

## GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

**Date:** October 1, 2018

**Sample:** Inula

**Type:** Essential Oil

**Source:** *Inula helenium*

**Batch:** 6644

### ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
$\alpha$ -Pinene	0.05	0.06	Monoterpene
$\beta$ -Pinene	0.44*	0.43	Monoterpene
Sabinene	[0.44]*	0.02	Monoterpene
para-Cymene	0.02	0.02	Monoterpene
Limonene	0.05	0.04	Monoterpene
$\gamma$ -Terpinene	0.01	0.01	Monoterpene
Terpinolene	tr	0.01	Monoterpene
Albene	0.16	0.16	Terpene derivative
Terpinen-4-ol	0.02	1.97*	Monoterpenic alcohol
$\alpha$ -Terpineol	0.02	0.03	Monoterpenic alcohol
Myrtenol	tr	0.02	Monoterpenic alcohol
Unknown	0.04	0.04	Unknown
Citronellol	0.01	0.02	Monoterpenic alcohol
Unknown	0.02	0.02	Unknown
Unknown	0.01		Unknown
Unknown	0.02		Unknown
$\alpha$ -Longipinene	0.03	0.03	Sesquiterpene
Longicyclene	0.04	0.06	Sesquiterpene
<i>cis</i> - $\beta$ -Elemene	0.06	0.06	Sesquiterpene
1-Tetradecene?	0.04		Alkene
$\beta$ -Elemene	1.88	[1.97]*	Sesquiterpene
Petasitene	0.04	0.07	Sesquiterpene
$\beta$ -Caryophyllene	0.07	0.04	Sesquiterpene
$\alpha$ -Santalene	0.02	0.02	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	0.05	[1.97]*	Sesquiterpene
Unknown	0.04	0.06	Unknown
epi- $\beta$ -Santalene	0.09	0.08	Sesquiterpene
Unknown	0.07		Unknown
$\beta$ -Santalene	0.03	0.01	Sesquiterpene
4,5-diepi-Aristolochene	0.14	0.33*	Sesquiterpene
$\gamma$ -Himachalene	0.25*	0.06	Sesquiterpene
Selina-4,11-diene	[0.25]*	[0.33]*	Sesquiterpene
Unknown	0.08		Sesquiterpene
Neryl isobutyrate?	0.62*	0.11	Monoterpenic ester
Eudesmatriene analog	[0.62]*	0.04	Sesquiterpene
Unknown	[0.62]*	0.33*	Sesquiterpene
ar-Curcumene	[0.62]*	0.02	Sesquiterpene
$\beta$ -Selinene	[0.62]*	0.24	Sesquiterpene
Valencene	0.33*	[0.33]*	Sesquiterpene
$\alpha$ -Selinene	[0.33]*	0.20	Sesquiterpene
$\beta$ -Himachalene	0.07	[0.33]*	Sesquiterpene
Germacrene A	0.27	0.26	Sesquiterpene
$\beta$ -Bisabolene	0.09	0.11	Sesquiterpene
Geranyl isobutyrate	0.15	0.11	Monoterpenic ester
$\delta$ -Cadinene	0.02	0.01	Sesquiterpene
( <i>E</i> )- $\alpha$ -Bisabolene	0.06	0.04	Sesquiterpene
$\alpha$ -Elemol	0.01	0.01	Sesquiterpenic alcohol
( <i>E</i> )-Nerolidol	0.01	0.03	Sesquiterpenic alcohol

Unknown	0.01		Unknown
Unknown	0.12		Unknown
Unknown	0.77	0.74	Unknown
Caryophyllene oxide	0.04	0.04	Sesquiterpenic ether
Neryl isovalerate	0.03	0.06	Monoterpenic ester
$\alpha$ -Cedrol	0.07	0.03	Sesquiterpenic alcohol
$\beta$ -Asarone	0.18	0.19	Phenylpropanoid
$\beta$ -Eudesmol	0.08	0.05	Sesquiterpenic alcohol
Neointermedeol	0.11	0.10	Sesquiterpenic alcohol
(1,8Z,11Z)-Heptadecatriene	1.41*	0.43	Alkene
Unknown	[1.41]*	0.88	Oxygenated sesquiterpene
Unknown	0.19		Unknown
Unknown	0.15*	0.09	Oxygenated sesquiterpene
(1,8Z,11Z,14Z)-Heptadecatetraene	[0.15]*	0.05	Alkene
Unknown	0.09	0.07	Oxygenated sesquiterpene
$\alpha$ -Costal?	0.03	0.06	Sesquiterpenic aldehyde
Unknown	0.14	0.12	Lignan
Unknown	0.11	0.10	Oxygenated sesquiterpene
Unknown	0.03		Oxygenated sesquiterpene
$\gamma$ -Costol	0.18	0.17	Sesquiterpenic alcohol
$\beta$ -Costol	0.18	0.24	Sesquiterpenic alcohol
(E)- $\alpha$ -Atlantone	0.05	0.07	Sesquiterpenic ketone
$\alpha$ -Costol?	0.12		Sesquiterpenic alcohol
Callitrin isomer	0.01	0.01	Sesquiterpenic lactone
Unknown	0.61	0.59	Unknown
Unknown	1.22	1.19	Unknown
Alantolactone	50.15*	48.18	Sesquiterpenic lactone
Unknown	[50.15]*	2.22	Unknown
Unknown	0.19		Sesquiterpenic lactone
Isoalantolactone	31.72*	27.66	Sesquiterpenic lactone
Unknown	[31.72]*	3.72	Unknown
Unknown	1.24	1.54	Unknown
Unknown	0.79	0.75	Unknown
Unknown	0.15		Unknown
Unknown	1.26		Unknown
Unknown	0.14		Unknown
Unknown		0.19	Unknown
<b>Total identified</b>	<b>89.68%</b>	<b>82.39%</b>	

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

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

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

Note: no correction factor was applied

#### PHYSICOCHEMICAL DATA

**Physical aspect:** Light brown solid

**Refractive index:** 0.0000  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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