

GC/MS BATCH NUMBER: CA4100

ESSENTIAL OIL: CHAMOMILE GERMAN CO2

BOTANICAL NAME: MATRICARIA RECUTITA

ORIGIN: GERMANY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF GERMAN CHAMOMILE OIL	%
cis-SPIROETHER	6.9
α-BISABOLOL	6.5
LINOLEIC ACID	6.4
trans-β-FARNESENE	3.6
OLEIC ACID	3.5
TRIACONTANE	3.2
PALMITIC ACID	2.8
trans-SPIROETHER	1.6
UNTRIACONTANE	1.1

Comments from Robert Tisserand: German Chamomile CO2 extract is preferred by many for topical use. The lab report cites herniarin (only 1% of the extract) as being a possible allergen. I would add that, in my opinion, the evidence for herniarin being an allergen is not very solid. The 0.7% chamazulene is actually matricin, but this shows as chamazulene on lab reports.

Date : August 19, 2016

SAMPLE IDENTIFICATION

Internal code : 16G22-PTH9-1-DM

Customer identification : Chamomile Co2 - Germany - CA410063R

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 : Alexis St-Gelais, M. Sc., chimiste

Analysis date : 2016-07-26

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.	
Sabinene	4.06	967	0.02	0.01	1060	1.53	Monoterpene
para-Cymene	5.08	1026	0.02	0.02	1212	3.10	Monoterpene
1,8-Cineole	5.15	1030	0.02	0.02	1147	2.36	Monoterp. ether
Artemisia ketone	5.71	1061	0.04	0.04	1293	4.22	Monoterp. ketone
Carvone	11.18	1244	0.03	0.10	1639	11.60*	Monoterp. ketone
(E)-Anethole	13.26	1290	0.07	0.05	1738	16.09	Phenylpropanoid
α-Isocomene	17.91	1363	0.02	0.01	1453	6.67	Sesquiterpene
β-Caryophyllene	20.16	1397	0.06	0.05	1529	8.20	Sesquiterpene
Capric acid	22.36	1424	0.17	0.17	2222	40.46	Fatty acid
trans-β-Farnesene	24.26	1447	3.55	3.41	1630	11.27*	Sesquiterpene
Germacrene D	25.15*	1458	0.32	[3.41]	1630	11.27*	Sesquiterpene
Precocene I	25.15*	1458	[0.32]				Chromene
β-Selinene	25.73	1465	0.08	[3.41]	1630	11.27*	Sesquiterpene
Bicyclgermacrene	26.36	1471	0.08	[0.10]	1639	11.60*	Sesquiterpene
δ-Cadinene	28.65	1499	0.07	0.04	1684	13.60	Sesquiterpene
(E,E)-α-Farnesene	28.81	1502	0.05	0.08	1703	14.45	Sesquiterpene
Spathulenol	33.63	1568	0.18	0.44	2033	34.33*	Sesquiterp. alcohol
α-Bisabolol oxide B	37.59	1643	0.39	[0.44]	2033	34.33*	Sesquiterp. alcohol
α-Bisabolol	39.38	1686	6.49	5.72	2154	38.70	Sesquiterp. alcohol
Chamazulene	40.36	1714	0.79	0.64	2248	41.16	Azulene
Herniarin	40.94	1732	0.88	1.13	2952	54.32	Coumarin
α-Bisabolol oxide A	41.26	1742	0.82	0.71	2322	42.84	Sesquiterp. alcohol
cis-Spiroether	45.62	1892	6.88	6.68	2794	51.75	Polyyne
trans-Spiroether	46.23	1916	1.62				Polyyne
(Z)-Tibetin spiroether	47.18	1955	0.18				Polyyne
Palmitic acid	48.52	2010	2.75	3.68	2903	53.56*	Fatty acid
Linoleic acid	52.40	2181	6.43	6.52	3203	58.17	Fatty acid
Oleic acid	52.55	2188	3.50	3.61	3152	57.41*	Fatty acid
Nonacosane	66.26	2926	0.48	[3.68]	2903	53.56*	Alkane
Triacontane	67.38	2996	3.17	2.10	3069	56.15	Alkane
Untriacontane	69.41	3127	1.12	[3.61]	3152	57.41*	Alkane
Total identified			40.28%	35.23%			

*: 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 : 1.5050 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method. Given that this is an extract, most of the detected peaks corresponded to a complex mixture of waxy compounds, likely including branched alkanes and alkenes, various fatty acids, fatty alcohols and triterpenes. These compounds are poorly characterized by GC-MS in available databases, hence the low identified total. The presence of harniarin should be noted, as this compound has been reported to be a potentiel allergen in chamomile extracts.



