

## Supplementary Materials

**Table S1.** *P*-values obtained with statistical tests (Post-hoc after a Kruskal-Wallis test) applied on the SPE fractions for (A) the Total Phenolic Content (TPC), (B) Radical scavenging activity by DPPH assay expressed as IC<sub>50</sub>, and (C) antioxidant activity by FRAP assay expressed as EC<sub>50</sub> of *Ascophyllum nodosum* (first number) and *Halidrys siliquosa* (second number), respectively. Significant values (*p* < 0.05) are written in bold.

A

TPC	ASE	SPE EtOH	SPE EtOH/DCM	SPE Water
SPE EtOH	<b>0.020</b> / 1.000	X	X	X
SPE EtOH:DCM	0.430 / 0.156	<b>0.003</b> / 0.441	X	X
SPE Water	0.181 / <b>0.045</b>	<b>0.0005</b> / 0.234	0.996 / 0.996	X
SPE Water:EtOH	0.658 / 0.159	0.616 / 0.415	0.102 / <b>0.006</b>	<b>0.032</b> / <b>0.001</b>

B

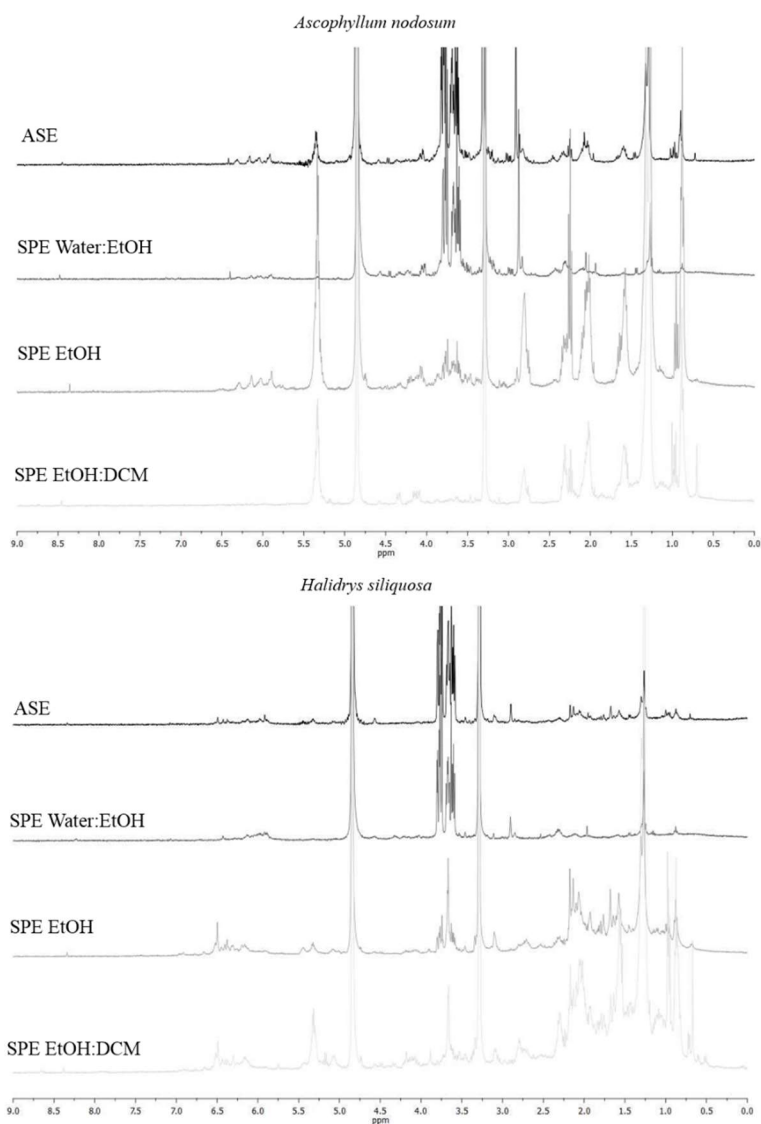
IC <sub>50</sub>	ASE	BHA	SPE EtOH	SPE EtOH/DCM	SPE Water/EtOH	Vit C
BHA	0.314 / 0.091	X	X	X	X	X
SPE EtOH	0.961 / 0.887	0.945 / 0.881	X	X	X	X
SPE EtOH:DCM	0.820 / 0.879	<b>0.036</b> / <b>0.020</b>	0.401 / 0.411	X	X	X
SPE Water:EtOH	0.988 / 0.931	0.145 / 0.834	0.744 / 1.000	0.999 / 0.478	X	X
Vit C	0.083 / 0.017	0.999 / 0.999	0.709 / 0.618	<b>0.006</b> / 0.004	<b>0.036</b> / 0.548	X
Vit E	0.704 / 0.316	0.999 / 0.995	0.999 / 0.988	0.145 / 0.080	0.401 / 0.970	0.945 / 0.969

C

EC <sub>50</sub>	ASE	BHA	SPE EtOH	SPE EtOH/DCM	SPE Water/EtOH	Vit C
BHA	0.141 / 0.073	X	X	X	X	X
SPE EtOH	0.799 / 0.858	0.990 / 0.947	X	X	X	X
SPE EtOH:DCM	0.675 / 0.909	<b>0.020</b> / <b>0.031</b>	0.208 / 0.454	X	X	X
SPE Water:EtOH	1.000 / 0.274	0.430 / 1.000	0.927 / 1.000	0.916 / 0.106	X	X
Vit C	0.100 / <b>0.049</b>	1.000 / 1.000	0.979 / 0.916	<b>0.014</b> / <b>0.022</b>	0.361 / 1.000	X
Vit E	0.429 / 0.541	1.000 / 0.995	1.000 / 1.000	0.073 / 0.224	0.721 / 1.000	0.996 / 0.990

**Table S2.** Photoprotective activities (SPF and PF-UVA) of one SPE fraction for *Ascophyllum nosum* (An) (EtOH) and two SPE fractions for *Halidrys siliquosa* (Hs) (Water:EtOH and EtOH) compared to the crude ASE extract. Letters indicate differences between fractions for *H. siliquosa* (Kruskal-Wallis,  $p < 0.005$ ).

Seaweeds	Fractions	SPF	PF-UVA
An	ASE 1C150	0	0
	SPE EtOH	$1.42 \pm 0.04$	$1.29 \pm 0.03$
	ASE 2C150	$2.33 \pm 0.46^a$	$1.85 \pm 0.20^a$
Hs	SPE Water:EtOH	$1.17 \pm 0.01^b$	$1.10 \pm 0.01^b$
	SPE EtOH	$1.82 \pm 0.08^b$	$1.47 \pm 0.05^b$



**Figure S1:** Entire <sup>1</sup>H NMR spectra of SPE fractions from *Ascophyllum nodosum* (on the left) and *Halidrys siliquosa* (on the right) compared to the crude extract ASE. <sup>1</sup>H NMR spectra were obtained on a Bruker Avance 400 and from samples dissolved within deuterated methanol.