

Date : 2024-10-08

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

**Internal code :** 24I24-PTH06

**Customer Identification :** Organic Blue Tansy - Morocco - BH0107R

**Type :** Essential Oil

**Source :** *Tanacetum annuum*

**Customer :** Plant Therapy

Checked and approved by:

Alexis St-Gelais, Ph. D., Chimiste 2013-174

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## GAS CHROMATOGRAPHIC ANALYSIS

**Method :** PC-MAT-014 - Analysis of the composition of an essential oil or other volatile liquid by FAST GC-FID

\*ISO

**Results :** See analysis summary (next page)

**Analyst :** Alexis St-Gelais, Ph. D., Chimiste 2013-174

**Date :** 2024-10-08

## PHYSICOCHEMICAL DATA

**Refractive index :**  $1.5046 \pm 0.0003$  (20 °C)

**Method :** PC-MAT-016 - Measure of the refractive index of a liquid.

**Analyst :** Cindy Caron B. Sc.

**Date :** 2024-09-26

## CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.

## ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
2-Methyl-3-buten-2-ol	tr	Aliphatic alcohol
1,3-Cyclohexadiene	0.02	Alkene
Isovaleral	0.01	Aliphatic aldehyde
2-Methylbutyral	0.01	Aliphatic aldehyde
2-Ethylfuran	tr	Furan
2-Methylbutanol	0.01	Aliphatic alcohol
Ethyl isobutyrate	tr	Aliphatic ester
Toluene	tr	Simple phenolic
Unknown	tr	Unknown
Unknown	0.01	Unknown
Hexanal	0.01	Aliphatic aldehyde
Ethyl 2-methylbutyrate	0.15	Aliphatic ester
Ethyl isovalerate	0.05	Aliphatic ester
Propyl isobutyrate	0.01	Aliphatic ester
Hexanol	tr	Aliphatic alcohol
Nonane	tr	Alkane
Hashishene	0.01	Monoterpene
Tricyclene	0.07	Monoterpene
$\alpha$ -Thujene	0.36	Monoterpene
Ethyl tiglate?	0.01	Aliphatic ester
$\alpha$ -Pinene	3.22	Monoterpene
Camphene	1.15	Monoterpene
$\alpha$ -Fenchene	0.01	Monoterpene
Propyl 2-methylbutyrate	0.11	Aliphatic ester
Thuja-2,4(10)-diene	0.02	Monoterpene
Propyl isovalerate	0.03	Aliphatic ester
Benzaldehyde	0.01	Simple phenolic
$\beta$ -Pinene	7.34	Monoterpene
Sabinene	15.28	Monoterpene
2-Pentylfuran	0.02	Furan
6-Methyl-5-hepten-2-one	0.04	Aliphatic ketone
Myrcene	7.46	Monoterpene
Menthatriene isomer I	0.01	Monoterpene
$\alpha$ -Phellandrene	6.72	Monoterpene
Octanal	0.02	Aliphatic aldehyde
$\Delta$ 3-Carene	0.04	Monoterpene
$\alpha$ -Terpinene	0.86	Monoterpene
Isoamyl isobutyrate	0.01	Aliphatic ester
meta-Cymene	0.03	Monoterpene
para-Cymene	4.46	Monoterpene

β-Phellandrene	[0.85]	Monoterpene
Limonene	2.55	Monoterpene
1,8-Cineole	[0.85]	Monoterpenic ether
(Z)-β-Ocimene	0.01	Monoterpene
Butyl 2-methylbutyrate	0.03	Aliphatic ester
(E)-β-Ocimene	0.02	Monoterpene
Butyl isovalerate	0.02	Aliphatic ester
γ-Terpinene	1.40	Monoterpene
Prenyl isobutyrate	0.02	Aliphatic ester
cis-Sabinene hydrate	0.02	Monoterpenic alcohol
Octanol	0.04	Aliphatic alcohol
Terpinolene	0.47	Monoterpene
6,7-Epoxymyrcene	0.08	Monoterpenic ether
trans-Sabinene hydrate	0.02	Monoterpenic alcohol
Perillene	0.01	Monoterpenic ether
Linalool	0.14	Monoterpenic alcohol
para-Mentha-1,3,8-triene	0.01	Monoterpene
2-Methylbutyl 2-methylbutyrate	0.11	Aliphatic ester
Nonanal	0.01	Aliphatic aldehyde
Amyl isovalerate	0.02	Aliphatic ester
Unknown	0.18	Unknown
(E)-4,8-Dimethyl-1,3,7-nonatriene	0.05	Monoterpene
cis-para-Menth-2-en-1-ol	0.05	Monoterpenic alcohol
Limona ketone	0.28	Normonoterpenic ketone
Camphor	9.05	Monoterpenic ketone
α,4-Dimethyl-3-cyclohexene-1-methanol	0.15	Normonoterpenic alcohol
Sabinaketone	0.04	Normonoterpenic ketone
Citronellal	0.03	Monoterpenic aldehyde
Pinocarvone	0.02	Monoterpenic ketone
Unknown	0.04	Oxygenated monoterpene
Borneol	0.96	Monoterpenic alcohol
Unknown	0.08	Oxygenated monoterpene
Terpinen-4-ol	1.19	Monoterpenic alcohol
Unknown	0.06	Unknown
para-Cymen-8-ol	0.03	Monoterpenic alcohol
α-Terpineol	0.19	Monoterpenic alcohol
Myrtenal	0.02	Monoterpenic aldehyde
Unknown	0.02	Unknown
Myrtenol	0.04	Monoterpenic alcohol
cis-α-Phellandrene epoxide (iPr vs Me)	0.07	Monoterpenic ether
trans-Piperitol	0.03	Monoterpenic alcohol
Decanal	0.04	Aliphatic aldehyde
Unknown	0.04	Oxygenated monoterpene
trans-Carveol	0.02	Monoterpenic alcohol
trans-α-Phellandrene epoxide (iPr vs Me)	0.05	Monoterpenic ether

(3Z)-Hexenyl 2-methylbutyrate	0.06	Aliphatic ester
Hexyl 2-methylbutyrate	0.02	Aliphatic ester
Cuminal	0.02	Monoterpenic aldehyde
Pulegone	0.01	Monoterpenic ketone
Carvotanacetone	0.06	Monoterpenic ketone
Piperitone	0.02	Monoterpenic ketone
Phellandral	0.04	Monoterpenic aldehyde
$\alpha$ -Terpinen-7-al	0.03	Monoterpenic aldehyde
Bornyl acetate	0.02	Monoterpenic ester
Cuminol	0.02	Monoterpenic alcohol
Thymol	0.54	Monoterpenic alcohol
4-Methylhexyl 2-methylbutyrate	0.05	Aliphatic ester
Carvacrol	0.10	Monoterpenic alcohol
<i>para</i> -Menth-5-en-1,2-diol isomer III	0.02	Monoterpenic alcohol
1,4- <i>para</i> -Menthadien-7-ol	0.04	Monoterpenic alcohol
$\alpha$ -Cubebene	0.01	Sesquiterpene
$\alpha$ -Terpinyl acetate	0.01	Monoterpenic ester
$\alpha$ -Copaene	0.08	Sesquiterpene
(E)- $\beta$ -Damascenone	0.05	Apocarotenoid
7-epi-Sesquithujene?	0.02	Sesquiterpene
$\beta$ -Elemene	0.26	Sesquiterpene
Benzyl isovalerate	0.01	Phenolic ester
$\alpha$ -Cedrene	0.01	Sesquiterpene
$\beta$ -Caryophyllene	1.05	Sesquiterpene
$\beta$ -Copaene	0.02	Sesquiterpene
Octyl 2-methylbutyrate	0.07	Aliphatic ester
<i>trans</i> - $\alpha$ -Bergamotene	0.07	Sesquiterpene
Sesquisabinene A	0.95	Sesquiterpene
$\alpha$ -Humulene	0.13	Sesquiterpene
(E)- $\beta$ -Farnesene	0.14	Sesquiterpene
4,5-diepi-Aristolochene	0.08	Sesquiterpene
Dehydrosesquicineole	0.05	Sesquiterpenic ether
$\gamma$ -Muurolene	0.07	Sesquiterpene
Germacrene D	1.18	Sesquiterpene
$\gamma$ -Curcumene	0.10	Sesquiterpene
$\beta$ -Selinene	0.36	Sesquiterpene
ar-Curcumene	0.15	Sesquiterpene
Phenylethyl isovalerate	0.07	Phenolic ester
Bicyclogermacrene	0.17	Sesquiterpene
Phenylethyl 2-methylbutyrate	0.11	Phenolic ester
$\alpha$ -Selinene	0.03	Sesquiterpene
$\alpha$ -Muurolene	0.05	Sesquiterpene
$\delta$ -Guaiene	0.05	Sesquiterpene
$\gamma$ -Cadinene	0.36	Sesquiterpene
3,6-Dihydrochamazulene	3.34	Azulene

β-Curcumene	0.02	Sesquiterpene
Dihydrochamazulene isomer I	0.72	Azulene
δ-Cadinene	0.15	Sesquiterpene
Dihydrochamazulene isomer II	0.04	Azulene
β-Sesquiphellandrene	0.92	Sesquiterpene
Dihydrochamazulene isomer III	0.06	Azulene
Phenylethyl angelate?	0.05	Phenolic ester
α-Elemol	0.05	Sesquiterpenic alcohol
(E)-Nerolidol	0.02	Sesquiterpenic alcohol
Spathulenol	0.05	Sesquiterpenic alcohol
Caryophyllene oxide	0.25	Sesquiterpenic ether
10-epi-Junenol	0.04	Sesquiterpenic alcohol
Humulene epoxide II	0.03	Sesquiterpenic ether
Junenol	0.05	Sesquiterpenic alcohol
5,6-Dihydrochamazulene	0.24	Azulene
7,12-Dehydro-5,6,7,8-tetrahydrochamazulene	1.55	Azulene
γ-Eudesmol	0.03	Sesquiterpenic alcohol
Eremoligenol	0.05	Sesquiterpenic alcohol
τ-Cadinol	0.06	Sesquiterpenic alcohol
β-Eudesmol	0.61	Sesquiterpenic alcohol
Dihydrochamazulene isomer IV	1.06	Azulene
α-Eudesmol	0.21	Sesquiterpenic alcohol
(3E,5E)-7-Hydroxyfarnesene	0.08	Sesquiterpenic alcohol
Unknown	0.13	Azulene
Chamazulene	10.31	Azulene
α-Phellandrene dimer II	0.04	Diterpene
Dehydrochamazulene	0.01	Azulene
Phytone	0.07	Terpenic ketone
meta-Camphorene	0.20	Diterpene
9-(15,16-Dihydro-15-methyleneryl)-α-terpinene?	0.21	Homoditerpene
9-(15,16-Dihydro-15-methylenegeranyl)-para-cymene	0.24	Homoditerpene
9-(15,16-Dihydro-15-methylenegeranyl)-α-terpinene	0.92	Homoditerpene
Unknown	0.35	Unknown
Unknown	1.27	Unknown
Unknown	0.04	Unknown
Unknown	0.04	Unknown
<b>Consolidated total</b>	<b>96.41</b>	

tr: The compound has been detected below 0.005% of the total signal

Note: no correction factor was applied

**About "consolidated" data:** The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the

Essential Oil, *Tanacetum annuum*

Internal code: 24I24-PTH06

Organic Blue Tansy - Morocco - BH0107R

Report prepared for:

Plant Therapy

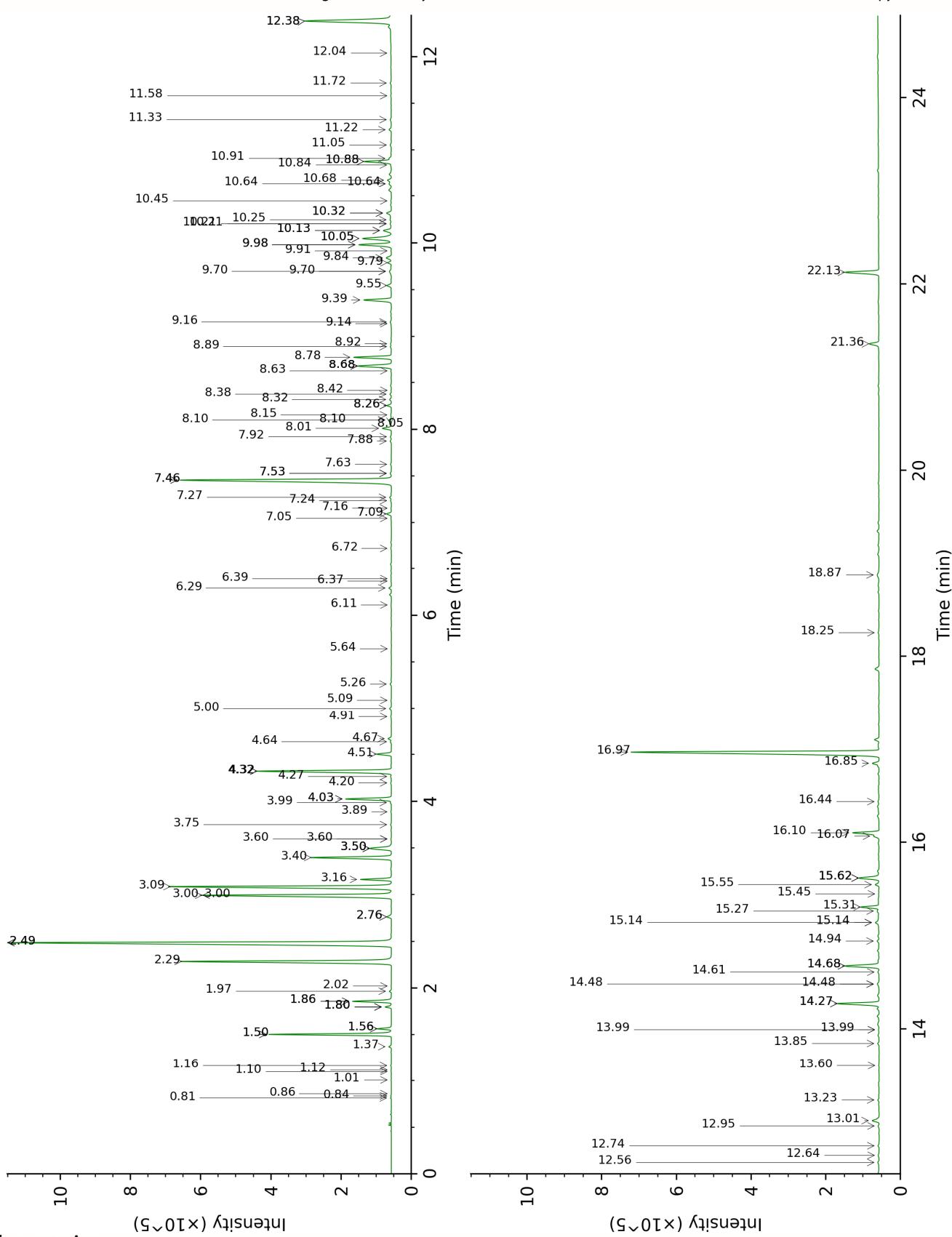
chromatograms in this report to access the full untreated data and perform their own calculations if needed.

**Unknowns:** Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

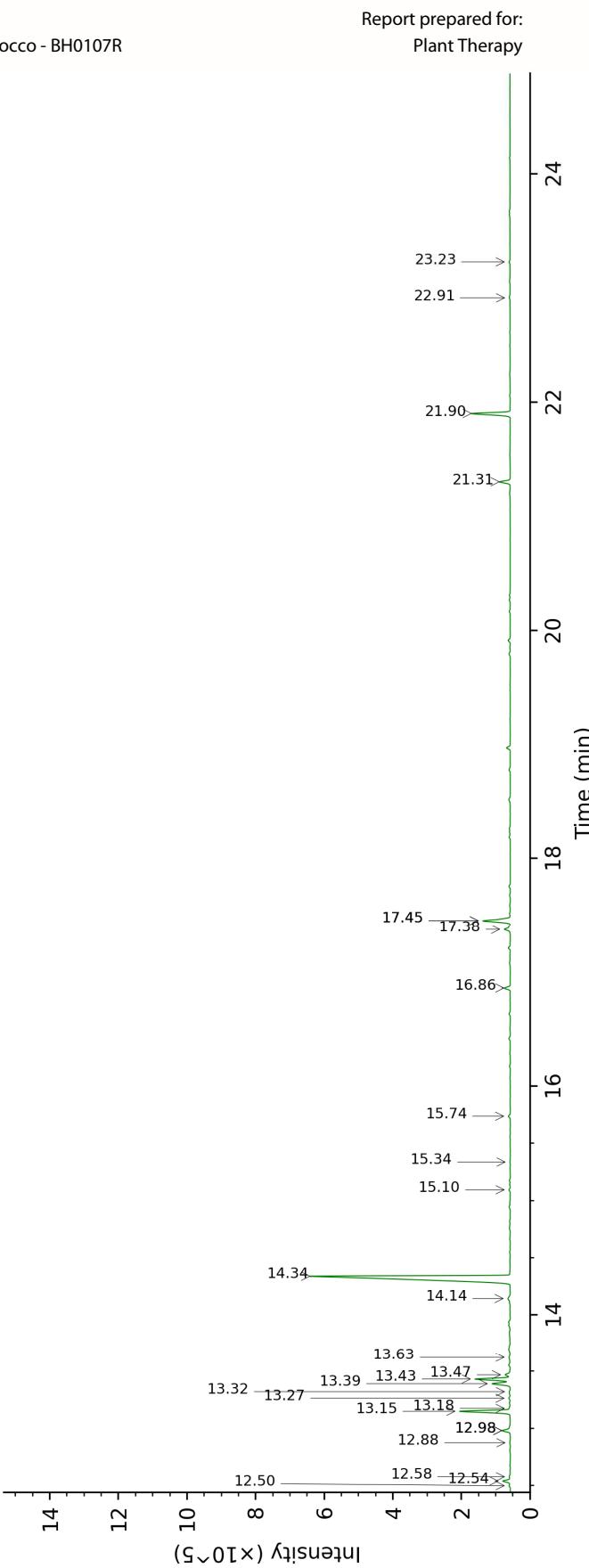
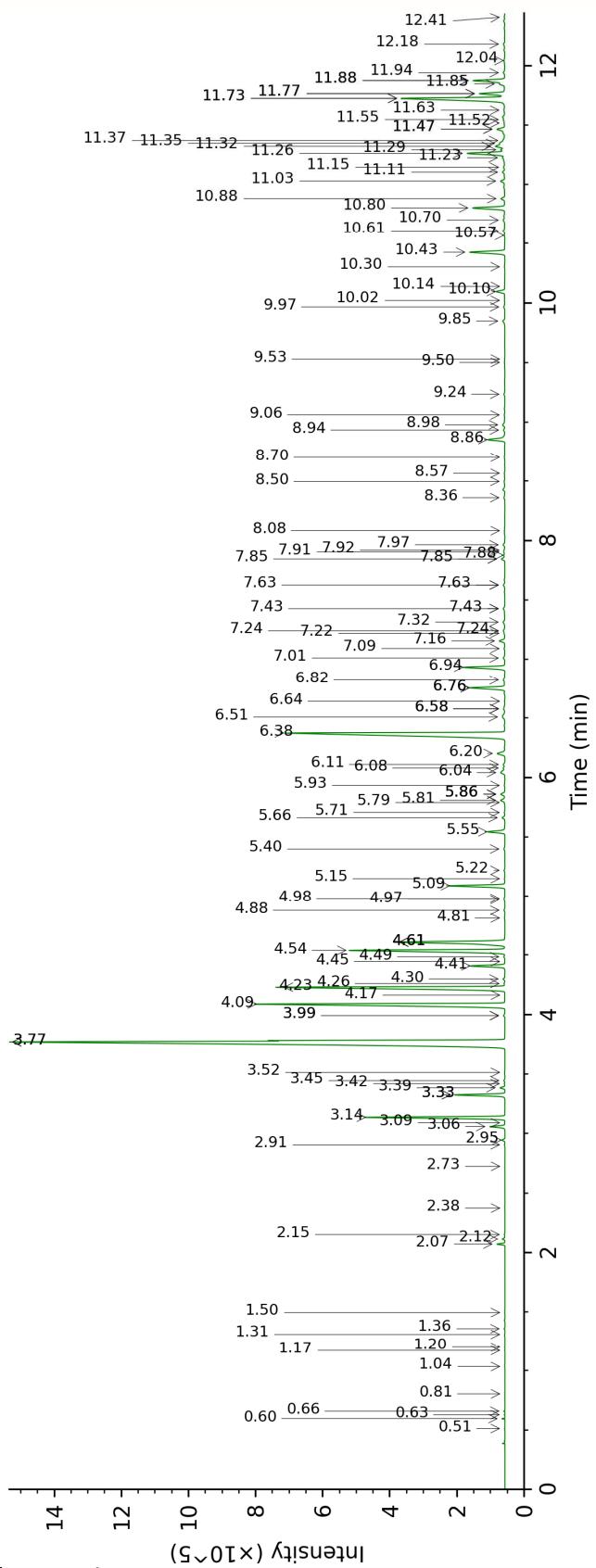
**Bracketed value ([xx]):** A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

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DB-WAX



DB-5



FULL ANALYSIS DATA

2-Methyl-3-buten-2-ol	Column DB-WAX			Column DB-5		
	1.86*	1029.1	[1.16]	0.51	594.7	tr
1,3-Cyclohexadiene				0.60	629.0	0.02
Isovaleral	0.84	885.1	0.01	0.63	640.6	0.01
2-Methylbutyral	0.82	877.6	0.01	0.66	650.9	0.01
2-Ethylfuran	1.01	917.6	tr	0.80	701.2	tr
2-Methylbutanol	3.60*	1174.4	[0.02]	1.04	735.1	0.01
Ethyl isobutyrate	1.12	934.4	tr	1.17	754.3	tr
Toluene	1.56*	1001.0	[0.36]	1.20	758.4	tr
Unknown HEIT III [m/z 73, 41 (54), 87 (50), 56 (47), 54 (29), 55 (25), 100 (23)... 115? (6)]	1.10	931.7	tr	1.31	773.8	tr
Unknown HEIT II [m/z 73, 87 (52), 41 (45), 56 (42), 100 (29) ...]	1.16	941.6	0.01	1.36	780.6	0.01
Hexanal	2.02	1044.6	0.01	1.50	799.8	0.01
Ethyl 2-methylbutyrate	1.80*	1023.3	[0.18]	2.07	849.1	0.15
Ethyl isovalerate	1.97	1039.3	0.06	2.12	852.7	0.05
Propyl isobutyrate	1.80*	1023.3	[0.18]	2.15	855.8	0.01
Hexanol	5.64	1321.9	tr	2.38	874.2	tr
Nonane	0.86	893.4	tr	2.73	903.3	tr
Hashishene	1.50*	994.3	[3.25]	2.91	915.3	0.01
Tricyclene	1.37	973.9	0.08	2.95	918.0	0.07
$\alpha$ -Thujene	1.56*	1001.0	[0.36]	3.06	925.5	0.36
Ethyl tiglate?	3.75	1185.9	0.03	3.09	927.6	0.01
$\alpha$ -Pinene	1.50*	994.3	[3.25]	3.14	930.7	3.22
Camphene	1.86*	1029.1	[1.16]	3.33*	943.2	[1.16]
$\alpha$ -Fenchene	1.80*	1023.3	[0.18]	3.33*	943.2	[1.16]
Propyl 2-methylbutyrate	2.76*	1111.3	[0.16]	3.39	947.1	0.11
Thuja-2,4(10)-diene	2.49*	1088.8	[15.53]	3.42	949.3	0.02
Propyl isovalerate	3.00*	1128.9	[6.78]	3.45	951.0	0.03
Benzaldehyde	7.53*	1459.0	[0.04]	3.52	955.6	0.01
$\beta$ -Pinene	2.29	1069.7	7.34	3.77*	972.5	[22.62]
Sabinene	2.49*	1088.8	[15.53]	3.77*	972.5	[22.62]
2-Pentylfuran	3.89	1196.2	0.02	3.99*	987.2	[0.04]
6-Methyl-5-hepten-2-one	5.26	1292.3	0.04	3.99*	987.2	[0.04]
Myrcene	3.09	1135.9	7.56	4.09	993.6	7.46
Menthatriene isomer I	3.60*	1174.4	[0.02]	4.16	998.6	0.01
$\alpha$ -Phellandrene	3.00*	1128.9	[6.78]	4.23	1003.0	6.72
Octanal	4.64	1248.8	0.03	4.26	1004.9	0.02
$\Delta^3$ -Carene	2.76*	1111.3	[0.16]	4.30	1007.3	0.04

$\alpha$ -Terpinene	3.16	1141.7	0.86	4.41	1014.2	0.86
Isoamyl isobutyrate	3.50*	1166.8	[0.92]	4.45	1016.5	0.01
<i>meta</i> -Cymene	4.32*	1226.8	[4.51]	4.49	1019.0	0.03
<i>para</i> -Cymene	4.32*	1226.8	[4.51]	4.54	1022.4	4.46
$\beta$ -Phellandrene	3.50*	1166.8	[0.92]	4.61*	1026.8	[3.40]
Limonene	3.40	1159.4	2.55	4.61*	1026.8	[3.40]
1,8-Cineole	3.50*	1166.8	[0.92]	4.61*	1026.8	[3.40]
(Z)- $\beta$ -Ocimene	3.99	1203.1	0.03	4.81	1039.5	0.01
Butyl 2-methylbutyrate	4.03*	1205.9	[1.45]	4.88	1043.6	0.03
(E)- $\beta$ -Ocimene	4.20	1217.9	0.02	4.97	1049.3	0.02
Butyl isovalerate	4.27	1222.7	0.02	4.98	1050.1	0.02
$\gamma$ -Terpinene	4.03*	1205.9	[1.45]	5.09	1056.9	1.40
Prenyl isobutyrate	5.09	1280.2	0.02	5.15	1060.6	0.02
<i>cis</i> -Sabinene hydrate	7.16	1431.4	0.02	5.22	1065.1	0.02
Octanol	8.38	1523.0	0.04	5.40	1076.3	0.04
Terpinolene	4.51	1239.5	0.46	5.55	1085.4	0.47
6,7-Epoxymyrcene	6.29	1368.5	0.08	5.66	1092.8	0.08
<i>trans</i> -Sabinene hydrate	8.16	1505.8	0.03	5.71	1095.5	0.02
Perillene	6.37	1373.8	0.01	5.79	1100.8	0.01
Linalool	8.26*	1513.6	[0.14]	5.81	1101.9	0.14
<i>para</i> -Mentha-1,3,8-triene	6.39	1375.6	0.01	5.86*	1105.2	[0.14]
2-Methylbutyl 2-methylbutyrate	4.67	1251.1	0.11	5.86*	1105.2	[0.14]
Nonanal	6.11	1355.4	0.01	5.86*	1105.2	[0.14]
Amyl isovalerate	4.91	1267.6	0.02	5.94	1109.9	0.02
Unknown TAAN I [m/z 71, 43 (95), 81 (82), 79 (73), 67 (67), 41 (49), 109 (14)...]	7.10	1426.9	0.17	6.04	1116.8	0.18
(E)-4,8-Dimethyl-1,3,7-nonatriene	5.00	1274.1	0.06	6.08	1119.3	0.05
<i>cis</i> - <i>para</i> -Menth-2-en-1-ol	8.32	1518.6	0.06	6.11	1121.2	0.05
Limona ketone	8.01	1494.7	0.30	6.20	1127.1	0.28
Camphor	7.46*	1453.7	[9.15]	6.38	1138.1	9.05
$\alpha$ ,4-Dimethyl-3-cyclohexene-1-methanol				6.51	1146.7	0.15
Sabinaketone	8.89	1562.9	0.04	6.58*	1151.1	[0.06]
Citronellal	7.24	1437.4	0.03	6.58*	1151.1	[0.06]
Pinocarvone	8.10*	1501.6	[0.09]	6.64	1155.1	0.02
Unknown CALU II [m/z 95, 110 (38), 81 (21), 79 (16)... 152 (7)]	7.88	1484.6	0.04	6.76*	1162.4	[1.00]

Borneol	9.98*	1649.3	[1.20]	6.76*	1162.4	[1.00]
Unknown CALU III [m/z 95, 110 (43), 81 (28), 41 (15)... 152 (8)]	7.92	1488.1	0.04	6.82	1166.7	0.08
Terpinen-4-ol	8.78	1554.1	1.21	6.94	1173.8	1.19
Unknown EUDI I [m/z 69, 68 (65), 110 (51), 67 (39), 41 (27), 83 (26)...]	8.10*	1501.6	[0.09]	7.01	1178.8	0.06
para-Cymen-8-ol	11.72	1794.1	0.04	7.09	1183.9	0.03
α-Terpineol	9.98*	1649.3	[1.20]	7.16	1188.0	0.19
Myrtenal	8.92	1565.2	0.03	7.22	1192.1	0.02
Unknown ABCO I [m/z 79, 107 (72), 41 (58), 55 (47), 77 (41), 67 (41)...]				7.24*	1193.4	[0.06]
Myrtenol	11.05	1738.0	0.04	7.24*	1193.4	[0.06]
cis-α-Phellandrene epoxide (iPr vs Me)	11.22	1751.8	0.08	7.32	1198.1	0.07
trans-Piperitol	10.64*	1702.8	[0.11]	7.43*	1205.5	[0.06]
Decanal	7.53*	1459.0	[0.04]	7.43*	1205.5	[0.06]
Unknown TAAN II [m/z 93, 41 (68), 79 (67), 91 (66), 92 (57), 67 (42), 77 (41)... 150 (12)]				7.63*	1218.7	[0.06]
trans-Carveol	11.58	1782.6	0.02	7.63*	1218.7	[0.06]
trans-α-Phellandrene epoxide (iPr vs Me)				7.85*	1233.4	[0.10]
(3Z)-Hexenyl 2-methylbutyrate	7.27	1440.0	0.06	7.85*	1233.4	[0.10]
Hexyl 2-methylbutyrate	6.72	1398.9	0.02	7.88*†	1235.5	[0.03]
Cuminal	10.84	1719.9	0.02	7.91*†	1237.4	[0.03]
Pulegone	9.14	1581.9	0.01	7.92*†	1238.4	[0.02]
Carvotanacetone	9.70*	1626.3	[0.12]	7.97	1241.4	0.06
Piperitone	10.13*	1661.5	[0.35]	8.08	1249.3	0.02
Phellandral	10.20*	1667.4	[0.06]	8.36	1267.9	0.04
α-Terpinen-7-al	10.91	1725.8	0.08	8.50	1277.1	0.03
Bornyl acetate	8.42	1526.2	0.01	8.57	1281.7	0.02
Cuminol	14.48*	2046.8	[0.09]	8.70	1290.8	0.02
Thymol	15.31	2127.4	0.57	8.86	1300.9	0.54
4-Methylhexyl 2-methylbutyrate	7.63	1466.2	0.03	8.94	1306.5	0.05
Carvacrol	15.62*	2158.3	[0.78]	8.98	1309.6	0.10
para-Menth-5-en-1,2-diol isomer III	15.45	2141.4	0.02	9.06	1315.5	0.02
1,4-para-Menthadien-7-ol	13.99*	1999.8	[0.02]	9.24	1327.7	0.04

$\alpha$ -Cubebene	7.05	1423.4	0.01	9.50	1346.5	0.01
$\alpha$ -Terpinyl acetate	9.92	1644.0	0.01	9.53	1348.4	0.01
$\alpha$ -Copaene	7.46*	1453.7	[9.15]	9.85	1370.9	0.08
(E)- $\beta$ -Damascenone	11.33	1760.9	0.04	9.97	1379.2	0.05
7-epi-Sesquithujene?	8.05	1497.8	0.01	10.02	1383.1	0.02
$\beta$ -Elemene	8.68*	1546.3	[1.29]	10.10	1388.4	0.26
Benzyl isovalerate	12.04	1822.4	0.02	10.14	1391.4	0.01
$\alpha$ -Cedrene	8.26*	1513.6	[0.14]	10.30	1403.0	0.01
$\beta$ -Caryophyllene	8.68*	1546.3	[1.29]	10.43	1412.1	1.05
$\beta$ -Copaene	8.63	1542.3	0.01	10.57	1422.7	0.02
Octyl 2-methylbutyrate	9.16	1583.2	0.04	10.61	1425.7	0.07
trans- $\alpha$ -Bergamotene	8.68*	1546.3	[1.29]	10.70	1432.6	0.07
Sesquisabinene A	9.39	1601.7	1.00	10.80	1440.3	0.95
$\alpha$ -Humulene	9.55	1614.2	0.16	10.88	1446.1	0.13
(E)- $\beta$ -Farnesene	9.79	1633.8	0.12	11.03	1457.1	0.14
4,5-diepi-Aristolochene	9.70*	1626.3	[0.12]	11.11	1462.7	0.08
Dehydrosesquicineole	10.25	1670.8	0.05	11.15	1465.7	0.05
$\gamma$ -Murolene	9.84	1638.0	0.22	11.23	1471.7	0.07
Germacrene D	10.05*	1654.7	[1.31]	11.26	1474.5	1.18
$\gamma$ -Curcumene				11.29	1476.7	0.10
$\beta$ -Selinene	10.13*	1661.5	[0.35]	11.32	1478.9	0.36
ar-Curcumene	10.88*	1723.0	[0.95]	11.35	1480.7	0.15
Phenylethyl isovalerate	13.23	1929.5	0.05	11.37	1482.5	0.07
Bicyclogermacrene	10.32*	1676.6	[0.22]	11.47*	1489.5	[0.28]
Phenylethyl 2-methylbutyrate				11.47*	1489.5	[0.28]
$\alpha$ -Selinene	10.20*	1667.4	[0.06]	11.52	1493.4	0.03
$\alpha$ -Murolene	10.32*	1676.6	[0.22]	11.55	1495.6	0.05
$\delta$ -Guaiene	10.05*	1654.7	[1.31]	11.63	1501.4	0.05
$\gamma$ -Cadinene	10.64*	1702.8	[0.11]	11.73*	1509.2	[3.70]
3,6-Dihydrochamazulene	12.38*	1852.8	[4.07]	11.73*	1509.2	[3.70]
$\beta$ -Curcumene	10.45	1687.1	0.02	11.77*	1512.3	[0.74]
Dihydrochamazulene isomer I	12.38*	1852.8	[4.07]	11.77*	1512.3	[0.74]
$\delta$ -Cadinene	10.68	1706.1	0.15	11.85	1518.7	0.15
Dihydrochamazulene isomer II	12.64	1875.5	0.04	11.88*	1520.9	[0.96]
$\beta$ -Sesquiphellandrene	10.88*	1723.0	[0.95]	11.88*	1520.9	[0.96]
Dihydrochamazulene isomer III	12.56	1868.7	0.05	11.94	1526.1	0.06
Phenylethyl angelate?	14.48*	2046.8	[0.09]	12.04	1534.1	0.05
$\alpha$ -Elemol	14.27*	2026.8	[1.46]	12.18	1545.0	0.05
(E)-Nerolidol	13.99*	1999.8	[0.02]	12.41	1562.9	0.02
Spathulenol	14.61	2059.1	0.04	12.50	1569.9	0.05

Caryophyllene oxide	13.01	1909.1	0.29	12.54	1573.1	0.25
10-epi-Junenol	12.95	1903.8	0.04	12.58	1576.0	0.04
Humulene epoxide II	13.60	1963.5	0.02	12.88	1599.4	0.03
Junenol	13.85	1985.9	0.05	12.98*	1608.0	[0.30]
5,6-Dihydrochamazulene	14.68*	2065.5	[1.30]	12.98*	1608.0	[0.30]
7,12-Dehydro-5,6,7,8-tetrahydrochamazulene	14.27*	2026.8	[1.46]	13.15	1622.0	1.55
$\gamma$ -Eudesmol	15.14*	2110.8	[0.18]	13.18	1624.0	0.03
Eremoligenol	15.26	2123.1	0.08	13.26	1631.4	0.05
$\tau$ -Cadinol	15.14*	2110.8	[0.18]	13.32	1636.1	0.06
$\beta$ -Eudesmol	15.62*	2158.3	[0.78]	13.39	1641.9	0.61
Dihydrochamazulene isomer IV	14.68*	2065.5	[1.30]	13.43	1645.3	1.06
$\alpha$ -Eudesmol	15.55	2151.4	0.13	13.47	1648.4	0.21
(3E,5E)-7-Hydroxyfarnesene	16.44	2242.0	0.05	13.63	1661.2	0.08
Unknown TAAN IV [m/z 143, 142 (92), 157 (79), 158 (61), 141 (59), 128 (57), 159 (43), 115 (41), 202 (41)]	18.87	2507.2	0.13	14.14	1704.2	0.13
Chamazulene	16.97	2297.3	10.41	14.34	1721.1	10.31
$\alpha$ -Phellandrene dimer II	12.74	1884.5	0.04	15.10	1786.6	0.04
Dehydrochamazulene	18.25	2437.4	0.05	15.34	1807.9	0.01
Phytone	14.94	2091.1	0.06	15.74	1844.3	0.07
meta-Camphorene	15.62*	2158.3	[0.78]	16.86	1948.2	0.20
9-(15,16-Dihydro-15-methyleneneryl)- $\alpha$ -terpinene?	16.07	2203.7	0.18	17.38	1997.1	0.21
9-(15,16-Dihydro-15-methylenegeranyl)- <i>para</i> -cymene	16.85	2284.6	0.24	17.46*	2004.8	[1.07]
9-(15,16-Dihydro-15-methylenegeranyl)- $\alpha$ -terpinene	16.10	2207.4	0.92	17.46*	2004.8	[1.07]
Unknown TAAN V analog I	21.36	2806.4	0.38	21.31	2412.6	0.35
Unknown TAAN V [m/z 186, 157 (37), 171 (18), 322 (15)]	22.13	2903.8	1.26	21.90	2481.9	1.27
Unknown TAAN V analog II				22.91	2602.9	0.04
Unknown TAAN V analog III				23.23	2643.1	0.04

Essential Oil, *Tanacetum annuum*

Internal code: 24I24-PTH06

Organic Blue Tansy - Morocco - BH0107R

Report prepared for:

Plant Therapy

Total reported	96.09%	96.34%

\*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, only the first one is taken into account in the consolidated total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index