

GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

Date: May 2, 20187
Sample: Clove Bud
Type: Essential Oil
Source: *Syzygium aromaticum*
Batch: 041820133

ANALYSIS SUMMARY

Identification	DB-5 (%)	DB-WAX (%)	Classe
Isovaleral	tr	tr	Aliphatic aldehyde
2-Methylbutyral	tr	tr	Aliphatic aldehyde
Benzaldehyde	0.01	0.01	Simple phenolic
5-Methylfurfural	tr	0.02*	Furan
6-Methyl-5-hepten-2-one	0.01	0.01	Aliphatic ketone
Limonene	tr	tr	Monoterpene
Benzyl alcohol	tr	0.01	Simple phenolic
(E)- β -Ocimene	tr	tr	Monoterpene
Linalool	tr	[0.02]*	Monoterpenic alcohol
(E)-4,8-Dimethylnona-1,3,7-triene	0.01	tr	Terpene derivative
Ethyl benzoate	0.01	tr	Phenolic ester
Methyl salicylate	tr	0.03	Phenolic ester
α -Cubebene	0.03	0.02	Sesquiterpene
Eugenol	76.42	77.42*	Phenylpropanoid
Dihydroeugenol	2.14*	1.49	Phenylpropanoid
α -Copaene	[2.14]*	0.16	Sesquiterpene
β -Elemene	0.02	7.59*	Sesquiterpene
Isocaryophyllene	0.05	0.02	Sesquiterpene
β -Caryophyllene	7.65	[7.59]*	Sesquiterpene
Caryophylla-4(12),8(13)-diene	0.03	0.02	Sesquiterpene
9-epi-Isocaryophyllene	0.09	0.02	Sesquiterpene
α -Humulene	1.04*	1.00	Sesquiterpene
(E)-Isoeugenol	[1.04]*	0.22	Phenylpropanoid
allo-Aromadendrene	0.01	0.02	Sesquiterpene
trans-Cadina-1(6),4-diene	0.04	0.04	Sesquiterpene
γ -Muurolene	0.02	0.02	Sesquiterpene
Germacrene D	0.01	0.01	Sesquiterpene
β -Selinene	0.02	0.02	Sesquiterpene
α -Selinene	0.02	0.02	Sesquiterpene
α -Muurolene	0.03*	tr	Sesquiterpene
(3Z,6E)- α -Farnesene	[0.03]*	0.01	Sesquiterpene
γ -Cadinene	0.06*	0.03	Sesquiterpene
Cubebol	[0.06]*	0.03	Sesquiterpenic alcohol
δ -Cadinene	0.19*	0.16	Sesquiterpene
trans-Calamenene	[0.19]*	0.06	Sesquiterpene
Eugenyl acetate	9.79	9.71	Phenylpropanoid ester
α -Calacorene	0.12	0.01	Sesquiterpene
Unknown	0.09	0.06	Unknown
Unknown	0.01	0.01	Phenylpropanoid
(E)-Nerolidol	0.03	0.03*	Sesquiterpenic alcohol
Caryophyllenyl alcohol	0.01	0.01	Sesquiterpenic alcohol
Unknown	0.41*	0.07	Oxygenated sesquiterpene
Caryophyllene oxide	[0.41]*	0.29	Sesquiterpenic ether
Caryophyllene oxide isomer	[0.41]*	0.03	Sesquiterpenic ether
Humulene epoxide I	0.02	0.01	Sesquiterpenic ether
Humulene epoxide II	0.04	0.04	Sesquiterpenic ether
(E)-Isoeugenyl acetate	0.01	0.02	Phenylpropanoid ester
1-epi-Cubebol	0.04	[0.03]*	Sesquiterpenic alcohol

Caryophylladienol I	0.05*	0.06*	Sesquiterpenic alcohol
Caryophylladienol II	[0.05]*	[0.06]*	Sesquiterpenic alcohol
τ-Cadinol	0.02*	[77.42]*	Sesquiterpenic alcohol
τ-Muurolol	[0.02]*	0.01	Sesquiterpenic alcohol
α-Muurolol	0.02	0.08*	Sesquiterpenic alcohol
Unknown	0.01	[0.08]*	Sesquiterpenic alcohol
α-Cadinol	0.08	0.01	Sesquiterpenic alcohol
14-Hydroxy-(Z)-caryophyllene	0.01	0.09*	Sesquiterpenic alcohol
14-Hydroxy-9-epi-(E)-caryophyllene	0.01	[0.09]*	Sesquiterpenic alcohol
14-Hydroxy-(E)-caryophyllene	0.07	0.06	Sesquiterpenic alcohol
Trimethoxypropylbenzene analog	0.12	0.11	Phenylpropanoid
(E)-2-Methoxy-4-(3-oxo-1-propenyl)phenyl acetate	0.01		Phenylpropanoid ester
(E)-4-(3-Hydroxy-1-propenyl)-2-methoxyphenyl acetate	0.02		Phenylpropanoid ester
Total identified	98.79%	99.02%	

*: 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 yellow liquid

Refractive index: 1.5338 ± 0.0003 (20 °C)

COMPLIANCE WITH ISO 3142:1997 (SYZYGium AROMATICUM, CLOVE BUD)

Compound	Min. Content	Max. Content	Observed %	Complies?
Eugenol	75	87	76.4	Yes
β-Caryophyllene	2	7	7.6	No
Eugenyl acetate	8	15	9.7	Yes
Refractive index	1.5280	1.5380	1.5338	Yes

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method. The oil marginally does not comply with the ISO standard for clove bud oil.

