Analysis Pomegranate Carrier Oil

Laboratoire PhytoChemia

Date: December 18, 2017

TOTAL FATTY ACIDS METHYL ESTERS (FAMES)

Customer: Flowers Shining Everywhere Inc.
Sample identification: Pomegranate CO2 - Germany - FX210917
Botanical source: *Punica granatum*
Internal code: 17L08-FSE5-2-CC
Analyst: Alexis St-Gelais, M. Sc.

Method: Simultaneous hydrolysis and methylation of oil sample using a mixture of heptane/methanol/toluene/1,2-dimethoxypropane/sulfuric acid. Injection of the upper phase on GC-FID on a BPX-5 column for quantification using the method PC-HV-6, with identification of the methyl esters by GC-MS.
Analysis date : December 11, 2017

Methyl Esters	R.T.	%	Types
Myristic acid	8.27	0.01	Saturated
Pentadecanoic acid	9.55	0.01	Saturated
Palmitic acid	10.79	2.76	Saturated
Margaric acid	11.96	0.05	Unsaturated
Linoleic acid	12.73	4.92	Unsaturated
Oleic acid	12.81	5.39	Unsaturated
cis-Vaccenic acid	12.86	0.51	Unsaturated
Linolenic acid isomer	12.89	0.42	Unsaturated
Stearic acid	13.11	2.10	Saturated
Punicic acid	14.45	25.86	Unsaturated
Octadecatrienoic acid isomer I	14.51	5.68	Unsaturated
Octadecatrienoic acid isomer II	14.53	3.92	Unsaturated
Octadecatrienoic acid isomer III	14.57	1.11	Unsaturated
Octadecatrienoic acid isomer IV	14.67	10.42	Unsaturated
Octadecatrienoic acid isomer V	14.76	0.62	Unsaturated
Octadecatrienoic acid isomer VI	14.82	9.34	Unsaturated
Octadecatrienoic acid isomer VII	14.93	16.52	Unsaturated
Octadecatrienoic acid isomer VIII	14.98	8.31	Unsaturated
Gondoic acid	15.00	0.68	Unsaturated
Arachidic acid	15.24	0.51	Saturated
Total identified		**43.00%**	Saturated: 5.65% Unsaturated : 93.68%

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Conclusion

This sample corresponds to the expectations for pomegranate seed oil, characterized by punicic acid and several isomers (total expected to be around 80% of fatty acids, in this sample the total is 81.77%), and a 1:2:2 approximative ratio between palmitic, oleic and linoleic acids[1,2]. The vegetable oil is expected to be extracted during the CO_2 extraction process.

References

(1) Takagi, T.; Itabashi, Y. Occurrence of Mixtures of Geometrical Isomers of Conjugated Octadecatrienoic Acids in Some Seed Oils: Analysis by Open-Tubular Gas Liquid Chromatography and High Performance Liquid Chromatography. *Lipids* **1981**, *16* (7), 546–551.

(2) Özgül-Yücel, S. Determination of Conjugated Linolenic Acid Content of Selected Oil Seeds Grown in Turkey. *J. Am. Oil Chem. Soc.* **2005**, *82* (12), 893–897.

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste, 2013-174

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