Date: January 10, 2024

Coffee Extract Mass Spectrometric Analysis (Qualitative)

Sample identification

Internal code : 23L21-PTH01
Customer identification : Coffee - Colombia - CB3114R
Type : Extract
Source : *Coffea arabica*
Customer : Plant Therapy

Analysis

Method : Analysis by GC-MS alone using a HP-5MS column.
Analyst : Alexis St-Gelais, Ph. D., chimiste
Analysis date : January 9, 2024

Compounds identified	Signal percentage*	Class
2-Methylpyrazine	0.10	Alkaloid
Furfural	0.26	Furan
Furfuryl alcohol	0.42	Furan
Dimethylpyrazine isomer	1.11	Alkaloid
Dimethylpyrazine isomer II	1.62	Alkaloid
5-Methylfurfural	0.84	Furan
Furfuryl acetate	1.09	Furan
2-Ethyl-6-methylpyrazine	0.26	Alkaloid
2-Formylpyrrole	0.10	Pyrrole
Furaneol	0.03	Aliphatic ketone
2-Acetylpyrrole	0.02	Alkaloid
Ethyl dimethylpyrazine isomer	0.04	Alkaloid
Maltol	1.11	Maltol
Camphor	0.08	Monoterpenic ketone
N-Furfuryl pyrrole	1.13	Pyrrole
5-Hydroxymethylfurfural	0.30	Furan
4-Ethylguaiacol	1.46	Simple phenolic
Indole	0.27	Indole
4-Vinylguaiacol	2.47	Simple phenolic
3,4-Dimethoxystyrene	0.24	Simple phenolic
Dihydroeugenol	0.55	Phenylpropanoid
1-Furfuryl-2-formyl pyrrole	0.33	Alkaloid
Megastigma-4,6,8-trien-3-one isomer	0.10	Terpenic ketone

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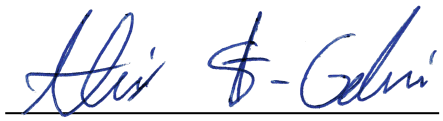
Benzyl benzoate	0.35	Phenolic ester
Phytone	0.30	Terpenic ketone
Caffeine	19.51	Alkaloid
Methyl palmitate	0.56	Aliphatic ester
Palmitic acid	13.66	Aliphatic acid
Methyl linoleate	0.53	Aliphatic ester
Methyl stearate	0.07	Aliphatic ester
Linoleic acid	4.55	Aliphatic acid
Stearic acid	0.77	Aliphatic acid
Methyl arachidate	0.11	Aliphatic ester
Furfuryl palmitate	0.44	Furan
Coffee unknown I (m/z 131, 146 (58), 145 (51), 131 (30), 296 (23))	1.34	Unknown
Coffee unknown II (m/z 131, 146 (91), 145 (90), 296 (34))	13.07	Unknown
Coffee unknown IV (m/z 298, 147 (72), 283 (62), 148 (62), 91 (62))	13.60	Unknown
Squalene	0.22	Triterpene
γ-Tocopherol	2.12	Tocopherol
α-Tocopherol	0.87	Tocopherol
Campesterol	0.72	Sterol
Stigmasterol	1.30	Sterol
γ-Sitosterol	1.61	Sterol

*These percentage are only indicative of relative peak ratios on the chromatogram, and not of their concentration in the sample. The extract very likely contains non-volatile material that could not be estimated by this analysis. Furthermore, GC-MS response factors vary more than for responses measured in GC-FID, and ratios comparisons should be considered with care.

Conclusion

No adulterant or contaminant has been detected using this method.

Checked and approved by :



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

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This report is an update from the first version issued on 2024-01-09 to correct the header of page 2.

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