

1 **Supplementary Material: Figure legends**

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3 **Figure S1** - Evolution of (A) pH and (B) TSS during 28 days of storage at 4 °C on untreated and treated
4 (by HPP and TP) carrot juice without and with PPE.

5 **Figure S2** - Evolution of (A) L^* , (B) a^* , (C) b^* , and (D) ΔE^* during 28 days of storage at 4 °C on untreated
6 and treated (by HPP and TP) carrot juice without and with PPE.

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8 **Supplementary Material: Table legends**

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10 **Table S1** - Evolution of total aerobic mesophiles during 28 days of storage at 4 °C on untreated and treated
11 carrot juice with increasing doses of PPE.

12 **Table S2** - Evolution of total aerobic psychrophiles during 28 days of storage at 4 °C on untreated and
13 treated carrot juice with increasing doses of PPE.

14 **Table S3** - Evolution of yeasts and moulds during 28 days of storage at 4 °C on untreated and treated carrot
15 juice with increasing doses of PPE.

16 **Table S4** - Evolution of pH during 28 days of storage at 4 °C on untreated and treated carrot juice with
17 increasing doses of PPE.

18 **Table S5** - Evolution of total soluble solids during 28 days of storage at 4 °C on untreated and treated carrot
19 juice with increasing doses of PPE.

20 **Table S6** - Evolution of L^* during 28 days of storage at 4 °C on untreated and treated carrot juice with
21 increasing doses of PPE.

22 **Table S7** - Evolution of a^* during 28 days of storage at 4 °C on untreated and treated carrot juice with
23 increasing doses of PPE.

24 **Table S8** - Evolution of b^* during 28 days of storage at 4 °C on untreated and treated carrot juice with
25 increasing doses of PPE.

26 **Table S9** - Evolution of ΔE^* during 28 days of storage at 4 °C on untreated and treated carrot juice with
27 increasing doses of PPE.

28 **Table S10** - Evolution of total flavonoids during 28 days of storage at 4 °C on untreated and treated carrot
29 juice with increasing doses of PPE.

30 **Table S11** - Evolution of hydrolysable tannins during 28 days of storage at 4 °C on untreated and treated
31 carrot juice with increasing doses of PPE.

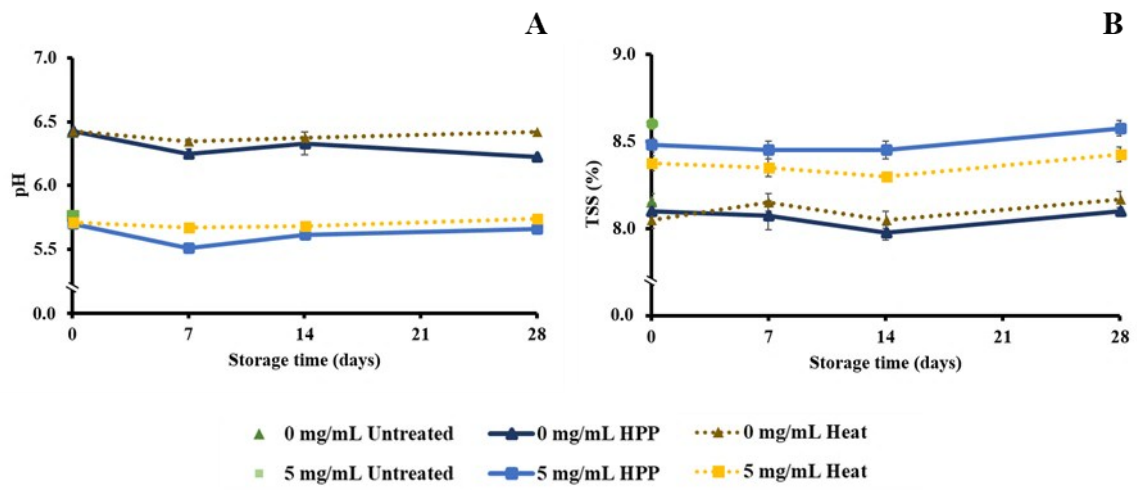
32 **Table S12** - Evolution of total phenolics during 28 days of storage at 4 °C on untreated and treated carrot
33 juice with increasing doses of PPE.

34 **Table S13** - Evolution of FRAP values during 28 days of storage at 4 °C on untreated and treated carrot
35 juice with increasing doses of PPE.

36 **Table S14** - Evolution of ABTS values during 28 days of storage at 4 °C on untreated and treated carrot
37 juice with increasing doses of PPE.

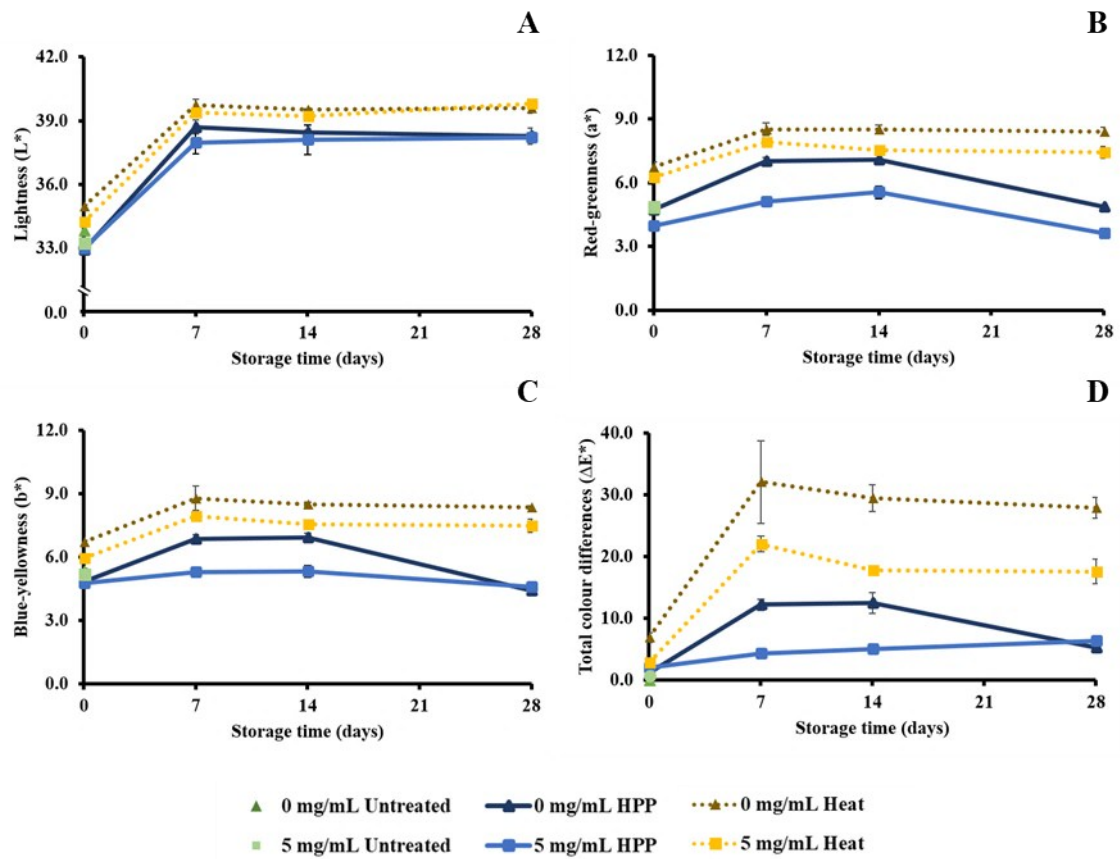
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39 Figure S1



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42 **Figure S2**



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46 **Table S1**

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48	Treatment	[PPE] (mg/mL)	Total Aerobic Mesophiles (log ₁₀ CFU/mL)			
			Day 0	Day 7	Day 14	Day 28
49	Untreated	0	6.40 ± 0.04 ^a	-	-	-
50		5	6.38 ± 0.18 ^a	-	-	-
51	HPP	0	ND	ND	ND	4.40 ± 0.05 ^{Aa1}
52		5	ND	ND	ND	3.27 ± 0.06 ^{Ab1}
53	Heat	0	ND	ND	ND	5.93 ± 0.33 ^{Ba1}
54		5	ND	ND	ND	5.10 ± 0.10 ^{Bb1}

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58 differences between PPE concentrations ($p < 0.05$); Different numbers mean significant differences between days ($p < 0.05$).

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60 **Table S2**

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62	Treatment	[PPE] (mg/mL)	Total Aerobic Psychrophiles (log ₁₀ CFU/mL)			
			Day 0	Day 7	Day 14	Day 28
63	Untreated	0	6.45 ± 0.12 ^a	-	-	-
64		5	6.34 ± 0.05 ^a	-	-	-
65	HPP	0	ND	ND	ND	4.50 ± 0.03 ^{Aa1}
66		5	ND	ND	ND	3.38 ± 0.27 ^{Ab1}
67	Heat	0	ND	ND	ND	5.89 ± 0.35 ^{Ba1}
68		5	ND	ND	ND	5.03 ± 0.16 ^{Bb1}

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 72 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

73 **Table S3**

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75	Treatment	[PPE] (mg/mL)	Yeasts and Moulds (log ₁₀ CFU/mL)			
			Day 0	Day 7	Day 14	Day 28
77	Untreated	0	5.02 ± 0.07 ^a	-	-	-
78		5	5.17 ± 0.12 ^a	-	-	-
79	HPP	0	ND	ND	ND	ND
80		5	ND	ND	ND	ND
81	Heat	0	ND	ND	ND	ND
82		5	ND	ND	ND	ND

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 85 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

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Table S4

87	Treatment	[PPE] (mg/mL)	pH			
88			Day 0	Day 7	Day 14	Day 28
89	Untreated	0	6.42 ± 0.00 ^{Aa}	-	-	-
90		5	5.76 ± 0.01 ^{Ab}	-	-	-
91	HPP	0	6.43 ± 0.00 ^{Aa1}	6.25 ± 0.04 ^{Aa1}	6.33 ± 0.09 ^{Aa1}	6.23 ± 0.01 ^{Aa1}
92		5	5.70 ± 0.00 ^{Ab1}	5.51 ± 0.02 ^{Ab1}	5.61 ± 0.01 ^{Ab1}	5.66 ± 0.01 ^{Ab1}
93	Heat	0	6.43 ± 0.00 ^{Aa1}	6.34 ± 0.03 ^{Aa1}	6.37 ± 0.06 ^{Aa1}	6.42 ± 0.07 ^{Aa1}
94		5	5.71 ± 0.01 ^{Ab1}	5.67 ± 0.01 ^{Ab1}	5.68 ± 0.01 ^{Ab1}	5.74 ± 0.01 ^{Ab1}

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 97 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$); Standard deviations equal to zero mean that the
 98 values between the replicas were the same.

99 **Table S5**

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Treatment	[PPE] (mg/mL)	Total Soluble Solids (°Brix)			
		Day 0	Day 7	Day 14	Day 28
Untreated	0	8.2 ± 0.0 ^{Aa}	-	-	-
	5	8.6 ± 0.0 ^{Ab}	-	-	-
HPP	0	8.1 ± 0.0 ^{Aa1}	8.1 ± 0.1 ^{Aa1}	8.0 ± 0.0 ^{Aa1}	8.1 ± 0.0 ^{Aa1}
	5	8.5 ± 0.0 ^{Ab1}	8.5 ± 0.0 ^{Ab1}	8.5 ± 0.0 ^{Ab1}	8.6 ± 0.0 ^{Ab1}
Heat	0	8.1 ± 0.0 ^{Aa1}	8.2 ± 0.0 ^{Aa1}	8.1 ± 0.0 ^{Aa1}	8.2 ± 0.0 ^{Aa1}
	5	8.4 ± 0.0 ^{Ab1}	8.4 ± 0.0 ^{Ab1}	8.3 ± 0.0 ^{Ab1}	8.4 ± 0.0 ^{Ab1}

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 111 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$). Standard deviations equal to zero mean that the
 112 values between the replicas were the same.

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114 **Table S6**

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116	Treatment	[PPE] (mg/mL)	L* (lightness)			
			Day 0	Day 7	Day 14	Day 28
117	Untreated	0	33.82 ± 0.18 ^{Aa1}	-	-	-
118		5	33.22 ± 0.13 ^{Aa1}	-	-	-
119	HPP	0	32.91 ± 0.09 ^{Ba1}	38.70 ± 0.33 ^{Aa2}	38.46 ± 0.10 ^{Aa2}	38.08 ± 0.38 ^{Aa2}
120		5	32.99 ± 0.13 ^{Ba1}	37.97 ± 0.54 ^{Ab2}	38.09 ± 0.70 ^{Aa2}	38.22 ± 0.06 ^{Aa2}
121	Heat	0	34.95 ± 0.09 ^{Ca1}	39.74 ± 0.29 ^{Ba2}	39.51 ± 0.03 ^{Ba2}	39.58 ± 0.24 ^{Ba2}
122		5	34.22 ± 0.05 ^{Ca1}	39.39 ± 0.03 ^{Bb2}	39.22 ± 0.05 ^{Ba2}	38.80 ± 0.09 ^{Ba2}

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 126 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

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128 **Table S7**

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130	Treatment	[PPE] (mg/mL)	a* (red-greenness)			
			Day 0	Day 7	Day 14	Day 28
132	Untreated	0	4.81 ± 0.16 ^{Aa}	-	-	-
133		5	4.87 ± 0.00 ^{Aa}	-	-	-
134	HPP	0	4.72 ± 0.07 ^{Ba1}	7.02 ± 0.17 ^{Aa2}	7.09 ± 0.25 ^{Aa23}	4.87 ± 0.03 ^{Aa4}
135		5	3.95 ± 0.08 ^{Ba1}	5.12 ± 0.13 ^{Aa2}	5.55 ± 0.30 ^{Ab23}	3.61 ± 0.06 ^{Aa4}
136	Heat	0	6.75 ± 0.24 ^{Ca1}	8.53 ± 0.29 ^{Ba2}	8.51 ± 0.20 ^{Ba23}	8.41 ± 0.22 ^{Ba4}
137		5	6.26 ± 0.10 ^{Ca1}	7.92 ± 0.17 ^{Ba2}	7.53 ± 0.09 ^{Bb23}	7.42 ± 0.28 ^{Ba4}

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 140 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$). Standard deviations equal to zero mean that the
 141 values between the replicas were the same.

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143 **Table S8**

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145	Treatment	[PPE] (mg/mL)	b* (blue-yellowness)			
			Day 0	Day 7	Day 14	Day 28
147	Untreated	0	5.33 ± 0.14 ^{Aa1}	-	-	-
148		5	5.19 ± 0.18 ^{Aa1}	-	-	-
149	HPP	0	4.84 ± 0.07 ^{Ba1}	6.87 ± 0.19 ^{Aa2}	6.94 ± 0.19 ^{Aa2}	4.43 ± 0.03 ^{Aa3}
150		5	4.47 ± 0.12 ^{Ba1}	5.29 ± 0.24 ^{Aa2}	5.31 ± 0.28 ^{Ab2}	4.61 ± 0.04 ^{Aa3}
151	Heat	0	6.72 ± 0.06 ^{Ca1}	8.79 ± 0.57 ^{Ba2}	8.50 ± 0.10 ^{Ba2}	8.35 ± 0.07 ^{Ba3}
152		5	5.95 ± 0.04 ^{Ca1}	7.94 ± 0.06 ^{Ba2}	7.56 ± 0.01 ^{Bb2}	7.48 ± 0.31 ^{Ba3}

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 155 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

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157 **Table S9**

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159	Treatment	[PPE] (mg/mL)	ΔE^* (total colour changes)			
			Day 0	Day 7	Day 14	Day 28
161	Untreated	0	0.00 ± 0.13^{Aa}	-	-	-
162		5	0.65 ± 0.15^{Aa}	-	-	-
163	HPP	0	1.17 ± 0.08^{Aa1}	1.17 ± 0.08^{Aa2}	12.18 ± 0.95^{Aa2}	5.27 ± 0.40^{Aa2}
164		5	1.95 ± 0.41^{Aa1}	1.95 ± 0.41^{Aa2}	4.33 ± 0.55^{Aa2}	6.40 ± 0.19^{Aa2}
165	Heat	0	6.89 ± 0.83^{Ba1}	32.07 ± 6.66^{Ba2}	29.46 ± 2.14^{Ba2}	27.90 ± 1.65^{Ba2}
166		5	2.90 ± 0.31^{Ba1}	22.05 ± 1.31^{Ba2}	17.75 ± 0.44^{Ba2}	16.34 ± 3.62^{Ba2}

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 169 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

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171 **Table S10**

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173	Treatment	[PPE]	Flavonoids (mg/mL)				
174		(mg/mL)	Day 0	Day 7	Day 14	Day 28	Day 42
175	Untreated	0	0.014 ± 0.004 ^{Aa1}	-	-	-	
176		5	0.112 ± 0.012 ^{Ab1}	-	-	-	
177	HPP	0	0.022 ± 0.005 ^{Aa1}	0.011 ± 0.004 ^{Aa1}	0.012 ± 0.003 ^{Aa1}	0.015 ± 0.002 ^{Aa1}	0.008 ± 0.001 ^{Aa1}
178		5	0.088 ± 0.004 ^{Ab1}	0.090 ± 0.005 ^{Ab1}	0.088 ± 0.004 ^{Ab1}	0.086 ± 0.004 ^{Ab1}	0.090 ± 0.002 ^{Ab1}
179	Heat	0	0.035 ± 0.001 ^{Aa1}	0.024 ± 0.001 ^{Aa1}	0.025 ± 0.002 ^{Aa1}	0.019 ± 0.000 ^{Aa1}	0.025 ± 0.006 ^{Aa1}
180		5	0.114 ± 0.011 ^{Ab1}	0.147 ± 0.011 ^{Ab1}	0.138 ± 0.003 ^{Ab1}	0.147 ± 0.008 ^{Ab1}	0.150 ± 0.004 ^{Ab1}

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 183 differences between PPE concentrations ($p < 0.05$); Different numbers mean significantly differences between days ($p < 0.05$).

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185 **Table S11**

186 187 188	Treatment	[PPE] (mg/mL)	Hydrolysable Tannins (mg/mL)			
			Day 0	Day 7	Day 14	Day 28
189	Untreated	5	1.058 ± 0.108 ^A	-	-	-
190	HPP	5	0.613 ± 0.062 ^{B12}	0.539 ± 0.037 ^{A1}	0.477 ± 0.062 ^{A12}	0.429 ± 0.021 ^{A2}
191	Heat	5	0.952 ± 0.044 ^{A12}	0.902 ± 0.032 ^{B1}	0.883 ± 0.010 ^{B12}	0.819 ± 0.023 ^{B2}

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196 **Table S12**

197	198	199	Treatment	[PPE] (mg/mL)	Total phenolic content (mg/mL)			
					Day 0	Day 7	Day 14	Day 28
200			Untreated	0	0.148 ± 0.027 ^{Aa}	-	-	-
201				5	0.520 ± 0.040 ^{Ab}	-	-	-
202			HPP	0	0.118 ± 0.009 ^{Aa1}	0.108 ± 0.028 ^{Aa12}	0.128 ± 0.006 ^{Aa12}	0.134 ± 0.006 ^{Aa2}
203				5	0.462 ± 0.002 ^{Ab1}	0.465 ± 0.029 ^{Ab12}	0.471 ± 0.085 ^{Ab12}	0.400 ± 0.013 ^{Ab2}
204			Heat	0	0.132 ± 0.011 ^{Aa1}	0.162 ± 0.022 ^{Aa12}	0.183 ± 0.014 ^{Aa12}	0.152 ± 0.013 ^{Aa2}
205				5	0.434 ± 0.038 ^{Ab1}	0.451 ± 0.009 ^{Ab12}	0.508 ± 0.004 ^{Ab12}	0.544 ± 0.045 ^{Ab2}

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210 **Table S13**

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212	Treatment	[PPE] (mg/mL)	FRAP (mg/mL)			
			Day 0	Day 7	Day 14	Day 28
214	Untreated	0	0.318 ± 0.022 ^{Aa1}	-	-	-
215		5	2.367 ± 0.291 ^{Ab1}	-	-	-
216	HPP	0	0.214 ± 0.001 ^{Aa1}	0.183 ± 0.007 ^{Aa2}	0.150 ± 0.018 ^{Aa12}	0.218 ± 0.049 ^{Aa2}
217		5	1.490 ± 0.036 ^{Ab1}	1.972 ± 0.029 ^{Ab2}	1.719 ± 0.527 ^{Ab12}	1.565 ± 0.309 ^{Ab2}
218	Heat	0	0.237 ± 0.011 ^{Aa1}	0.415 ± 0.031 ^{Aa2}	0.438 ± 0.101 ^{Aa12}	0.362 ± 0.026 ^{Aa2}
219		5	2.791 ± 0.006 ^{Ab1}	3.518 ± 0.305 ^{Ab2}	3.269 ± 0.047 ^{Ab12}	3.896 ± 0.069 ^{Ab2}

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224 **Table S14**

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226	Treatment	[PPE] (mg/mL)	ABTS (mg/mL)				
			227 Day 0	Day 7	Day 14	Day 28	Day 42
228	Untreated	0	0.153 ± 0.004 ^{Aa1}	-	-	-	-
229		5	1.159 ± 0.154 ^{Ab1}	-	-	-	-
230	HPP	0	0.105 ± 0.008 ^{Aa1}	0.106 ± 0.019 ^{Aa1}	0.100 ± 0.018 ^{Aa1}	0.132 ± 0.012 ^{Aa1}	0.119 ± 0.004 ^{Aa1}
231		5	0.912 ± 0.048 ^{Ab1}	0.849 ± 0.095 ^{Ab1}	0.801 ± 0.044 ^{Ab1}	0.752 ± 0.063 ^{Ab1}	0.760 ± 0.059 ^{Ab1}
232	Heat	0	0.155 ± 0.007 ^{Aa1}	0.156 ± 0.007 ^{Aa1}	0.152 ± 0.006 ^{Aa1}	0.135 ± 0.004 ^{Aa1}	0.119 ± 0.001 ^{Aa1}
233		5	1.208 ± 0.115 ^{Ab1}	1.157 ± 0.115 ^{Ab1}	1.082 ± 0.060 ^{Ab1}	1.118 ± 0.076 ^{Ab1}	1.013 ± 0.139 ^{Ab1}

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