Title:
Oil Content by Bligh & Dyer, Fatty Acid Analysis, Protein, and Carbohydrate Content of Dried Algae.

Prepared for:
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Contract Number:
23-ALC-006

Date of Report:
17/07/23

Analytical Report Form

Company name:	Algiecel	Date sample received:	25/05/23
Customer contact name:	Reut Shavit	Date report prepared:	17/07/23
Contract number:	23-ALC-006	No. of samples:	10
P.O. number:	-	Sample type:	Dried Algae

Analysis performed:	Oil Content – Bligh & Dyer	Date of test: 09/06/23
	Fatty Acid Analysis	Date of test: 14/06/23
	Protein	Date of test: 11/07/23
	Carbohydrate	Date of test: 13/06/23

Methods used:	LM030.R03
	LM033.R00
	LM023.R03
	LM018.R01

Report prepared by:	Charlotte Horrell

Sample condition (detail any non-conformance):)

Insufficient Sample for Acid Hydrolysis and Soxhlet Oil Content. Carbohydrate analysis very difficult due to sample matrix.

Name of approver: James R Dick   Signature:

James R Dick

(Technical Manager)

Date: 18/07/23

RESULTS

OIL CONTENT - BLIGH & DYER

SAMPLE I.D	% OIL
BT003NCO_1	14.89
BT003NCO_2	25.40
BT003NCO_3	25.24
BT003NCO_4	22.59
BT003NCO_5	24.07
BT003NCO_6	22.97
BT003NCO_7	24.29
BT003NCO_8	24.16
BT003NCO_9	18.66
BT003NCO_10	22.08

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Fatty acid composition (% total fatty acids and mg FA.100g^{-1}) of total lipid from Dried Algae

Fatty acid	BT003NCO_1		BT003NCO_2		BT003NCO_3		BT003NCO_4	
	%	mg. 100g^{-1}	%	mg. 100g^{-1}	%	mg. 100g^{-1}	%	mg. 100g^{-1}
14:0	4.68	299.66	4.00	463.61	4.08	517.49	4.43	484.81
15:0	0.91	58.27	0.83	95.67	0.73	92.10	0.81	88.65
16:0	24.49	1569.10	28.25	3272.21	27.89	3540.47	27.77	3039.90
18:0	1.78	114.05	1.37	158.81	0.96	122.33	0.83	90.44
20:0	0.12	7.47	0.09	10.89	0.07	8.86	<LOQ	<LOQ
22:0	0.12	7.47	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
24:0	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total saturated	**32.09**	**2056.03**	**34.55**	**4001.18**	**33.73**	**4281.26**	**33.84**	**3703.79**
16:1n-9	3.12*	199.88*	3.35*	388.55*	2.72*	345.79*	2.74*	299.39*
16:1n-7	29.67	1901.22	27.03	3130.48	26.73	3392.66	24.27	2655.99
18:1n-9	11.54	739.52	6.87	796.09	4.83	613.39	5.93	649.16
18:1n-7	0.81	51.80	1.13	130.99	0.97	123.12	0.78	85.48
20:1n-11	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:1n-9	0.24	15.36	0.10	11.04	<LOQ	<LOQ	0.15	16.93
20:1n-7	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:1n-11	0.21	13.28	<LOQ	<LOQ	<LOQ	<LOQ	0.18	19.41
22:1n-9	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
24:1n-9	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total monounsaturated	**45.59**	**2921.06**	**38.48**	**4457.14**	**35.26**	**4474.96**	**34.05**	**3726.37**
18:2n-6	4.99	320.00	7.88	913.09	8.88	1127.25	9.45	1034.31
18:3n-6	0.11	6.89	0.15	17.37	0.19	24.37	0.38	41.30
20:2n-6	0.16	10.54	0.33	38.27	0.32	40.20	0.26	28.22
20:3n-6	<LOQ	<LOQ	0.10	11.92	0.20	24.85	0.15	16.93
20:4n-6	3.06	195.82	2.31	267.57	2.02	256.21	2.24	244.88
22:4n-6	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-6	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total n-6 PUFA	**8.32**	**533.24**	**10.78**	**1248.22**	**11.60**	**1472.87**	**12.48**	**1365.64**
18:3n-3	0.29	18.68	0.37	43.42	0.56	70.90	0.60	65.80
18:4n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:3n-3	<LOQ	<LOQ	<LOQ	<LOQ	0.10	12.19	0.10	11.01
20:4n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:5n-3	13.52	866.27	15.63	1810.14	18.55	2355.14	18.71	2047.57
21:5n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:6n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total n-3 PUFA	**13.81**	**884.95**	**16.00**	**1853.56**	**19.21**	**2438.23**	**19.41**	**2124.38**
16:2	0.10	6.31	0.10	12.07	0.13	16.77	0.14	15.28
16:3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
16:4	0.09	5.98	0.08	9.42	0.07	8.70	0.09	9.64
	0.19	**12.29**	**0.19**	**21.49**	**0.20**	**25.48**	**0.23**	**24.91**
Total PUFA	**22.32**	**1430.48**	**26.97**	**3123.27**	**31.01**	**3936.58**	**32.11**	**3514.93**
Total	**100.00**	**6407.56**	**100.00**	**11581.59**	**100.00**	**12692.80**	**100.00**	**10945.09**

Limit of quantification (LOQ) for fatty acid analysis is 0.06%

(*) May contain unidentified branch chain Fatty Acids

Fatty acid composition (% total fatty acids and mg FA.100g^{-1}) of total lipid from Dried Algae

Fatty acid	BT003NCO_5 %	BT003NCO_5 mg. 100g^{-1}	BT003NCO_6 %	BT003NCO_6 mg. 100g^{-1}	BT003NCO_7 %	BT003NCO_7 mg. 100g^{-1}	BT003NCO_8 %	BT003NCO_8 mg. 100g^{-1}
14:0	4.03	481.04	4.40	504.33	4.16	494.38	3.86	459.67
15:0	0.82	98.24	0.83	95.08	0.79	93.41	0.84	100.28
16:0	30.20	3605.42	32.01	3671.68	30.76	3656.88	32.27	3838.83
18:0	0.87	103.91	1.04	119.85	0.88	104.32	0.92	109.35
20:0	0.07	8.51	0.11	12.17	0.09	11.21	0.08	9.66
22:0	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
24:0	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total saturated	**35.99**	**4297.13**	**38.39**	**4403.12**	**36.68**	**4360.18**	**37.98**	**4517.78**
16:1n-9	2.54*	303.82*	2.53*	289.68*	2.81*	333.87*	2.51*	298.92*
16:1n-7	23.32	2784.43	21.26	2437.90	21.04	2500.74	20.56	2445.56
18:1n-9	6.64	792.33	6.68	766.67	6.94	824.66	7.83	931.07
18:1n-7	0.84	100.18	0.70	80.19	0.67	79.36	0.71	84.68
20:1n-11	0.07	8.81	0.08	8.73	<LOQ	<LOQ	<LOQ	<LOQ
20:1n-9	0.09	10.15	0.10	11.03	0.12	14.05	0.10	12.18
20:1n-7	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:1n-11	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	0.11	13.52
22:1n-9	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
24:1n-9	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total monounsaturated	**33.50**	**3999.72**	**31.34**	**3594.21**	**31.57**	**3752.67**	**31.82**	**3785.94**
18:2n-6	8.45	1008.66	9.77	1120.93	9.07	1077.83	8.05	958.11
18:3n-6	0.52	61.96	0.33	37.52	0.32	38.41	0.32	38.03
20:2n-6	0.23	27.32	0.27	30.93	0.24	28.40	0.19	23.18
20:3n-6	0.17	20.45	0.15	16.90	0.15	17.49	0.13	15.15
20:4n-6	2.38	284.41	2.43	278.94	2.80	332.97	2.79	332.34
22:4n-6	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-6	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total n-6 PUFA	**11.75**	**1402.81**	**12.95**	**1485.22**	**12.58**	**1495.09**	**11.49**	**1366.82**
18:3n-3	0.55	66.14	0.56	64.01	0.57	68.00	0.55	65.22
18:4n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:3n-3	0.11	13.44	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:4n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
20:5n-3	17.89	2135.72	16.56	1899.49	18.42	2189.13	18.07	2150.06
21:5n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
22:6n-3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
Total n-3 PUFA	**18.56**	**2215.30**	**17.12**	**1963.50**	**18.99**	**2257.13**	**18.62**	**2215.29**
16:2	0.12	13.88	0.12	13.46	0.11	12.70	0.09	10.40
16:3	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ	<LOQ
16:4	0.08	9.56	0.09	10.02	0.08	9.42	<LOQ	<LOQ
	0.20	**23.44**	**0.20**	**23.48**	**0.19**	**22.12**	**0.09**	**10.40**
Total PUFA	**30.50**	**3641.55**	**30.27**	**3472.21**	**31.75**	**3774.34**	**30.20**	**3592.50**
Total	**100.00**	**11938.40**	**100.00**	**11469.53**	**100.00**	**11887.20**	**100.00**	**11896.22**

Limit of quantification (LOQ) for fatty acid analysis is 0.06%

(*) May contain unidentified branch chain Fatty Acids

Fatty acid composition (% total fatty acids and mg FA.100g^{-1}) of total lipid from Dried Algae

Fatty acid	BT003NCO_9		BT003NCO_10	
	%	mg. 100g^{-1}	%	mg. 100g^{-1}
14:0	3.77	344.56	3.64	368.97
15:0	0.81	73.88	0.89	90.33
16:0	29.61	2703.91	29.03	2945.17
18:0	0.86	78.34	1.01	102.02
20:0	0.09	8.01	0.10	10.01
22:0	<LOQ	<LOQ	0.09	8.84
24:0	<LOQ	<LOQ	<LOQ	<LOQ
Total saturated	**35.14**	**3208.69**	**34.75**	**3525.34**
16:1n-9	3.26*	298.13*	3.29*	334.14*
16:1n-7	19.64	1793.95	18.50	1876.33
18:1n-9	11.31	1032.89	11.92	1208.69
18:1n-7	0.72	65.76	1.03	104.88
20:1n-11	<LOQ	<LOQ	<LOQ	<LOQ
20:1n-9	0.09	8.35	0.12	12.09
20:1n-7	<LOQ	<LOQ	<LOQ	<LOQ
22:1n-11	<LOQ	<LOQ	<LOQ	<LOQ
22:1n-9	<LOQ	<LOQ	<LOQ	<LOQ
24:1n-9	<LOQ	<LOQ	<LOQ	<LOQ
Total monounsaturated	**35.03**	**3199.09**	**34.86**	**3536.13**
18:2n-6	8.40	767.12	8.36	847.90
18:3n-6	0.21	19.44	0.23	23.52
20:2n-6	0.24	21.73	0.25	25.73
20:3n-6	0.16	14.29	0.22	21.96
20:4n-6	2.82	257.54	2.87	291.25
22:4n-6	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-6	<LOQ	<LOQ	<LOQ	<LOQ
Total n-6 PUFA	**11.83**	**1080.12**	**11.93**	**1210.38**
18:3n-3	0.56	51.35	1.05	106.96
18:4n-3	<LOQ	<LOQ	<LOQ	<LOQ
20:3n-3	<LOQ	<LOQ	<LOQ	<LOQ
20:4n-3	<LOQ	<LOQ	<LOQ	<LOQ
20:5n-3	17.37	1586.16	17.32	1757.28
21:5n-3	<LOQ	<LOQ	<LOQ	<LOQ
22:5n-3	<LOQ	<LOQ	<LOQ	<LOQ
22:6n-3	<LOQ	<LOQ	<LOQ	<LOQ
Total n-3 PUFA	**17.93**	**1637.51**	**18.38**	**1864.24**
16:2	0.08	6.86	0.08	7.80
16:3	<LOQ	<LOQ	<LOQ	<LOQ
16:4	<LOQ	<LOQ	<LOQ	<LOQ
	0.08	**6.86**	**0.08**	**7.80**
Total PUFA	**29.83**	**2724.49**	**30.39**	**3082.41**
Total	**100.00**	**9132.27**	**100.00**	**10143.88**

Limit of quantification (LOQ) for fatty acid analysis is 0.06%

(*) May contain unidentified branch chain Fatty Acids

PROTEIN CONTENT

SAMPLE I.D	% PROTEIN
BT003NCO_1	40.55
BT003NCO_2	47.29
BT003NCO_3	43.16
BT003NCO_4	41.67
BT003NCO_5	40.59
BT003NCO_6	38.94
BT003NCO_7	38.65
BT003NCO_8	36.98
BT003NCO_9	34.71
BT003NCO_10	41.37

CARBOHYDRATE CONTENT

SAMPLE I.D	% CARBOHYDRATE
BT003NCO_1	10.20
BT003NCO_2	3.43
BT003NCO_3	2.60
BT003NCO_4	1.39
BT003NCO_5	4.74
BT003NCO_6	3.60
BT003NCO_7	4.21
BT003NCO_8	4.98
BT003NCO_9	20.24
BT003NCO_10	13.31

*Samples were not fully digested in the process, pieces of algae remained intact.