Supplementary Material

Supplementary Table S1. Evolution during storage time of the physical variables in pears subjected to the different treatments: 1 °C-C (Control), 1 °C-F (Filter), 1 °C-FD (Filter + Device), 8 °C-C (Control), 8 °C-F (Filter) and 8 °C-FD (Filter + Device). The means ± standard error of the means (SEM) are shown. Different letters for each treatment represent statistically significant differences according to Tukey test. n = 5.

Storage days	Treatment	Weight (g)	Calliper (mm)	Firmness (N)
0	all	97.24 ± 3.23	53.00 ± 0.62	48.9 ± 1.7
7	1 °C-C	75.9 ± 3.5 b	47.8 ± 1.0 b	41.7 ± 1.9 ab
	1 ªC-F	95.7 ± 6.9 ab	52.5 ± 1.4 ab	45.1 ± 1.5 ab
	1 °C-FD	99.6 ± 11.5 a	54.0 ± 1.4 a	48.4 ± 1.7 ab
	8 °C-C	98.0 ± 5.0 a	53.3 ± 0.9 a	39.9 ± 4.1 b
	8 °C-F	96.3 ± 4.2 ab	53.8 ± 1.0 a	46.6 ± 1.4 ab
	8 °C-FD	99.7 ± 2.2 a	53.8 ± 0.5 a	49.9 ± 3.3 a
	Ethylene (E)	*	**	***
	Temperature (T)	n.s.	n.s.	n.s.
	E x T	n.s.	**	n.s.
14	1 °C-C	74.4 ± 3.5 b	47.3 ± 0.8 b	37.7 ± 2.4 b
	1 ªC-F	92.9 ± 6.9 ab	53.3 ± 1.7 a	49.1 ± 2.0 a
	1 °C-FD	98.0 ± 11.2 a	52.0 ± 1.1 a	50.4 ± 1.5 a
	8 °C-C	96.1 ± 5.1 a	52.5 ± 0.6 a	40.9 ± 1.4 b
	8 °C-F	94.3 ± 3.9 ab	53.5 ± 1.4 a	43.9 ± 2.6 ab
	8 °C-FD	96.7 ± 2.0 a	53.5 ± 0.5 a	43.5 ± 2.7 ab
	Ethylene (E)	n.s.	**	***
	Temperature (T)	n.s.	***	*
	E x T	*	**	*
21	1 °C-C	72.9 ± 3.3 b	45.3 ± 0.8 b	36.8 ± 2.8 cd
	1 ªC-F	90.5 ± 6.8 ab	52.5 ± 1.5 a	43.9 ± 1.2 b
	1 °C-FD	96.6 ± 10.7 a	51.0 ± 0.7 a	47.3 ± 1.6 a
	8 °C-C	94.2 ± 5.2 a	50.5 ± 0.9 a	30.9 ± 2.2 d
	8 °C-F	92.5 ± 3.6 ab	52.3 ± 1.4 a	40.4 ± 1.6 bc
	8 °C-FD	94.8 ± 1.8 a	52.8 ± 1.1 a	41.4 ± 2.1 bc
	Ethylene (E)	*	***	***
	Temperature (T)	n.s.	**	***
	E x T	*	**	n.s.
28	1 °C-C	67.6 ± 3.3 b	41.3 ± 0.9 b	34.4 ± 1.6 c
	1 ªC-F	90.7 ± 7.2 a	49.0 ± 0.9 a	43.4 ± 1.6 ab
	1 °C-FD	98.5 ± 9.8 a	49.0 ± 0.4 a	44.9 ± 2.1 a
	8 °C-C	92.6 ± 5.2 a	44.8 ± 1.3 b	26.1 ± 2.6 d
	8 °C-F	89.7 ± 3.1 a	48.5 ± 1.0 a	33.0 ± 1.8 c
	8 °C-FD	93.6 ± 1.9 a	51.3 ± 1.7 a	37.4 ± 2.1 bc
	Ethylene (E)	**	***	***
	Temperature (T)	n.s.	**	***
	E x T	**	n.s.	n.s.

Levels of statistical significance are: *p <0.05, **p <0.01 and ***p <0.001. n.s: no significant differences.

Supplementary Table S2. Evolution during storage time of the biochemical variables in pears subjected to different treatments: 1 °C-C (Control), 1 °C-F (Filter), 1 °C-FD (Filter + Device), 8 °C-C (Control), 8 °C-F (Filter) and 8 °C-FD (Filter + Device). The variables measured were SSC expressed as percentage; pH; TA expressed as g L^{-1} and MI as the SSC(%)/TA(%) ratio. Different letters for each treatment represent statistically significant differences according to Tukey test. n = 5.

Storage days	Treatment	SSC (%)	pH	TA (g L^{-1})	MI [SSC (%)/ TA (%)]
0	all	12.5 ± 0.42	4.91 ± 0.01	3.69 ± 0.47	34.4 ± 2.44
7	1 °C-C	13.0 ± 0.58 ab	5.15 ± 0.08 a	3.43 ± 0.08 a	37.9 ± 1.41 ab
	1 ªC-F	11.5 ± 0.65 ab	4.95 ± 0.03 cd	3.77 ± 0.37 a	31.5 ± 3.55 ab
	1 °C-FD	11.3± 0.75 b	4.90 ± 0.03 d	3.94 ± 0.29 a	28.6 ± 0.71 b
	8 °C-C	13.3 ± 0.25 a	5.15 ± 0.03 a	3.18 ± 0.22 a	42.1 ± 2.41 ab
	8 °C-F	12.3 ± 0.75 ab	5.07 ± 0.03 ab	3.10 ± 0.46 a	43.3 ± 8.60 a
	8 °C-FD	11.5 ± 0.65 ab	5.03 ± 0.04 bcd	3.43 ± 0.16 a	33.5 ± 1.48 ab
	Ethylene (E)	**	***	n.s.	*
	Temperature (T)	n.s.	**	*	*
	E x T	n.s.	n.s.	n.s.	n.s.
14	1 °C-C	13.0 ± 0.41 ab	5.17 ± 0.03 b	2.85 ± 0.22 bc	46.6 ± 4.06 a
	1 ªC-F	11.8 ± 0.48 bc	5.00 ± 0.02 cd	3.77 ± 0.29 ab	31.9 ± 3.40 bc
	1 °C-FD	10.8 ± 0.48 c	4.94 ± 0.02 d	4.10 ± 0.37 a	26.8 ± 2.60 c
	8 °C-C	14.3 ± 0.48 a	5.28 ± 0.00 a	2.60 ± 0.21 c	55.8 ± 3.73 a
	8 °C-F	13.3 ± 0.75 ab	5.06 ± 0.04 c	2.93 ± 0.16 bc	45.4 ± 2.58 ab
	8 °C-FD	12.8 ± 0.48 ab	5.04 ± 0.03 c	2.93 ± 0.37 bc	45.9 ± 6.76 ab
	Ethylene (E)	***	***	**	***
	Temperature (T)	***	***	***	***
	E x T	n.s.	n.s.	n.s.	n.s.
21	1 °C-C	15.0 ± 0.41 ab	5.27 ± 0.04 b	2.43 ± 0.29 b	64.9 ± 9.17 ab
	1 ªC-F	11.5 ± 0.29 d	5.06 ± 0.09 bc	3.18 ± 0.29 b	37.4 ± 4.74 bc
	1 °C-FD	11.8 ± 0.25 d	4.96 ± 0.03 c	4.10 ± 0.37 a	24.1 ± 2.78 c
	8 °C-C	15.8 ± 0.48 a	5.50 ± 0.07 a	2.01 ± 0.31 b	84.1 ± 13.26 a
	8 °C-F	14.0 ± 0.41 bc	5.16 ± 0.07 bc	2.43 ± 0.29 b	59.9 ± 6.52 ab
	8 °C-FD	12.8 ± 0.48 cd	5.16 ± 0.07 bc	2.51 ± 0.35 b	54.9 ± 10.37 ab
	Ethylene (E)	***	***	***	***
	Temperature (T)	***	***	***	***
	E x T	*	n.s.	**	n.s.
28	1 °C-C	15.5 ± 0.65 ab	5.36 ± 0.05 bc	1.76 ± 0.29 c	95.9 ± 16.2 ab
	1 ªC-F	12.5 ± 0.29 c	5.22 ± 0.05 cd	2.93 ± 0.29 ab	43.7 ± 3.7 c
	1 °C-FD	12.0 ± 0.41 c	5.07 ± 0.04 d	3.27 ± 0.46 a	39.4 ± 6.3 c
	8 °C-C	17.5 ± 0.65 a	5.72 ± 0.05 a	1.51 ± 0.22 c	125.5 ± 22.0 a
	8 °C-F	15.3 ± 1.10 b	5.47 ± 0.05 b	1.93 ± 0.29 bc	84.1 ± 12.1 abc
	8 °C-FD	15.0 ± 0.41 b	5.39 ± 0.12 bc	2.09 ± 0.29 bc	75.7 ± 10.1 bc
	Ethylene (E)	***	***	***	***
	Temperature (T)	***	***	***	***
	E x T	n.s.	n.s.	n.s.	n.s.

Levels of statistical significance are: *p <0.05, **p <0.01 and ***p <0.001. n.s: no significant differences.

Supplementary Table S3. Evolution during storage time of the bioactive compounds in pears subjected to different treatments: 1 °C-C (Control), 1 °C-F (Filter), 1 °C-FD (Filter + Device), 8 °C-C (Control), 8 °C-F (Filter) and 8 °C-FD (Filter + Device). Ascorbic acid content (mg 100mL^{-1}); ORAC ($\mu mol_{Trollox.Eq.}$ kg^{-1}) and total phenolic compounds (g$_{galic\ acid}$ kg^{-1}). n = 5.

Storage days	Treatment	Ascorbic acid (mg 100mL^{-1})	Total phenolic compounds (g$_{galic\ acid}$ kg^{-1})	Antioxidant Capacity ORAC ($\mu mol_{Trollox.Eq.}$ kg^{-1})
0	all	5.0 ± 0.47	0.49 ± 0.03	4.17 ± 0.08
7	1 °C-C	4.1 ± 0.27 b	0.37 ± 0.02 a	3.44 ± 0.09 a
	1 ªC-F	5.1 ± 0.32 ab	0.41 ± 0.04 a	3.68 ± 0.10 a
	1 °C-FD	5.3 ± 0.28 a	0.43 ± 0.07 a	3.72 ± 0.12 a
	8 °C-C	4.7 ± 0.38 ab	0.35 ± 0.05 a	3.31 ± 0.18 a
	8 °C-F	4.6 ± 0.27 ab	0.36 ± 0.05 a	3.39 ± 0.09 a
	8 °C-FD	4.8 ± 0.13 ab	0.37 ± 0.04 a	3.48 ± 0.15 a
	Ethylene (E)	n.s.	n.s.	n.s.
	Temperature (T)	n.s.	*	*
	E x T	n.s.	n.s.	n.s.
14	1 °C-C	4.0 ± 0.39 ab	0.35 ± 0.04 b	3.26 ± 0.12 abc
	1 ªC-F	4.5 ± 0.18 ab	0.42 ± 0.03 a	3.45 ± 0.17 ab
	1 °C-FD	5.4 ± 0.21 a	0.43 ± 0.03 a	3.66 ± 0.05 a
	8 °C-C	3.4 ± 0.41 b	0.36 ± 0.04 ab	2.80 ± 0.05 c
	8 °C-F	3.5 ± 0.47 b	0.42 ± 0.04 ab	2.96 ± 0.10 bc
	8 °C-FD	4.3 ± 0.52 ab	0.41 ± 0.04 ab	3.26 ± 0.19 abc
	Ethylene (E)	**	***	**
	Temperature (T)	**	n.s.	***
	E x T	n.s.	n.s.	n.s.
21	1 °C-C	3.3 ± 0.57 ab	0.31 ± 0.01 c	2.41 ± 0.08 b
	1 ªC-F	4.4 ± 0.48 ab	0.36 ± 0.03 ab	2.94 ± 0.13 ab
	1 °C-FD	5.1 ± 0.27 a	0.42 ± 0.06 a	3.39 ± 0.14 a
	8 °C-C	2.8 ± 0.82 b	0.28 ± 0.03 bc	2.50 ± 0.17 b
	8 °C-F	3.6 ± 0.54 ab	0.34 ± 0.03 bc	2.90 ± 0.19 ab
	8 °C-FD	3.5 ± 0.64 ab	0.38 ± 0.05 ab	2.99 ± 0.16 ab
	Ethylene (E)	*	***	***
	Temperature (T)	n.s.	*	n.s.
	E x T	n.s.	n.s.	n.s.
28	1 °C-C	2.9 ± 0.37 bcd	0.26 ± 0.02 cd	2.18 ± 0.14 c
	1 ªC-F	3.8 ± 0.28 ab	0.35 ± 0.04 ab	2.83 ± 0.06 ab
	1 °C-FD	4.4 ± 0.21 a	0.39 ± 0.03 a	3.14 ± 0.22 a
	8 °C-C	1.7 ± 0.22 d	0.21 ± 0.04 d	1.78 ± 0.14 d
	8 °C-F	2.0 ± 0.39 cd	0.29 ± 0.05 bc	2.21 ± 0.05 c
	8 °C-FD	3.1 ± 0.48 abc	0.36 ± 0.05 ab	2.56 ± 0.19 bc
	Ethylene (E)	***	***	***
	Temperature (T)	***	**	***
	E x T	n.s.	n.s.	n.s.

Levels of statistical significance are: *p <0.05, **p <0.01 and ***p <0.001. n.s: no significant differences.

Supplementary Table S4. Principal Component Analysis

Component Number	Eigenvalue	Percentage of Variance	Percentage Cumulative
1	4.88752	61.094	61.094
2	1.39294	17.412	78.506
3	0.503841	6.298	84.804
4	0.462841	5.786	90.589
5	0.32104	4.013	94.602
6	0.18995	2.374	96.977
7	0.171857	2.148	99.125
8	0.0700082	0.875	100.000

Supplementary Table S5. Table of Component Weights

Variables	Component 1	Component 2
W	0.136874	-0.721129
C	0.244078	-0.61051
Firmness	0.410988	0.17938
pH	-0.374602	-0.201463
MI	-0.389673	-0.0688857
AA	0.374024	0.1164
ORAC	0.404848	0.117436
FC	0.395996	-0.0489863

Supplementary Table S6a. This table shows the scores of the principal components.

Row	Label	Component 1	Component 2	Average Component 1	Average Component 2
1	1°C-C	-1.67612	1.87647	**-1.43**	**1.99**
2	1°C-C	-2.13255	2.22965		
3	1°C-C	-0.802021	1.38467		
4	1°C-C	-1.1944	2.48024		
5	1°C-C	-1.34514	2.0008		
6	1°C-F	1.5194	0.907887	**1.89**	**0.13**
7	1°C-F	1.43937	0.861018		
8	1°C-F	1.95694	-1.02702		
9	1°C-F	2.62496	-0.232992		
10	1°C-F	1.89434	0.127591		
11	1°C-FD	3.90686	1.19768	**3.00**	**-0.01**
12	1°C-FD	3.0313	0.681197		
13	1°C-FD	2.84717	-0.0815062		
14	1°C-FD	2.20524	-1.82426		
15	1°C-FD	3.02963	-0.00160516		

16	8°C-C	-3.64153	-1.66769	**-3.25**	**-0.66**
17	8°C-C	-3.33574	-0.353362		
18	8°C-C	-4.25288	-1.01695		
19	8°C-C	-1.90728	0.349575		
20	8°C-C	-3.08984	-0.614625		
21	8°C-F	-0.192641	-1.08807	**-0.97**	**-0.57**
22	8°C-F	-1.386	-0.469361		
23	8°C-F	-1.43603	0.117535		
24	8°C-F	-0.893043	-0.854334		
25	8°C-F	-0.919846	-0.561971		
26	8°C-FD	0.36829	-0.789111	**0.75**	**-0.88**
27	8°C-FD	1.58849	-0.743653		
28	8°C-FD	0.739018	-0.287147		
29	8°C-FD	0.274042	-1.72634		
30	8°C-FD	0.780022	-0.874298		

Supplementary Table S6b. ANOVA table for the component 1 scores according to the treatments

Source	Sum of squares	Gl	Source	Sum of squares	Source
Intergroup	133.289	5	26.6577	75.72	0.0000
Intragroup	8.44947	24	0.352061		
Total (Corr.)	141.738	29			

Supplementary Table S6c. Multiple comparisons test for the component 1 scores by treatments using Tukey HSD method
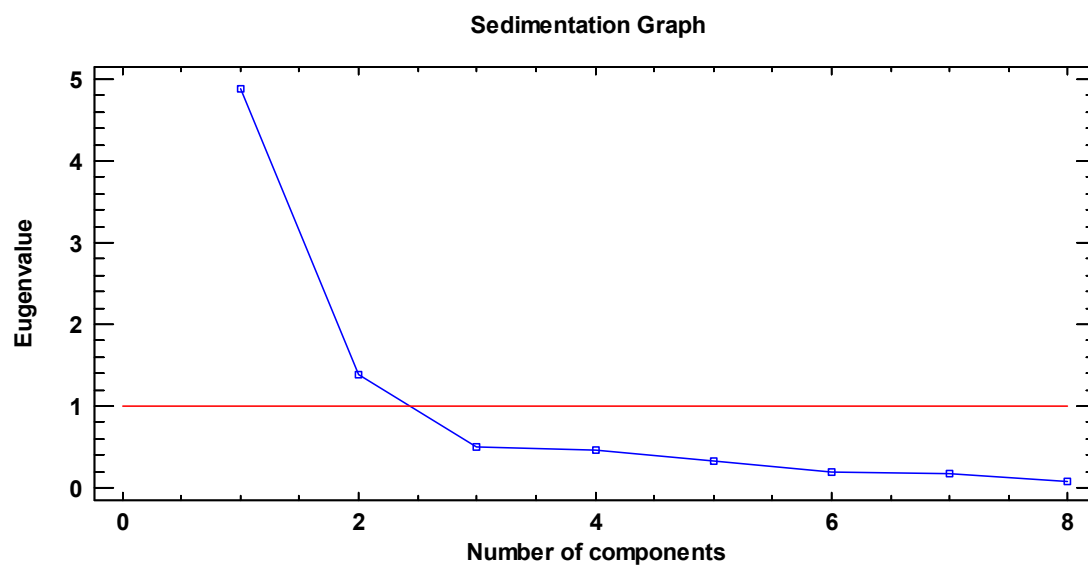
Treatments	Replicates	Mean	Homogenous groups
8 °C-C	5	-3.24545	d
1 °C-C	5	-1.43005	c
8 °C-F	5	-0.965512	c
8 °C-FD	5	0.749972	b
1 °C-F	5	1.887	a
1 °C-FD	5	3.00404	a

Supplementary Table S6d. ANOVA table for the component 2 scores according to the treatments
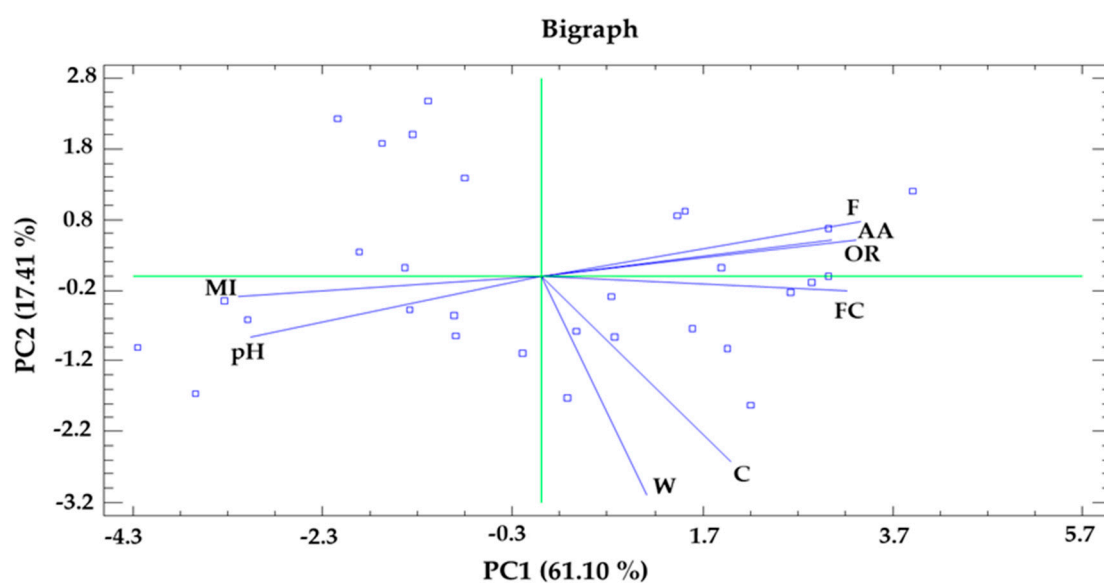
Source	Sum of squares	Gl	Source	Sum of squares	Source
Intergroup	27.6905	5	5.5381	10.46	0.0000
Intragroup	12.7048	24	0.529366		
Total (Corr.)	40.3953	29			

Supplementary Table S6e. Multiple comparisons test for the component 2 scores by treatments using Tukey's HSD method

Treatments	Replicates	Mean	Homogenous groups
8 °C-FD	5	-0.88411	c
8 °C-C	5	-0.66061	b
8 °C-F	5	-0.57124	b
1 °C-FD	5	-0.00569887	b
1 °C-F	5	0.127297	b
1 °C-C	5	1.99437	a

Sedimentation Graph

Supplementary Figure S1. Sedimentation graph

Supplementary Figure S2. Graphical representation of the principal components marking with lines for each variables and wit points for each score.