

Date : October 04, 2018

CERTIFICATE OF ANALYSIS – TOTAL FATTY ACIDS METHYL ESTERS (FAMES)

SAMPLE IDENTIFICATION

Internal code : 18I26-ZAT1-1-CC

Customer identification : Huile Végétale de Chanvre

Type : Vegetable oil & fats

Source : *Cannabis sativa*

Customer : Zatural

ANALYSIS

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 HP-88 column for quantification using the method FAMES, with identification of the methyl esters against standards.

Analyst : Alexis St-Gelais, M. Sc., chimiste

Analysis date : October 02, 2018

Checked and approved by :

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

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PHYSICOCHEMICAL DATA

Physical aspect: Green viscous liquid

Refractive index: 1.4773 ± 0.0003 (20 °C)

CONCLUSION

This sample corresponds to the expectations for hemp seed oil, characterized by high linolenic and linoleic acid content¹.

REFERENCE

- (1) Dubois, V.; Breton, S.; Linder, M.; Fanni, J.; Parmentier, M. Fatty Acid Profiles of 80 Vegetable Oils with Regard to Their Nutritional Potential. *Eur. J. Lipid Sci. Technol.* **2007**, *109*, 710–732.

ANALYSIS DATA

Fatty acids		Shorthand formula	R.T	R.I	%	Type
Common name	Systematic name					
Myristic acid	Tetradecanoic acid	C14:0	10.12	1398	0.07	SFA
Pentadecylic acid	Pentadecanoic acid	C15:0	11.41	1506	0.03	SFA
Palmitic acid	Hexadecanoic acid	C16:0	12.83	1603	6.05	SFA
Hypogeic acid	(7Z)-Hexadecenoic acid	C16:1 n-9 c	13.70	1653	0.03	MUFA
Palmitoleic acid	(9Z)-Hexadecenoic acid	C16:1 n-7 c	13.88	1663	0.10	MUFA
<i>cis</i> -Palmitvaccenic acid	(11Z)-Hexadecenoic acid	C16:1 n-5 c	14.13	1678	0.01	MUFA
Margaric acid	Heptadecanoic acid	C17:0	14.64	1704	0.05	SFA
<i>cis</i> -9-Heptadecenoic acid	(9Z)-Heptadecenoic acid	C17:1 n-8 c	15.85	1759	0.05	MUFA
Stearic acid	Octadecanoic acid	C18:0	17.05	1810	2.65	SFA
Petroselinic acid?	(6Z)-Octadecenoic acid	C18:1 n-12 c	18.06	1848	0.26	MUFA
Oleic acid	(9Z)-Octadecenoic acid	C18:1 n-9 c	18.37	1859	12.71	MUFA
<i>cis</i> -Vaccenic acid	(11Z)-Octadecenoic acid	C18:1 n-7 c	18.63	1869	0.03	MUFA
Nonadecylic acid	Nonadecanoic acid	C19:0	19.58	1904	0.03	SFA
<i>cis,trans</i> -9,12-Octadecadienoic acid	(9Z,12E)-Octadecadienoic acid	C18:2 n-6 ct	20.13	1923	0.51	PUFA
Linoleic acid	(9Z,12Z)-Octadecadienoic acid	C18:2 n-6 cc	20.82	1947	53.07	PUFA
γ -Linolenic acid	(6Z,9Z,12Z)-Octadecatrienoic acid	C18:3 n-6 ccc	22.32	1999	3.72	PUFA
Arachidic acid	Eicosanoic acid	C20:0	22.53	2006	1.00	SFA
α -Linolenic acid	(9Z,12Z,15Z)-Octadecatrienoic acid	C18:3 n-3 ccc	23.55	2039	16.66	PUFA
Gondoic acid	(11Z)-Eicosenoic acid	C20:1 n-9 c	24.19	2059	0.64	MUFA
Paullinic acid	(13Z)-Eicosenoic acid	C20:1 n-7 c	24.52	2070	0.06	MUFA
Stearidonic acid	(6Z,9Z,12Z,15Z)-Octadecatetraenoic acid	C18:4 n-3 cccc	25.32	2096	1.09	PUFA
Heneicosylic acid	Heneicosanoic acid	C21:0	25.59	2105	0.04	SFA
<i>cis,cis</i> -11,14-Eicosadienoic acid	(11Z,14Z)-Eicosadienoic acid	C20:2 n-6 cc	26.82	2145	0.13	PUFA
Behenic acid	Docosanoic acid	C22:0	28.80	2215	0.37	SFA
Lignoceric acid	Tetracosanoic acid	C24:0	32.83	2402	0.02	SFA
Total SFA: 10.31%			Total identified 99.37%			
Total PUFA: 74.67%						
Total MUFA: 14.32%						

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index

SFA: Saturated fatty acid

PUFA: Polyunsaturated fatty acid

MUFA: Monounsaturated fatty acid

