

## Supplementary materials

**Table S1.** The dry biomass weight (yield) of 15 ml of each fresh microalgal culture.

Yield (g)	F1	F2	F3	F4	R1	SEC_Li_ChL_1	CL_Sc	CL_Ch	Idr	FB	C2
Acetone	0.018	0.015	0.007	0.018	0.022	0.046	0.012	0.0121	0.017	0.0027	0.016
Methanol	0.021	0.001	0.017	0.009	0.016	0.009	0.008	0.0117	0.008	0.0139	0.006
Ethanol	0.027	0.006	0.023	0.009	0.012	0.013	0.010	0.0115	0.010	0.0145	0.007
Water	0.013	0.002	0.004	0.020	0.012	0.012	0.034	0.0132	0.005	0.022	0.008

**Table S2.** Total chlorophyll content of dry and fresh microalgal strains, under different types of solvent extraction, expressed as  $\mu\text{g ml}^{-1}$  of fresh culture volume. Each datum is the mean  $\pm$  SD from three replicates.

Total Chlorophyll		F1	F2	F3	F4	R1	C2	SEC_Li_ChL_1	CL_Sc	CL_Ch	Idr	FB
Acetone	<i>Dry</i>	$0.24 \pm 1.7 \times 10^{-4}$	$0.12 \pm 1.0 \times 10^{-3}$	$0.35 \pm 3.2 \times 10^{-5}$	$0.1 \pm 9.8 \times 10^{-5}$	$0.26 \pm 3.0 \times 10^{-4}$	$0.09 \pm 5.5 \times 10^{-5}$	$0.24 \pm 4.5 \times 10^{-5}$	$0.10 \pm 4.0 \times 10^{-5}$	$0.09 \pm 5.0 \times 10^{-5}$	$0.31 \pm 2.1 \times 10^{-5}$	$0.21 \pm 1.2 \times 10^{-4}$
	<i>Fresh</i>	$0.83 \pm 1.4 \times 10^{-3}$	$2.68 \pm 2.2 \times 10^{-4}$	$2.66 \pm 4.1 \times 10^{-4}$	$1.78 \pm 6.8 \times 10^{-5}$	$1.64 \pm 9.2 \times 10^{-4}$	$1.23 \pm 9.8 \times 10^{-5}$	$1.07 \pm 3.6 \times 10^{-4}$	$0.61 \pm 1.8 \times 10^{-4}$	$0.82 \pm 1.6 \times 10^{-4}$	$1.37 \pm 1.1 \times 10^{-4}$	$1.03 \pm 2.7 \times 10^{-4}$
Methanol	<i>Dry</i>	$1.03 \pm 3.5 \times 10^{-4}$	$0.36 \pm 1.4 \times 10^{-4}$	$0.68 \pm 1.4 \times 10^{-3}$	$1.01 \pm 1.2 \times 10^{-5}$	$1.11 \pm 7.9 \times 10^{-5}$	$1.11 \pm 1.0 \times 10^{-4}$	$0.74 \pm 1.6 \times 10^{-4}$	$0.48 \pm 3.9 \times 10^{-5}$	$1.16 \pm 2.8 \times 10^{-4}$	$0.42 \pm 1.1 \times 10^{-5}$	$1.12 \pm 4.8 \times 10^{-4}$
	<i>Fresh</i>	$2.75 \pm 7.9 \times 10^{-4}$	$1.76 \pm 2.6 \times 10^{-4}$	$3.84 \pm 2.1 \times 10^{-3}$	$1.82 \pm 1.9 \times 10^{-4}$	$1.42 \pm 7.0 \times 10^{-4}$	$2.13 \pm 3.1 \times 10^{-5}$	$1.87 \pm 3.1 \times 10^{-5}$	$0.85 \pm 1.0 \times 10^{-4}$	$1.13 \pm 2.0 \times 10^{-4}$	$1.88 \pm 1.3 \times 10^{-3}$	$1.60 \pm 1.5 \times 10^{-4}$
Ethanol	<i>Dry</i>	$0.40 \pm 3.8 \times 10^{-4}$	$0.31 \pm 2.6 \times 10^{-5}$	$0.44 \pm 2.6 \times 10^{-5}$	$0.22 \pm 1.6 \times 10^{-4}$	$0.3 \pm 4.1 \times 10^{-5}$	$0.13 \pm 2.8 \times 10^{-5}$	$0.28 \pm 2.8 \times 10^{-5}$	$0.14 \pm 6.1 \times 10^{-6}$	$0.09 \pm 1.5 \times 10^{-4}$	$0.16 \pm 3.5 \times 10^{-5}$	$0.16 \pm 2.4 \times 10^{-4}$
	<i>Fresh</i>	$3.01 \pm 3.0 \times 10^{-4}$	$2.33 \pm 1.0 \times 10^{-4}$	$3.94 \pm 1.5 \times 10^{-3}$	$1.51 \pm 2.0 \times 10^{-4}$	$1.99 \pm 2.3 \times 10^{-4}$	$1.54 \pm 7.8 \times 10^{-5}$	$1.71 \pm 1.7 \times 10^{-4}$	$0.88 \pm 2.0 \times 10^{-4}$	$1.12 \pm 3.3 \times 10^{-4}$	$1.86 \pm 1.9 \times 10^{-4}$	$1.29 \pm 2.0 \times 10^{-5}$

**Table S3.** Carotenoids content of dry and fresh microalgal strains, under different types of solvent extraction, expressed as  $\mu\text{g ml}^{-1}$  of fresh culture volume. Each datum is the mean  $\pm$  SD from three replicates.

Carotenoids		F1	F2	F3	F4	R1	C2	SEC_Li_ChL_1	CL_Sc	CL_Ch	Idr	FB
Acetone	<i>Dry</i>	$0.04 \pm 7.1 \times 10^{-5}$	$0.02 \pm 2.7 \times 10^{-4}$	$0.04 \pm 1.8 \times 10^{-5}$	$0.02 \pm 2.3 \times 10^{-5}$	$0.06 \pm 1.6 \times 10^{-4}$	$0.03 \pm 7.55 \times 10^{-5}$	$0.07 \pm 1.5 \times 10^{-5}$	$0.04 \pm 1.5 \times 10^{-5}$	$0.03 \pm 7.1 \times 10^{-6}$	$0.08 \pm 2.7 \times 10^{-4}$	$0.06 \pm 9.2 \times 10^{-5}$
	<i>Fresh</i>	$0.20 \pm 6.9 \times 10^{-4}$	$0.07 \pm 4.4 \times 10^{-4}$	$0.08 \pm 3.3 \times 10^{-4}$	$0.29 \pm 4.3 \times 10^{-5}$	$0.32 \pm 5.8 \times 10^{-4}$	$0.12 \pm 2.31 \times 10^{-5}$	$0.28 \pm 6.7 \times 10^{-5}$	$0.2 \pm 4.9 \times 10^{-5}$	$0.23 \pm 7.6 \times 10^{-5}$	$0.31 \pm 2.2 \times 10^{-4}$	$0.29 \pm 3.0 \times 10^{-5}$
Methanol	<i>Dry</i>	>0.2	$0.01 \pm 3.0 \times 10^{-5}$	$0.002 \pm 8.1 \times 10^{-4}$	>0.2	>0.2	>0.2	$0.04 \pm 3.0 \times 10^{-4}$	$0.13 \pm 1.0 \times 10^{-4}$	>0.2	$0.16 \pm 1.5 \times 10^{-4}$	>0.2
	<i>Fresh</i>	$0.05 \pm 7.7 \times 10^{-4}$	$0.24 \pm 4.6 \times 10^{-4}$	>0.4	$0.36 \pm 5.4 \times 10^{-4}$	$0.20 \pm 5.0 \times 10^{-4}$	$0.16 \pm 5.63 \times 10^{-4}$	$0.35 \pm 5.8 \times 10^{-4}$	$0.24 \pm 6.0 \times 10^{-5}$	$0.31 \pm 2.1 \times 10^{-3}$	$0.29 \pm 4.8 \times 10^{-4}$	$0.35 \pm 7.7 \times 10^{-4}$
Ethanol	<i>Dry</i>	$0.12 \pm 2.1 \times 10^{-4}$	$0.05 \pm 2.3 \times 10^{-5}$	$0.07 \pm 3.8 \times 10^{-5}$	$0.06 \pm 9.5 \times 10^{-5}$	$0.5 \pm 8.0 \times 10^{-5}$	$0.03 \pm 1.09 \times 10^{-4}$	$0.08 \pm 2.2 \times 10^{-5}$	$0.05 \pm 4.2 \times 10^{-6}$	$0.03 \pm 1.9 \times 10^{-5}$	$0.05 \pm 6.1 \times 10^{-5}$	$0.06 \pm 1.0 \times 10^{-5}$
	<i>Fresh</i>	>0.4	$0.19 \pm 4.3 \times 10^{-4}$	>0.4	$0.38 \pm 2.6 \times 10^{-4}$	$0.34 \pm 1.2 \times 10^{-4}$	$0.38 \pm 3.73 \times 10^{-4}$	$0.31 \pm 3.3 \times 10^{-4}$	$0.20 \pm 5.6 \times 10^{-5}$	$0.25 \pm 6.9 \times 10^{-5}$	$0.27 \pm 2.7 \times 10^{-4}$	$0.28 \pm 8.0 \times 10^{-5}$

**Table S4.** Total polyphenols content of dry and fresh microalgal strains, under different types of solvent extraction, expressed as mg GAE g<sup>-1</sup> dw. Fresh microalgal results were calculated based on the yield listed in Table S1. Each datum is the mean ± SD from three replicates.

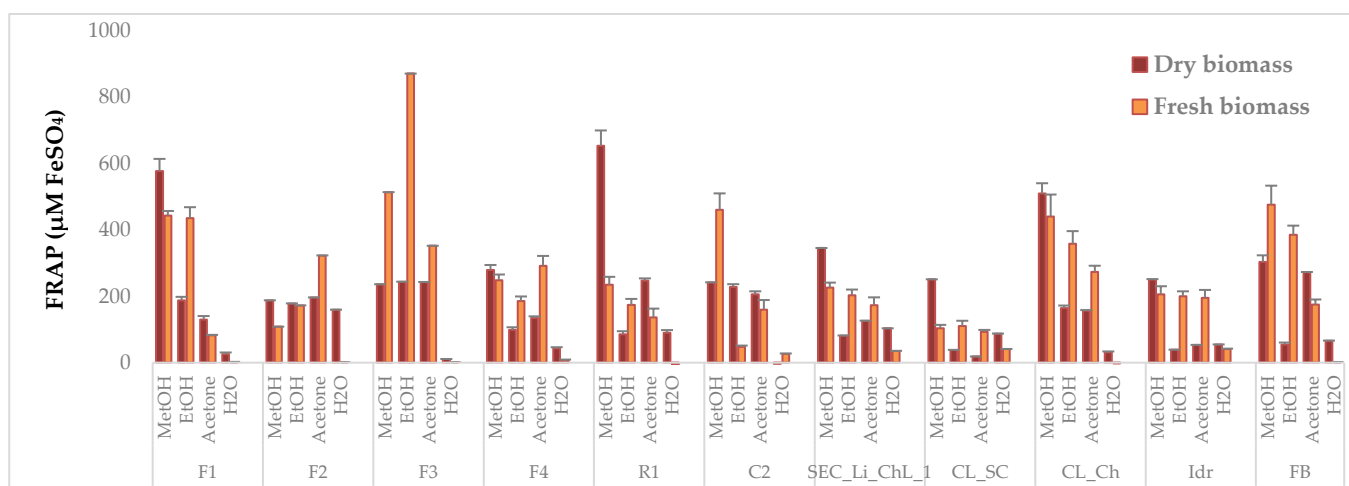
Total polyphenols		F1	F2	F3	F4	R1	SEC_Li_ChL_1	CL_Sc	CL_Ch	Idr	FB	C2
Acetone	<i>Dry</i>	0.20±0.06	2.61±0.01	2.81±0.42	0.08±1 × 10 <sup>-3</sup>	1.68±0.11	1.20±0.20	0.14±0.05	1.67±0.12	3.22±0.51	3.45±0.38	6.04±0.21
	<i>Fresh</i>	0.18±0.01	1.41±0.02	2.50±0.46	0.63±0.15	0.13±0.05	0.37±0.01	0.67±0.05	1.18±0.08	0.82±0.07	3.01±0.43	0.61±0.01
Methanol	<i>Dry</i>	4.08±0.11	2.01±4 × 10 <sup>-3</sup>	3.30±0.01	2.51±0.03	4.13±0.08	2.80±0.23	2.17±0.15	5.88±0.07	2.21±0.25	4.05±0.10	6.41±0.62
	<i>Fresh</i>	0.66±4 × 10 <sup>-3</sup>	4.85±1.12	1.83±0.25	0.63±0.05	0.43±0.12	1.06±0.01	0.59±0.07	1.68±0.11	1.18±0.08	1.37±0.11	1.66±0.07
Ethanol	<i>Dry</i>	1.29±0.24	1.92±0.05	2.32±0.20	0.99±0.29	0.74±0.09	0.24±2 × 10 <sup>-3</sup>	1.34±0.27	6.78±1.51	0.55±0.07	3.84±0.99	0.76±0.39
	<i>Fresh</i>	0.81±0.03	1.23±0.21	2.08±0.06	0.26±0.10	0.20±1 × 10 <sup>-3</sup>	0.20±0.06	0.56±0.02	1.39±0.04	0.31±0.08	0.81±0.07	1.27±0.16
Water	<i>Dry</i>	0.42±0.01	1.80±0.12	0.02±4 × 10 <sup>-3</sup>	2.27±0.01	2.72±0.16	3.65±0.05	2.27±0.07	0.96±0.05	1.11±0.09	3.80±0.08	1.52±0.05
	<i>Fresh</i>	n.d.	n.d.	n.d.	0.08±0.01	n.d.	0.03±0.02	0.02±2 × 10 <sup>-3</sup>	n.d.	0.15±0.01	n.d.	n.d.

n.d. not detected

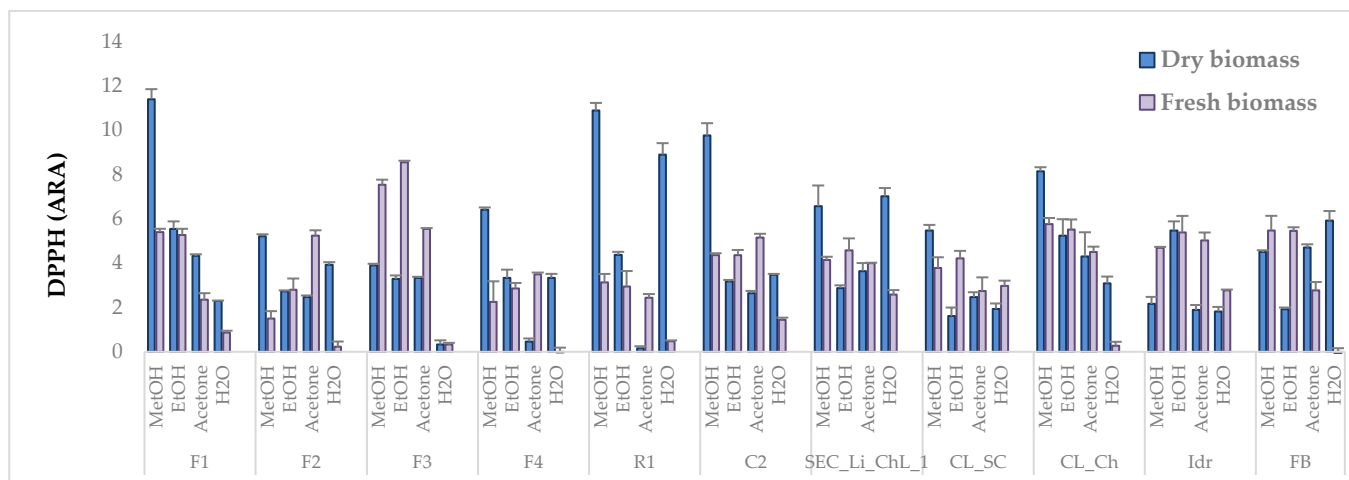
**Table S5.** Total flavonoids content of dry and fresh microalgal strains, under different types of solvent extraction, expressed as mg QE g<sup>-1</sup> dw. Fresh microalgal results were calculated based on the yield listed in Table S1. Each datum is the mean ± SD from three replicates.

Total flavonoids		F1	F2	F3	F4	R1	SEC_Li_ChL_1	CL_Sc	CL_Ch	Idr	FB	C2
Acetone	<i>Dry</i>	19.98±0.28	15.11±5.93	38.37±8.12	45.04±0.04	88.09±13.91	20.77±3.31	6.88±1.98	28.61±1.37	60.61±4.57	34.94±0.73	89.06±5.01
	<i>Fresh</i>	2.46±0.01	27.38±1.13	58.32±2.72	12.73±0.05	2.89±0.09	3.55±0.06	5.70±1.36	86.43±7.98	8.86±0.55	9.81±0.50	13.78±0.64
Methanol	<i>Dry</i>	83.71±3.69	38.81±2.08	74.60±2.32	95.33±0.98	128.90±3.82	49.07±1.25	36.39±2.51	118.20±3.99	27.27±0.10	55.36±0.49	106.51±2.64
	<i>Fresh</i>	16.95±0.31	11.88±1.83	53.02±1.14	21.35±2.41	13.18±1.17	23.23±1.53	11.45±0.63	27.70±0.65	24.33±1.42	38.02±2.72	57.62±1.25
Ethanol	<i>Dry</i>	24.72±0.45	34.97±0.53	49.19±2.85	14.38±0.64	16.83±1.56	10.02±1.37	5.20±1.36	19.32±0.35	4.30±0.49	9.80±0.04	35.06±3.15
	<i>Fresh</i>	16.59±0.34	29.22±2.18	51.24±1.52	16.57±1.52	16.18±1.57	12.25±0.40	7.01±0.20	23.44±0.99	16.96±0.71	29.49±0.30	37.92±0.18
Water	<i>Dry</i>	n.d.	3.22±0.68	n.d.	0.45±0.19	1.58±0.63	5.93±0.20	9.92±0.25	0.29±0.06	1.78±0.50	2.42±0.40	25.76±2.61
	<i>Fresh</i>	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	15.06±0.92

n.d. not detected



**Figure S1.** FRAP activity, expressed as  $\mu\text{M FeSO}_4$ , of 85  $\mu\text{L}$  extract of dry and fresh microalgal biomass under different types of solvent extraction. Each datum is the mean  $\pm$  SD from three replicates.



**Figure S2.** The antiradical activity (ARA), expressed as a percentage of DPPH inhibition, of 50  $\mu\text{L}$  extract of dry and fresh microalgal biomass under different types of solvent extraction. Each datum is the mean  $\pm$  SD from three replicates.