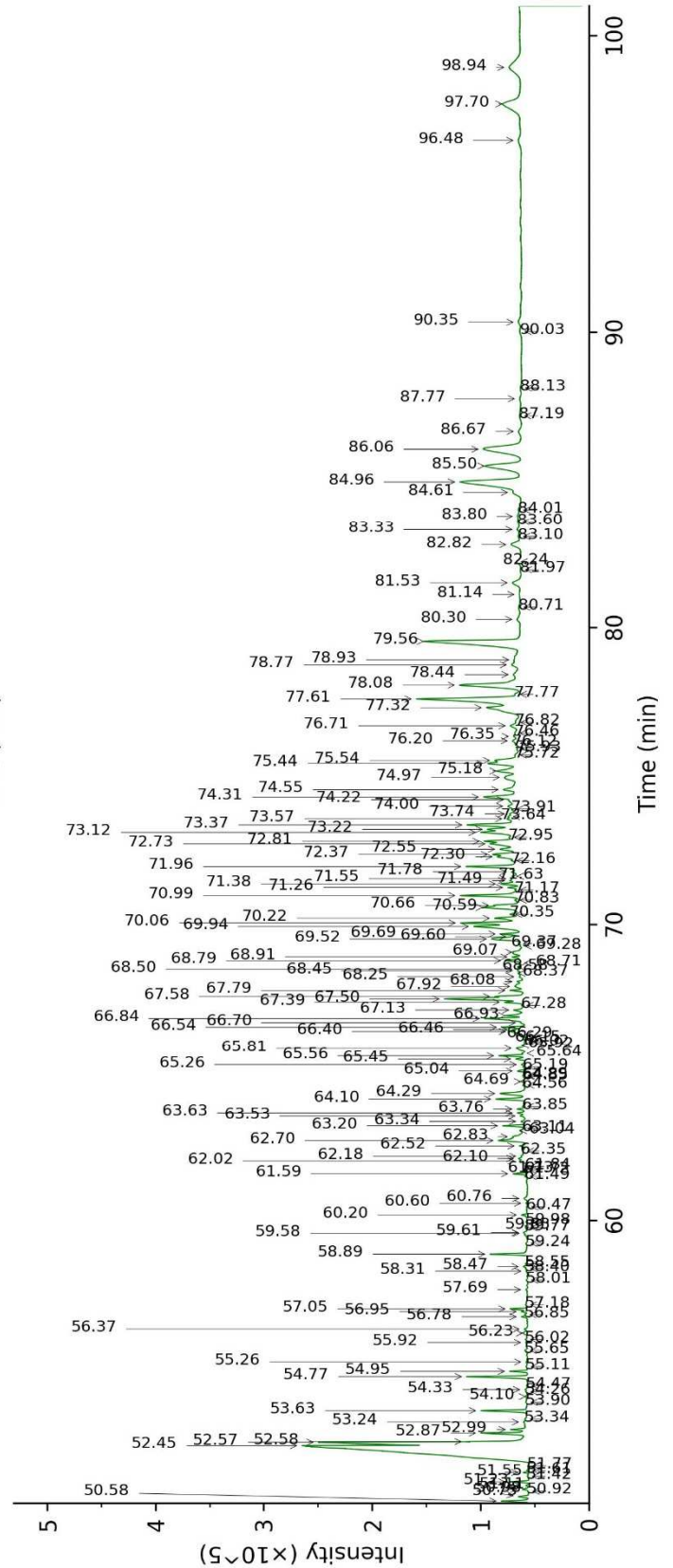
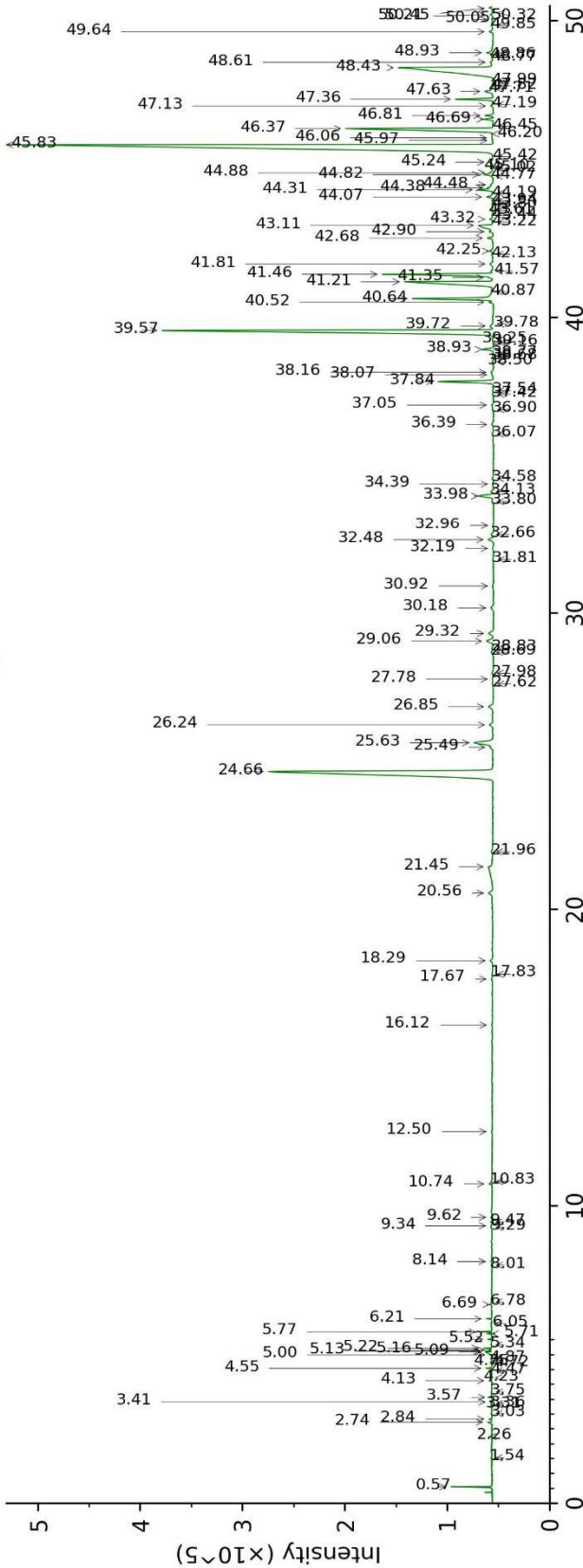
Physical aspect : Dark green liquid

Refractive index : N/A (Too dark)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method.

17L05-PTH1-1-CC_BP5



17L05-PTH1-1-CC_WAX

