

Supplementary Data

Figure 3. Total polyphenol (a), total phlorotannin (b) and total flavonoid (c) content from 11 seaweed species obtained using UAE and conventional solvent extraction technologies.

Seaweed species	TPC (mg GAE/g)		TPhC (mg PGE/g)		TFC (mg QE/g)	
	UAE	Conventional	UAE	Conventional	UAE	Conventional
<i>Pelvetia caniculata</i>	199.6±11.4 E	154.8±6.5 d	151.3±7.9 E	123.0±5.3 d	79.4±8.7 G	59.3±2.3 c
<i>Fucus vesiculosus</i>	572.3±3.2 A	310.1±3.5 a	476.3±2.2 A	292.0±2.8 a	281.0±1.6 A	138.4±8.7 a
<i>Laminaria saccharina</i>	140.0±4.0 G	44.2±2.1 g	111.1±2.7 G	33.8±1.7 g	26.7±1.6 H	18.9±3.1 e
<i>Laminaria hyperborea</i>	117.5±10.3 G	73.4±3.4 f	94.8±7.1 H	52.2±2.8 d	188.6±5.7 D	112.4±5.3 b
<i>Fucus spiralis</i>	170.5±11.5 F	104.3±0.8 e	131.3±7.9 F	77.3±0.7 e	118.1±9.2 F	71.5±9.6 c
<i>Ascophyllum nodosum</i>	536.9±13.5 B	213.8±7.0 b	383.2±9.3 B	170.8±5.7 b	271.4±9.9 B	136.7±3.8 a
<i>Fucus serratus</i>	322.0±8.6 C	79.4±2.2 f	235.5±5.9 C	62.0±1.8 f	171.4±8.3 E	79.8±4.2 c
<i>Himanthalia elongata</i>	242.6±3.3 D	80.3±2.9 f	180.9±2.3 D	60.7±2.3 g	104.8±7.2 F	73.2±3.9 cd
<i>Halidrys siliquosa</i>	530.8±9.5 B	179.1±1.6 c	379.0±6.5 B	141.9±1.3 c	231.4±8.2 C	120.1±4.1 b
<i>Laminaria digitata</i>	72.6±2.9 H	28.7±4.0 h	50.3±2.0 I	19.0±3.3 h	15.2±3.3 H	8.1±0.9 e
<i>Alaria esculenta</i>	84.6±2.3 H	39.3±1.4 gh	63.8±1.6 I	30.2±1.2 g	20.0±2.9 H	13.7±1.8 e

The statistical differences in bioactive compounds extracted using UAE (ultrasound-assisted extraction) or conventional solvent extraction technologies for each seaweed are represented as * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. Different letters indicate statistical differences ($p < 0.05$) in the yields of bioactive compounds between seaweed obtained by UAE (uppercase letters) or conventional solvent extraction (lowercase letters). TPC (total phenolic content), TPhC (total phlorotannin content) and TFC (total flavonoid content) are expressed as mg gallic acid equivalents (GAE)/g dried weight extract, mg phloroglucinol equivalents (PGE)/g dried weight extract and mg quercetin equivalents (QE)/g dried weight extract, respectively.

Figure 4. Antioxidant capacity measured as DPPH (a) and FRAP (b) of 11 seaweed extracts obtained from UAE and conventional solvent extraction techniques.

Seaweed species	DPPH (mg TE/g)		FRAP (mg TE/g)	
	UAE	Conventional	UAE	Conventional
<i>Pelvetia caniculata</i>	23.63±0.32 E	17.64±0.14 c	51.69±0.15 B	42.04±1.20 a
<i>Fucus vesiculosus</i>	25.09±0.25 D	20.30±0.21 a	45.87±0.20 D	34.82±2.79 b
<i>Laminaria saccharina</i>	9.90±0.65 F	4.20±0.40 f	16.34±0.10 G	11.92±0.19 d
<i>Laminaria hyperborea</i>	29.07±0.09 A	19.11±0.08 b	25.61±0.18 E	21.78±0.27 c
<i>Fucus spiralis</i>	25.92±0.32 CD	16.87±0.16 d	22.27±0.34 F	13.97±0.39 d
<i>Ascophyllum nodosum</i>	26.86±0.32 C	17.80±0.01 c	50.07±0.17 C	39.89±0.08 a
<i>Fucus serratus</i>	29.28±0.25 A	11.88±0.10 e	63.91±0.74 A	34.23±0.20 b
<i>Himanthalia elongata</i>	28.77±0.17 AB	20.74±0.10 a	63.29±0.91 A	34.21±1.33 b
<i>Halidrys siliquosa</i>	27.64±0.28 BC	20.46±0.03 a	52.65±0.18 B	36.83±0.14 b
<i>Laminaria digitata</i>	5.21±0.15 G	2.46±0.09 g	7.83±0.30 H	4.36±0.11 f
<i>Alaria esculenta</i>	8.86±0.87 F	4.70±0.36 f	8.66±0.02 H	7.43±0.47 e

The statistical differences in antioxidant activity extracted by using UAE (ultrasound-assisted extraction) or conventional solvent extraction for each seaweed are represented as * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. Different letters indicate statistical differences in the antioxidant activity among seaweed species obtained by UAE (uppercase letters) or conventional solvent extraction (lowercase letters). DPPH and FRAP: expressed as mg trolox equivalent (TE)/g of dry weight extract.