

## GC/MS BATCH NUMBER: CX0100

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**ESSENTIAL OIL:** CINNAMON CASSIA ORGANIC

**BOTANICAL NAME:** CINNAMOMUM CASSIA

**ORIGIN:** CHINA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF CINNAMON CASSIA ORGANIC OIL	%
(E)-CINNAMALDEHYDE	76.9
(E)-CINNAMYL ACETATE	10.5
COUMARIN	3.8
BENZALDEHYDE	1.4
(E)-O-METHOXYCINNAMALDEHYDE	0.7
SALICYLALDEHYDE	0.7
PHENYLETHYL ALCOHOL	0.2
(Z)-CINNAMALDEHYDE	0.2
STYRENE	0.1
(E)-O-METHOXYCINNAMYL ACETATE	0.06
EUGENOL	0.04
LIMONENE	0.03
ACETOPHENONE	0.03

Comments from Robert Tisserand: Excellent odor profile. Conforms to 10 of 12 key ISO constituents. No indications of adulteration.

**Date :** September 6, 2016

*SAMPLE IDENTIFICATION*

**Internal code :** 16H23-PTH6-1-DM

**Customer identification :** Organic Cassia - CX010059R

**Type :** Essential oil

**Source :** *Cinnamomum cassia*

**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 :** 2016-08-24

Checked and approved by :

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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.	
Hexanal	1.68	801	0.01	0.01	1014	1.16	Aliphatic aldehyde
Styrene	2.85	892	0.10	0.09	1184	2.78	Phenylpropanoid
$\alpha$ -Pinene	3.35	924	0.06	0.05	946	0.86	Monoterpene
Camphene	3.64	942	0.02	0.02	999	1.08	Monoterpene
$\beta$ -Pinene	4.13	971	0.02	0.02	1039	1.37	Monoterpene
Benzaldehyde	4.17	973	1.43	1.42	1430	6.24	Simple phenolic
para-Cymene	5.09	1027	0.01	0.01	1207	3.05	Monoterpene
Limonene	5.16*	1030	0.03	0.01	1139	2.27	Monoterpene
1,8-Cineole	5.16*	1030	[0.03]	0.02	1144	2.32	Monoterp. ether
Salicylaldehyde	5.64	1057	0.67	0.69	1570	9.40	Simple phenolic
Acetophenone	6.03	1078	0.03	0.08	1551	8.84	Simple phenolic
Linalool	6.70	1109	0.01	0.02	1504	7.61	Monoterp. alcohol
Phenylethyl alcohol	7.20	1128	0.19	0.19	1806	20.05	Simple phenolic
Hydrocinnamaldehyde	8.39	1172	0.65				Phenylpropanoid
Borneol	8.56	1178	0.64	0.60	1641	11.70	Monoterp. alcohol
$\alpha$ -Terpineol	9.36	1203	0.02	0.01	1627	11.13	Monoterp. alcohol
(Z)-Cinnamaldehyde	10.39	1227	0.28	0.24	1771	18.04	Phenylpropanoid
Hydrocinnamyl alcohol	11.26	1246	0.09	0.04	1944	29.08	Phenylpropanoid
Phenylethyl acetate	11.80	1258	0.34	0.29	1720	15.20	Phenolic ester
(E)-Cinnamaldehyde	13.81	1300	76.94	77.52	1918	27.42	Phenylpropanoid
(E)-Cinnamyl alcohol	15.68	1329	0.63	0.65	2175	39.24	Phenylpropanoid
$\alpha$ -Copaene	17.42	1356	0.19	0.21	1438	6.39	Sesquiterpene
Eugenol	17.64	1359	0.04	0.04	2062	35.60	Phenylpropanoid
$\beta$ -Elemene	18.72	1376	0.02	0.04	1529	8.19	Sesquiterpene
$\beta$ -Caryophyllene	20.27	1398	0.13	0.10	1527	8.12	Sesquiterpene
$\alpha$ -Humulene	23.04	1432	0.02	0.02	1587	9.90	Sesquiterpene
allo-Aromadendrene	23.27	1435	0.06	0.06	1566	9.27	Sesquiterpene
Coumarine	23.98	1443	3.75	3.81	2276	41.81	Coumarin
(E)-Cinnamyl acetate	25.17	1458	10.53	10.33	2045	34.98	Phenylpropanoid ester
$\alpha$ -Muurolene	27.26	1482	0.03	0.02	1652	12.22	Sesquiterpene
$\gamma$ -Cadinene	28.29	1495	0.05	0.06	1665	12.77	Sesquiterpene
$\delta$ -Cadinene	28.50	1498	0.09	0.12	1679	13.41	Sesquiterpene
(E)-Cinnamic acid	28.95	1504	0.65	0.78	2754	51.08	Phenylpropanoid
(E)-o-Methoxycinnamaldehyde	32.13	1547	0.66	0.66	2311	42.61	Phenylpropanoid
Caryophyllene oxide	33.52	1566	0.09	0.08	1857	23.23	Sesquiterp. ether
(E)-Nerolidol	33.73	1569	0.38	0.32	2000	32.43	Sesquiterp. alcohol
(E)-o-Methoxycinnamyl acetate	39.39	1686	0.07	0.05	2418	44.88	Phenylpropanoid ester
Benzyl benzoate	42.13	1770	0.03	0.02	2493	46.38	Phenolic ester
Hydrocinnamyl (E)-	54.67	2289	0.02				Phenolic ester

cinnamate			
<b>Total identified</b>	<b>98.98%</b>	<b>98.7%</b>	

\*: 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** : yellow liquid

**Refractive index** :  $1.5985 \pm 0.0003$  (20 °C)

#### CONCLUSION

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



