

Table S1. Summary of repeated-measures ANOVA for the effects of harvest time and biostimulant treatments and harvest time on chlorophyll content, flavonoids, and nitrogen flavonol index (NFI) of cardoon leaves grown in a floating system.

Chlorophyll				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	18.34	< 0.001	0.13
Time	3	29.43	< 0.001	0.27
Treatment x Time	6	4.5	< 0.001	0.10
Flavonoids				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	0.91	< 0.001	0.60
Time	3	126.39	< 0.05	0.007
Treatment x Time	6	0.65	< 0.05	0.015
NFI				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	13.79	< 0.001	0.47
Time	3	69.07	< 0.001	0.11
Treatment x Time	6	4.79	< 0.001	0.11

Note: df = degrees of freedom; f = Fisher test statistic; p = significance level; Partial  $\eta^2$  = partial eta squared.

Table S2. Summary of repeated-measures ANOVA for the effects of biostimulant treatments and harvest time on total phenolic content (TPC) and antioxidant activity ( $IC_{50}$ ) of cardoon leaves grown in a floating system.

TPC (mg GAE g <sup>-1</sup> DE)				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	404.04	< 0.001	0.97
Time	3	978.98	< 0.001	0.99
Treatment x Time	6	475.73	< 0.001	0.99
$IC_{50n}$ ( $\mu$ g mL <sup>-1</sup> )				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	42.00	< 0.001	0.79
Time	3	71.53	< 0.001	0.91
Treatment x Time	6	3.12	< 0.05	0.046

Note: df = degrees of freedom; f = Fisher test statistic; p = significance level; Partial  $\eta^2$  = partial eta squared.

Table S3. Summary of repeated-measures ANOVA for the effects of biostimulant treatments and harvest time on total Kjeldahl nitrogen (TKN), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ),  $\text{NO}_3^-/\text{NH}_4^+$  ratio, and Norg/TKN in leaves of cardoon plants grown in a floating system.

Source of variance	TKN ( $\text{g kg}^{-1}$ DW)			
	df	f	p	Partial $\eta^2$
Treatment	2	55.75	< 0.001	0.72
Time	3	69.39	< 0.001	0.83
Treatment x Time	6	15.24	< 0.001	0.68
	$\text{NO}_3^-$ ( $\text{g kg}^{-1}$ DW)			
	df	f	p	Partial $\eta^2$
Treatment	2	3.32	< 0.05	0.13
Time	3	6.00	< 0.01	0.29
Treatment x Time	6	2.13	< 0.05	0.23
	$\text{NH}_4^+$ ( $\text{g kg}^{-1}$ DW)			
	df	f	p	Partial $\eta^2$
Treatment	2	311.32	< 0.001	0.93
Time	3	107.65	< 0.001	0.88
Treatment x Time	6	39.63	< 0.001	0.84
	$\text{NO}_3^-/\text{NH}_4^+$			
	df	f	p	Partial $\eta^2$
Treatment	2	34.19	< 0.001	0.61
Time	3	14.57	< 0.001	0.50
Treatment x Time	6	11.96	< 0.001	0.8462
	Norg/TKN (%)			
	df	f	p	Partial $\eta^2$
Treatment	2	10.29	< 0.001	0.32
Time	3	28.83	< 0.001	0.66
Treatment x Time	6	5.26	< 0.001	0.42

Note: df = degrees of freedom; f = Fisher test statistic; p = significance level; Partial  $\eta^2$  = partial eta squared.

Table S4. Summary of repeated-measures ANOVA for the effects of biostimulant treatments and harvest time on leaf mineral composition (P, K, Ca, Mg, S, Na, and Cl) of cardoon plants grown in a floating system.

P (g kg <sup>-1</sup> DW)				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	42.31	< 0.001	0.79
Time	3	58.74	< 0.001	0.85
Treatment x Time	6	9.62	< 0.001	0.55
K (g kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	66.48	< 0.001	0.83
Time	3	92.17	< 0.001	0.90
Treatment x Time	6	14.29	< 0.001	0.68
Ca (g kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	37.95	< 0.001	0.75
Time	3	44.68	< 0.001	0.78
Treatment x Time	6	7.81	< 0.001	0.48
Mg (mg kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	21.64	< 0.001	0.63
Time	3	34.52	< 0.001	0.72
Treatment x Time	6	5.97	< 0.001	0.41
S (g kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	18.73	< 0.001	0.59
Time	3	27.88	< 0.001	0.70
Treatment x Time	6	4.66	< 0.001	0.35
Na (g kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	4.92	< 0.05	0.29
Time	3	6.41	< 0.01	0.36
Treatment x Time	6	1.88	< 0.05	0.18
Cl (g kg <sup>-1</sup> DW)				
	df	f	p	Partial $\eta^2$
Treatment	2	12.56	< 0.001	0.49
Time	3	19.84	< 0.001	0.62
Treatment x Time	6	6.73	< 0.001	0.45

Note: df = degrees of freedom; f = Fisher test statistic; p = significance level; Partial  $\eta^2$  = partial eta squared.

Table S5. Summary of repeated-measures ANOVA for the effects of biostimulant treatments and harvest time on organic acid composition (malate, oxalate, and citrate) in leaves of cardoon plants grown in a floating system.

<b>Malate (g kg<sup>-1</sup> DW)</b>				
Source of variance	df	f	p	Partial $\eta^2$
Treatment	2	295.15	< 0.001	0.96
Time	3	390.11	< 0.001	0.98
Treatment x Time	6	134.32	< 0.001	0.97
<b>Oxalate (g kg<sup>-1</sup> DW)</b>				
	df	f	p	Partial $\eta^2$
Treatment	2	22.71	< 0.001	0.58
Time	3	15.75	< 0.001	0.59
Treatment x Time	6	24.30	< 0.001	0.82
<b>Citrate (g kg<sup>-1</sup> DW)</b>				
	df	f	p	Partial $\eta^2$
Treatment	2	527.32	< 0.001	0.97
Time	3	958.29	< 0.001	0.99
Treatment x Time	6	208.48	< 0.001	0.99

*Note:* df = degrees of freedom; f = Fisher test statistic; p = significance level; Partial  $\eta^2$  = partial eta squared.