

Table S1. Standards and calibration curves used in the quantification of phenolic compounds.

Standard	Calibration Curve	R ²
Hydroxytyrosol	$y = 36726x + 124763$	0.992
Oleuropein	$y = 102573x + 7821$	0.982
Tyrosol	$y = 20027x + 511$	0.996
Pinoresinol	$y = 27862x + 57$	0.996
Luteolin-7-glucoside	$y = 73590x + 2525$	0.991
Apigenin	$y = 164399x + 143280$	0.997

Table S2. Quantification of compounds identified in olive oil and W/O emulsion over time. Concentrations are expressed as mean $\pm$ standard deviation of three replicates in mg/kg.

	EVOO						W/O Emulsion					
Days of storage	0	4	8	12	16	19	0	4	8	12	16	19
Total phenolic alcohols	24 $\pm$ 2 *^a	25 $\pm$ 2 *^a	21 $\pm$ 1 *^a	24.3 $\pm$ 0.1 *^a	24.5 $\pm$ 0.9 *^a	22 $\pm$ 1 *^a	239 $\pm$ 10 #^a	210 $\pm$ 4 #^{bc}	226 $\pm$ 12 #^{ab}	215.8 $\pm$ 0.3 #^{bc}	213 $\pm$ 3 #^{bc}	202 $\pm$ 6 #^c
Hydroxytyrosol	14 $\pm$ 2 * ^a	15 $\pm$ 2 * ^a	12 $\pm$ 1 * ^a	14.37 $\pm$ 0.01 * ^a	15 $\pm$ 1 * ^a	13 $\pm$ 1 * ^a	221 $\pm$ 10 # ^a	192 $\pm$ 4 # ^{bc}	207 $\pm$ 10 # ^{ab}	197 $\pm$ 1 # ^{bc}	192 $\pm$ 2 # ^{bc}	182 $\pm$ 6 # ^c
Oxidized hydroxytyrosol	0.396 $\pm$ 0.004 * ^a	0.5 $\pm$ 0.1 * ^a	4x10 ⁻¹ $\pm$ 6x10 ⁻⁵ * ^a	0.40 $\pm$ 0.01 * ^a	0.396 $\pm$ 0.001 * ^a	4x10 ⁻¹ $\pm$ 4x10 ⁻⁴ * ^a	0.801 $\pm$ 0.001 # ^b	0.798 $\pm$ 0.001 # ^b	1.1 $\pm$ 0.1 # ^{ab}	0.9 $\pm$ 0.1 # ^{bc}	1.0 $\pm$ 0.1 # ^{ab}	1.198 $\pm$ 0.001 # ^a
Hydroxytyrosol glucoside	ND	ND	ND	ND	ND	ND	4.5 $\pm$ 0.1 ^c	5.9 $\pm$ 0.3 ^{bc}	4.9 $\pm$ 0.7 ^c	5 $\pm$ 1 ^{bc}	7.55 $\pm$ 0.01 ^a	6.5 $\pm$ 0.1 ^a
Hydroxytyrosol acetate	1.4 $\pm$ 0.2 * ^b	1.6 $\pm$ 0.2 * ^a	1.3 $\pm$ 0.1 * ^{ab}	1.394 $\pm$ 0.006 * ^{ab}	1.39 $\pm$ 0.01 * ^{ab}	1.1 $\pm$ 0.1 * ^a	3.6 $\pm$ 0.2 # ^a	2.9 $\pm$ 0.1 # ^{bc}	3.1 $\pm$ 0.3 # ^b	3.1 $\pm$ 0.1 # ^b	2.8 $\pm$ 0.2 # ^{bc}	2.5 $\pm$ 0.1 # ^c
Tyrosol	8 $\pm$ 1 * ^a	8 $\pm$ 1 * ^a	7.2 $\pm$ 0.4 * ^a	8.1 $\pm$ 0.1 * ^a	7.9 $\pm$ 0.2 * ^a	7.2 $\pm$ 0.2 * ^a	9.3 $\pm$ 0.1 # ^c	8.8 $\pm$ 0.2 * ^c	10.0 $\pm$ 0.6 # ^{ab}	10.2 $\pm$ 0.2 # ^{ab}	10.5 $\pm$ 0.6 # ^a	10.4 $\pm$ 0.3 # ^a
Tota secoiridoids	590 $\pm$ 21 *^a	603 $\pm$ 27 *^a	580 $\pm$ 10 *^a	588 $\pm$ 3 *^a	583 $\pm$ 22 *^a	444 $\pm$ 20 *^b	643 $\pm$ 12 #^a	619 $\pm$ 6 *^b	612 $\pm$ 5 #^b	604 $\pm$ 3 #^b	564 $\pm$ 6 *^c	572 $\pm$ 3 #^c
Oleuropein	ND	ND	ND	ND	ND	ND	89.6 $\pm$ 0.4 ^c	96 $\pm$ 1 ^{bc}	92.3 $\pm$ 0.4 ^{bc}	98 $\pm$ 6 ^{ab}	95 $\pm$ 1 ^{bc}	103 $\pm$ 2 ^a
Oleuropein isomer 1	ND	ND	ND	ND	ND	ND	1.6002 $\pm$ 0.002 ^{ab}	1.7 $\pm$ 0.1 ^a	1.199 $\pm$ 0.004 ^c	1.3 $\pm$ 0.3 ^{bc}	1.34 $\pm$ 0.05 ^{abc}	1.39 $\pm$ 0.01 ^{abc}
Oleuropein isomer 2	ND	ND	ND	ND	ND	ND	6.3 $\pm$ 0.1 ^{ab}	6.6 $\pm$ 0.2 ^a	5.4 $\pm$ 0.2 ^b	5 $\pm$ 1 ^b	5.6 $\pm$ 0.2 ^b	5.9 $\pm$ 0.1 ^{ab}
Hydroxy oleuropein	ND	ND	ND	ND	ND	ND	2x10 ⁻² $\pm$ 2x10 ⁻⁵ ^d	0.16 $\pm$ 0.04 ^{bc}	0.01 $\pm$ 0.01 ^d	0.07 $\pm$ 0.07 ^{cd}	0.29 $\pm$ 0.03 ^a	0.19 $\pm$ 0.01 ^b
Demethyl oleuropein	ND	ND	ND	ND	ND	ND	NQ	NQ	NQ	NQ	NQ	NQ

Hydroxy D-oleuropein aglycone	0.7 ± 0.1 * ^{ab}	0.8 ± 0.1 * ^a	0.74 ± 0.04 * ^b	0.75 ± 0.01 * ^{ab}	0.71 ± 0.04 * ^{ab}	0.58 ± 0.04 * ^b	0.36 ± 0.02 # ^a	0.23 ± 0.01 # ^b	0.25 ± 0.03 # ^b	0.13 ± 0.03 # ^c	0.20 ± 0.01 # ^b	0.13 ± 0.01 # ^c
10-hydroxy oleuropein aglycone	3.0 ± 0.8 * ^a	3.2 ± 0.4 * ^a	3 ± 1 * ^a	2.595 ± 0.001 * ^a	3.4 ± 0.2 * ^a	2.6 ± 0.2 * ^a	2.9 ± 0.1 * ^{bc}	2.991 ± 0.003 * ^c	3.4 ± 0.2 * ^a	2.6 ± 0.2 * ^{cd}	2.58 ± 0.01 # ^{cd}	2.5 ± 0.1 # ^c
Geminal diol oleuropein aglycone 1	NQ	NQ	NQ	NQ	NQ	NQ	3.5 ± 0.3 ^a	2.67 ± 0.02 ^b	2.7 ± 0.2 ^b	1.57 ± 0.04 ^c	1.57 ± 0.04 ^c	1.24 ± 0.09 ^c
Geminal diol oleuropein aglycone 2	NQ	NQ	NQ	NQ	NQ	NQ	5.0 ± 0.4 ^a	3.38 ± 0.01 ^b	2.9 ± 0.1 ^c	1.7 ± 0.1 ^d	1.5 ± 0.1 ^d	0.90 ± 0.05 ^e
Geminal diol oleuropein aglycone 3	0.257 ± 0.002 * ^{ab}	0.38 ± 0.08 * ^a	0.21 ± 0.05 * ^b	0.31 ± 0.01 * ^{ab}	0.28 ± 0.04 * ^{ab}	0.24 ± 0.06 * ^b	6.4 ± 0.3 # ^a	4.76 ± 0.07 # ^b	4.6 ± 0.1 # ^b	2.98 ± 0.05 # ^c	2.87 ± 0.05 # ^c	2.2 ± 0.1 # ^d
Dehydro oleuropein aglycone	4.5 ± 0.2 * ^{ab}	4.9 ± 0.1 * ^a	4.4 ± 0.2 * ^b	4.79 ± 0.01 ^a _{ab}	4.7 ± 0.1 * ^{ab}	4.6 ± 0.2 * ^{ab}	4.2 ± 0.2 * ^{abc}	4.187 ± 0.004 # ^{bc}	4.5 ± 0.1 * ^a	4.5 ± 0.1 # ^{ab}	4.3 ± 0.1 # ^{abc}	4.171 ± 0.004 # ^c
Methyl D-oleuropein aglycone	28 ± 4 * ^a	28 ± 3 * ^a	22 ± 1 * ^a	24.0 ± 0.1 * ^a	25 ± 1 * ^a	22 ± 1 * ^a	20 ± 1 # ^a	19.4 ± 0.1 # ^{ab}	20 ± 1 # ^{ab}	18.9 ± 0.3 # ^b	16.2 ± 0.5 # ^c	16 ± 1 # ^c
DOA	72 ± 8 * ^{abc}	82 ± 7 * ^a	72 ± 5 * ^{bc}	73.38 ± 0.07 * ^{abc}	69 ± 5 * ^c	56 ± 5 * ^a	70 ± 4 * ^a	30 ± 1 # ^c	41 ± 4 # ^b	26.9 ± 0.9 # ^c	26 ± 3 # ^c	22.5 ± 0.4 # ^c
Hydrated product of OH-DOA	1.0 ± 0.1 * ^{ab}	1.1 ± 0.2 * ^a	0.9 ± 0.1 * ^b	0.97 ± 0.01 * ^{ab}	0.9 ± 0.1 * ^{ab}	0.78 ± 0.06 * ^b	3.8 ± 0.3 # ^a	3.03 ± 0.02 # ^{bc}	3.3 ± 0.2 # ^b	2.56 ± 0.03 # ^{de}	2.725 ± 0.002 # ^{cd}	2.1 ± 0.2 # ^e
Ligstroside	ND	ND	ND	ND	ND	ND	1.93 ± 0.01 ^a	1.73 ± 0.04 ^{bc}	1.46 ± 0.02 ^{cd}	1.3 ± 0.2 ^c	1.7 ± 0.1 ^{cb}	1.50 ± 0.07 ^{abc}
Decarboxymethyl ligstroside aglycone	29 ± 6 * ^{ab}	35 ± 5 * ^a	23 ± 1 * ^b	30.1 ± 0.3 * ^{ab}	26 ± 3 * ^{ab}	23 ± 1 * ^b	26 ± 2 * ^a	13.9 ± 0.2 # ^b	16 ± 1 # ^b	15.0 ± 0.2 # ^b	14.5 ± 0.3 # ^b	13.654 ± 0.004 # ^b
Oleuropein aglycone isomer	386 ± 2 * ^a	381 ± 9 * ^a	388.2 ± 0.3 * ^a	389 ± 1 * ^a	392 ± 7 * ^a	292 ± 14 * ^b	359 ± 2 # ^d	385 ± 9 # ^a	372.8 ± 0.1 # ^{bc}	379 ± 3 # ^{ab}	360 ± 1 # ^d	363 ± 4 # ^d

Ligstroside aglycone isomer	65 ± 1 * ^a	67 ± 3 * ^a	66 ± 3 * ^a	62 ± 2 * ^a	62 ± 4 * ^a	42.3 ± 0.1 # ^b	42 ± 1 # ^{ab}	44.0 ± 0.2 # ^a	41 ± 1 # ^b	42.2 ± 0.2 # ^{ab}	27.9 ± 0.4 # ^d	31.9 ± 0.6 # ^c
Total lignans	11.9 ± 0.3 *^{abc}	12.6 ± 0.4 *^a	11.7 ± 0.3 *^{ab}	12.3 ± 0.3 *^{bc}	11.7 ± 0.4 *^{ab}	11.41 ± 0.01 *^a	11.2 ± 0.2 #^c	12.1 ± 0.1 #^b	12.6 ± 0.2 #^a	12.4 ± 0.2 *^{ab}	11.6 ± 0.1 *^c	11.4 ± 0.1 *^c
Pinoresinol	7.0 ± 0.2 * ^{abc}	7.5 ± 0.3 * ^a	6.8 ± 0.2 * ^{bc}	7.3 ± 0.1 * ^{ab}	6.8 ± 0.3 * ^{bc}	6.5 ± 0.1 * ^c	6.5 ± 0.1 * ^d	7.18 ± 0.01 # ^{bc}	7.6 ± 0.2 # ^a	7.4 ± 0.2 * ^{ab}	6.9 ± 0.1 * ^d	6.7 ± 0.1 * ^d
Acetoxypinoresinol	3.96 ± 0.04 * ^b	4.196 ± 0.004 * ^a	4.005 ± 0.005 * ^b	4.1 ± 0.1 * ^{ab}	3.96 ± 0.01 * ^b	4.1 ± 0.1 * ^{ab}	3.81 ± 0.01 # ^c	4.187 ± 0.004 * ^{ab}	4.20 ± 0.01 # ^a	4.18 ± 0.01 * ^{ab}	4.17 ± 0.01 * ^b	4.17 ± 0.01 * ^b
Syringaresinol	0.9 ± 0.1 * ^a	0.9 ± 0.1 * ^a	0.9 ± 0.1 * ^a	0.9 ± 0.1 * ^a	0.9 ± 0.1 * ^a	0.801 ± 0.001 * ^a	0.9 ± 0.1 * ^a	0.7 ± 0.1 ^{bc}	0.799 ± 0.002 * ^{ab}	0.79 ± 0.01 * ^{ab}	0.59 ± 0.01 # ^c	0.59 ± 0.01 # ^c
Total flavonoids	10.4 ± 0.4 *^{ab}	11.9 ± 0.3 *^a	10 ± 1 *^b	11.0 ± 0.6 *^{ab}	11.1 ± 0.7 *^{ab}	10 ± 1 *^b	13 ± 1 #^b	12.9 ± 0.3 #^b	13 ± 1 *^b	12.5 ± 0.1 *^{ab}	13 ± 1 *^{ab}	10 ± 1 *^a
Apigenin	2.18 ± 0.02 * ^a	2.398 ± 0.002 * ^a	2.1 ± 0.3 * ^a	2.2 ± 0.2 * ^a	2.2 ± 0.4 * ^a	2.1 ± 0.1 * ^a	2.2 ± 0.2 * ^a	2.1 ± 0.1 # ^a	2.1 ± 0.1 * ^a	2.1 ± 0.1 * ^a	1.9 ± 0.3 * ^{ab}	1.6 ± 0.2 * ^b
Luteolin	8.2 ± 0.4 * ^{ab}	9.5 ± 0.3 * ^a	8 ± 1 * ^b	8.8 ± 0.4 * ^{ab}	9 ± 1 * ^{ab}	7.5 ± 0.5 * ^b	8.2 ± 0.4 * ^a	7.9 ± 0.1 # ^a	8.5 ± 0.5 * ^a	8.0 ± 0.4 * ^a	7 ± 1 * ^{ab}	6.3 ± 0.7 * ^b
Luteolin-7-glucoside	ND	ND	ND	ND	ND	ND	2.402 ± 0.002 ^b	2.9 ± 0.1 ^{ab}	2.5 ± 0.3 ^b	2.4 ± 0.4 ^b	3.5 ± 0.3 ^a	2.582 ± 0.003 ^b
Total oleosides and elenolic acid derivatives	58.0 ± 0.3 *^a	50 ± 3 *^b	36 ± 2 *^d	43.5 ± 0.8 *^b	46 ± 3 *^{b, c}	45 ± 1 *^b	96 ± 9 #^d	114 ± 6 #^c	147 ± 3 #^b	161 ± 2 #^a	157 ± 4 #^{ab}	146 ± 1 #^b
Elenolic acid isomer 1	11 ± 1 * ^a	12 ± 1 * ^a	11.1 ± 0.4 * ^a	11.0 ± 0.1 * ^a	12 ± 1 * ^a	12.1 ± 0.4 * ^a	12 ± 1 * ^a	12.0 ± 0.2 * ^a	13 ± 1 # ^a	11.4 ± 0.3 # ^{ab}	11.7 ± 0.3 * ^{ab}	10.3 ± 0.6 * ^b
Elenolic acid isomer 2	45 ± 1 * ^a	36 ± 1 * ^b	23 ± 2 * ^d	31 ± 1 * ^b	32 ± 3 * ^{bc}	31.1 ± 0.3 * ^c	77 ± 8 # ^d	91 ± 5 # ^c	124.25 ± 0.01 # ^b	139 ± 4 # ^a	130 ± 5 # ^{ab}	122.56 ± 0.01 # ^a
Hydroxyelenolic acid	1.7 ± 0.3 * ^a	1.8 ± 0.2 * ^a	1.4 ± 0.2 * ^a	1.796 ± 0.001 * ^a	1.4 ± 0.2 * ^a	1.3 ± 0.1 * ^a	0.9 ± 0.1 # ^d	1.196 ± 0.001 # ^{cd}	1.6 ± 0.2 * ^b	1.5 ± 0.1 # ^{bc}	2.4 ± 0.2 # ^a	2.1 ± 0.1 # ^a
DEA	0.3 ± 0.1 * ^a	0.3 ± 0.1 * ^a	2x10 ⁻¹ ± 6x10 ⁻⁵ * ^a	0.199 ± 0.001 * ^a	0.198 ± 0.001 * ^a	2x10 ⁻¹ ± 2x10 ⁻⁴ * ^a	4x10 ⁻¹ ± 4x10 ⁻⁴ * ^a	4x10 ⁻¹ ± 4x10 ⁻⁴ * ^a	0.5 ± 0.1 # ^a	0.40 ± 0.01 # ^a	0.40 ± 0.01 # ^a	0.20 ± 0.01 * ^b
Glucosylated form of elenolic acid isomer 1	ND	ND	ND	ND	ND	ND	NQ	0.1 ± 0.1 ^c	0.1 ± 0.1 ^d	0.1 ± 0.1 ^{cd}	0.399 ± 0.001 ^a	0.198 ± 0.001 ^{ab}

Glucosylated form of elenolic acid isomer 2	ND	ND	ND	ND	ND	ND	2.1 ± 0.1 ^d	3.2 ± 0.2 ^{bc}	2.8 ± 0.4 ^{cd}	2.9 ± 0.5 ^{cd}	4.2 ± 0.2 ^a	3.9 ± 0.1 ^{ab}
Oleoside/secologan oside	ND	ND	ND	ND	ND	ND	1.44 ± 0.02 ^d	2.9 ± 0.2 ^{abc}	2.3 ± 0.5 ^{cd}	2.5 ± 0.6 ^{bc}	3.7 ± 0.3 ^a	3.3 ± 0.1 ^{ab}
Methyl oleoside / Methyl secologanoside	ND	ND	ND	ND	ND	ND	2.10 ± 0.04 ^d	3.2 ± 0.1 ^{bc}	2.8 ± 0.4 ^{cd}	2.9 ± 0.5 ^{cd}	4.2 ± 0.3 ^a	3.8 ± 0.1 ^{ab}

ND= not detected, NQ= not quantified; EVOO= extra virgin olive oil. Different letters indicate significant differences between each time within each sample (p<0.05). Different symbols indicate a statistically significant difference between the two matrices on each day of storage (p<0.05). Decarboxymethyl oleuropein aglycone: DOA; Decarboxymethylated elenolic acid: DEA