Date : February 10, 2019

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

SAMPLE IDENTIFICATION

Internal code : 19B04-HBN02-1-CC
Customer identification : Emu Oil - 1901149119
Type : Vegetable oil & fats
Source : *Dromaius novaehollandiae*
Customer : Health & Beauty Natural Oils

ANALYSIS

Method: PC-PA-020 - Fatty acids profiling of a vegetable oil or a plant by hydrolysis and derivatisation (FAMEs)
Analyst : Alexis St-Gelais, M. Sc., chimiste
Analysis date : February 07, 2019

Checked and approved by :

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

Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.

This report is digitally signed, it is only considered valid if the digital signature is intact.

Laboratoire PhytoChemia
628 Boulevard du Saguenay Ouest, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

PHYSICOCHEMICAL DATA

Physical aspect: Milky viscous liquid
Refractive index: 1.4663 ± 0.0003 (20 °C)

CONCLUSION

The oil contains the expected relative amounts of fatty acids contained in emu oil[1].

REFERENCES

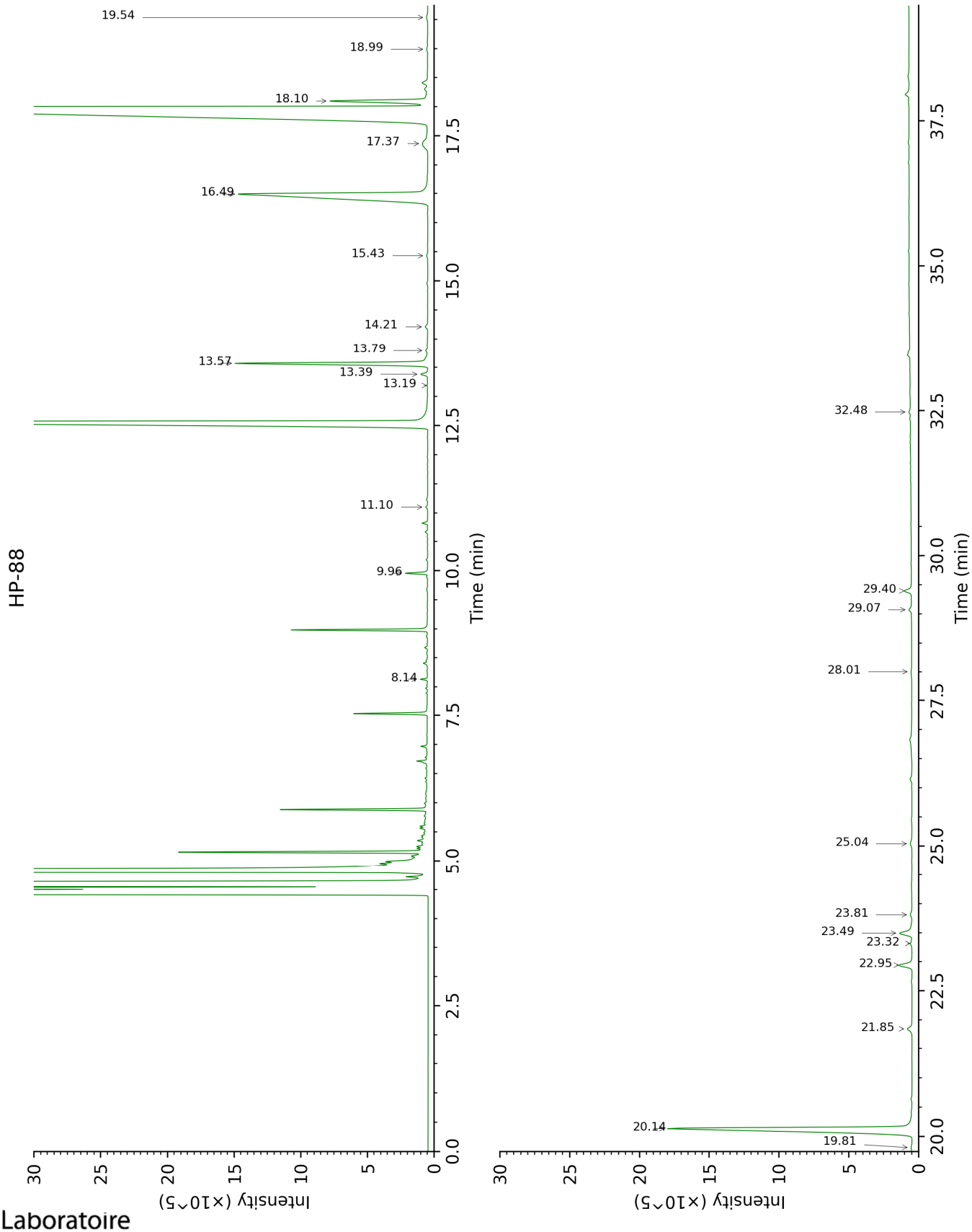
(1) Lindsay, R. J.; Geier, M. S.; Yazbeck, R.; Butler, R. N.; Howarth, G. S. Orally Administered Emu Oil Decreases Acute Inflammation and Alters Selected Small Intestinal Parameters in a Rat Model of Mucositis. *Br. J. Nutr.* **2010**, *104* (4), 513–519.

628 Boulevard du Saguenay, Saguenay (Qc) G7J 1H4 | www.phytochemia.com

ANALYSIS DATA

Fatty acids						
Common name	Systematic name	Shorthand formula	R.T	R.I	%	Type
Lauric acid	Dodecanoic acid	C12:0	8.14	1201	0.08	SFA
Myristic acid	Tetradecanoic acid	C14:0	9.96	1400	0.31	SFA
Pentadecylic acid	Pentadecanoic acid	C15:0	11.10	1500	0.03	SFA
Palmitic acid	Hexadecanoic acid	C16:0	12.57	1605	22.90	SFA
Palmitelaidic acid?	(9*E*)-Hexadecenoic acid?	C16:1 n-7 t	13.19	1642	0.01	MUFA
Hypogeic acid	(7*Z*)-Hexadecenoic acid	C16:1 n-9 c	13.39	1653	0.13	MUFA
Palmitoleic acid	(9*Z*)-Hexadecenoic acid	C16:1 n-7 c	13.57	1664	4.10	MUFA
cis-Palmitvaccenic acid	(11*Z*)-Hexadecenoic acid	C16:1 n-5 c	13.79	1676	0.03	MUFA
Margaric acid	Heptadecanoic acid	C17:0	14.21	1700	0.07	SFA
cis-9-Heptadecenoic acid	(9*Z*)-Heptadecenoic acid	C17:1 n-8 c	15.43	1758	0.03	MUFA
Stearic acid	Octadecanoic acid	C18:0	16.49	1806	9.36	SFA
Octadecenoic acid isomer III	Octadecenoic acid	C18:1	17.37	1840	0.36	MUFA
Oleic acid	(9*Z*)-Octadecenoic acid	C18:1 n-9 c	18.00	1863	49.63	MUFA
cis-Vaccenic acid	(11*Z*)-Octadecenoic acid	C18:1 n-7 c	18.10	1867	2.32	MUFA
Linolelaidic acid	(9*E*,12*E*)-Octadecadienoic acid	C18:2 n-6 tt	18.99	1900	0.03	PUFA
cis,*trans*-9,12-Octadecadienoic acid	(9*Z*,12*E*)-Octadecadienoic acid	C18:2 n-6 ct	19.54	1920	0.04	PUFA
trans,*cis*-9,12-Octadecadienoic acid	(9*E*,12*Z*)-Octadecadienoic acid	C18:2 n-6 tc	19.81	1930	0.03	PUFA
Linoleic acid	(9*Z*,12*Z*)-Octadecadienoic acid	C18:2 n-6 cc	20.14	1941	8.58	PUFA
Arachidic acid	Eicosanoic acid	C20:0	21.85	2001	0.15	SFA
α-Linolenic acid	(9*Z*,12*Z*,15*Z*)-Octadecatrienoic acid	C18:3 n-3 ccc	22.94	2037	0.41	PUFA
cis-5-Eicosenoic acid	(5*Z*)-Eicosenoic acid	C20:1 n-15 c	23.32	2049	0.05	MUFA
Gondoic acid	(11*Z*)-Eicosenoic acid	C20:1 n-9 c	23.49	2055	0.46	MUFA
Paullinic acid	(13*Z*)-Eicosenoic acid	C20:1 n-7 c	23.81	2065	0.06	MUFA
Heneicosylic acid	Heneicosanoic acid	C21:0	25.04	2105	0.08	SFA
Behenic acid	Docosanoic acid	C22:0	28.01	2202	0.02	SFA
cis-5-Docosenoic acid	(5*Z*)-Docosenoic acid	C22:1 n-17 c	29.07	2244	0.08	MUFA
Erucic acid	(13*Z*)-Docosenoic acid	C22:1 n-9 c	29.40	2258	0.21	MUFA
Lignoceric acid	Tetracosanoic acid	C24:0	32.48	2401	0.04	SFA
	Total SFA: 33.03% Total MUFA: 56.99% Total PUFA: 9.02%		**Total identified 99.60%**			

Note: no correction factor was applied
R.T.: Retention time (minutes)
R.I.: Retention index
SFA: Saturated fatty acid
MUFA: Monounsaturated fatty acid
PUFA: Polyunsaturated fatty acid


HP-88
19.54
18.99
18.10
17.37
16.49
15.43
14.21
13.79
13.57
13.39
13.19
11.10
9.96
8.14
25.04
23.81
23.49
23.32
22.95
21.85
20.14
19.81
32.48
29.40
29.07
28.01
Time (min)
Intensity (×10^5)