Supplementary Material

Storage Effects on Bioactive Phenols in Calabrian Monovarietal Extra Virgin Olive Oils Based on the EFSA Health Claim

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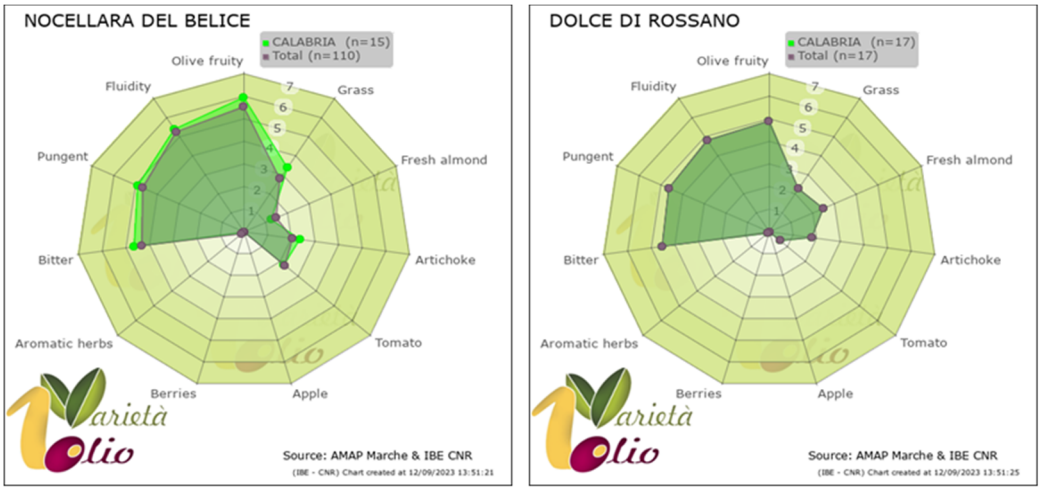

Figure S1. Images from https://www.olimonovarietali.it/en/region-detail/?regione=CALABRIA.

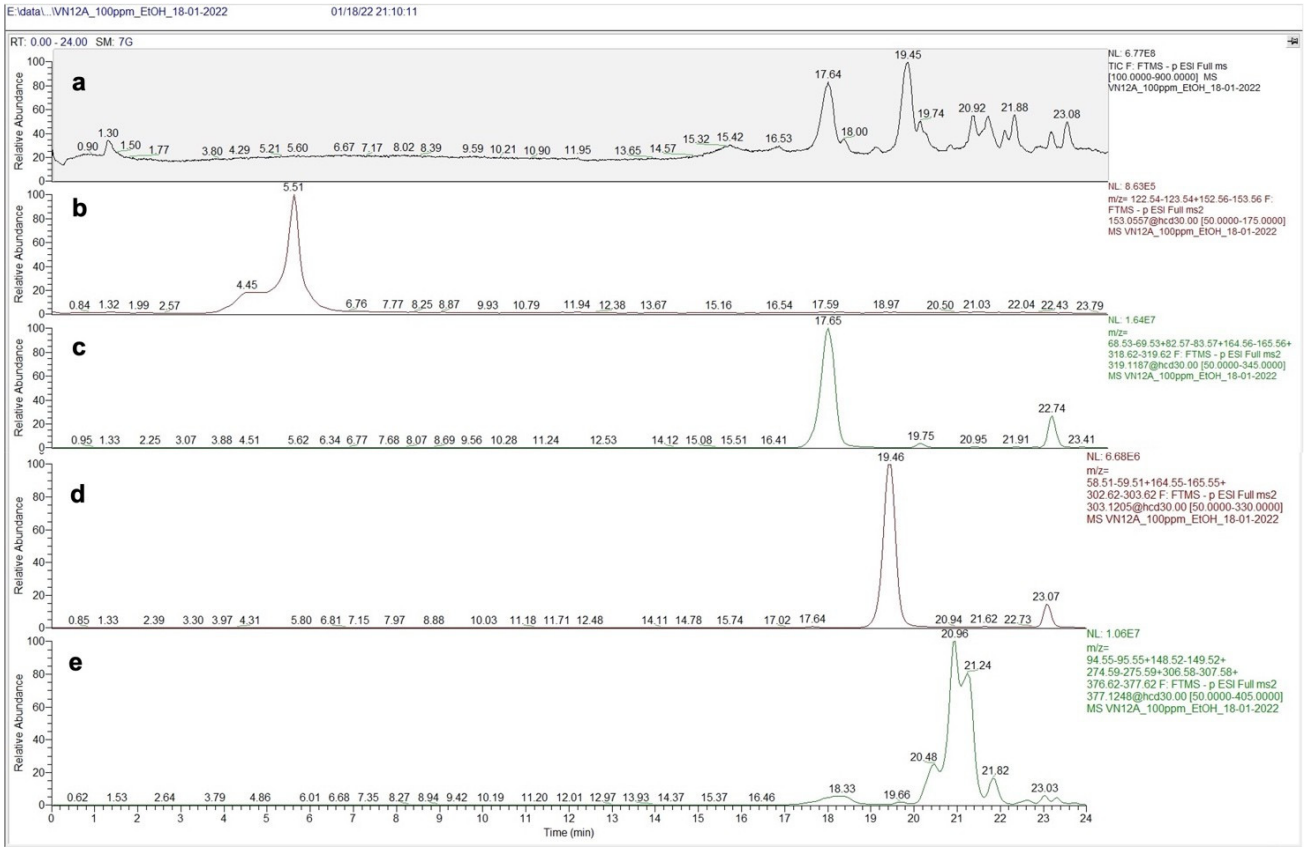

Figure S2. Full Scan (a) chromatogram obtained by UHPLC-ESI-HRMS for the VN sample and extracted ion chromatograms of detected EVOO phenols hydroxytyrosol (b), oleacein (c), oleocanthal (d) and oleuropein aglycon (e).

Table S1. Evolution of total phenol content (mg kg^{-1} ± SD) in Nocellara del Belice (VN) and Dolce di Rossano (VDR) monovarietal EVOO samples evaluated by spectrophotometric assay (Folin-Ciocalteau) during storage time (months).

	VN* (mg kg^{-1} ± SD)	**VDR*** (mg kg^{-1} ± SD)
February	472.34±9.48	566.98±18.52
March	552.72±15.76	486.65±16.46
April	475.40±15.49	501.22±22.71
May	486.61±10.99	486.63±10.39
June	532.66±12.46	429.53±8.47
July	523.85±13.12	554.22±15.45
August	506.68±20.46	569.72±14.19
September	510.35±11.24	340.91±23.15
October	529.31±12.51	513.36±15.12
November	511.14±19.45	624.09±21.46
December	509.48±10.82	535.69±10.24
January	499.54±17.51	555.11±14.58

*Data are expressed as means standard deviations (SD) of tree independent observations.

Table S2. Evolution of total considered EVOO phenols during twelve months of storage expressed as mg of EVOO phenols per 20 g in *Nocellara di Belice* (VN) and *Dolce di Rossano* (VDR) monovarietal EVOO samples (mg/ 20 g).

	VN*	**VDR***
February	29.58±1.16	41.43±2.29
March	29.04±1.61	40.78±2.31
April	28.69±0.78	38.64±1.50
May	28.00±1.17	35.83±2.26
June	27.80±1.43	35.72±2.80
July	27.46±1.17	34.04±2.51
August	27.04±1.02	34.35±2.89
September	26.85±1.11	34.19±2.26
October	26.26±0.91	33.19±1.27
November	25.82±0.91	28.04±1.64
December	25.40±0.99	28.06±1.30
January	25.10±0.95	28.16±1.52

*Data are expressed as means and standard deviations (SD) of three independent observations.

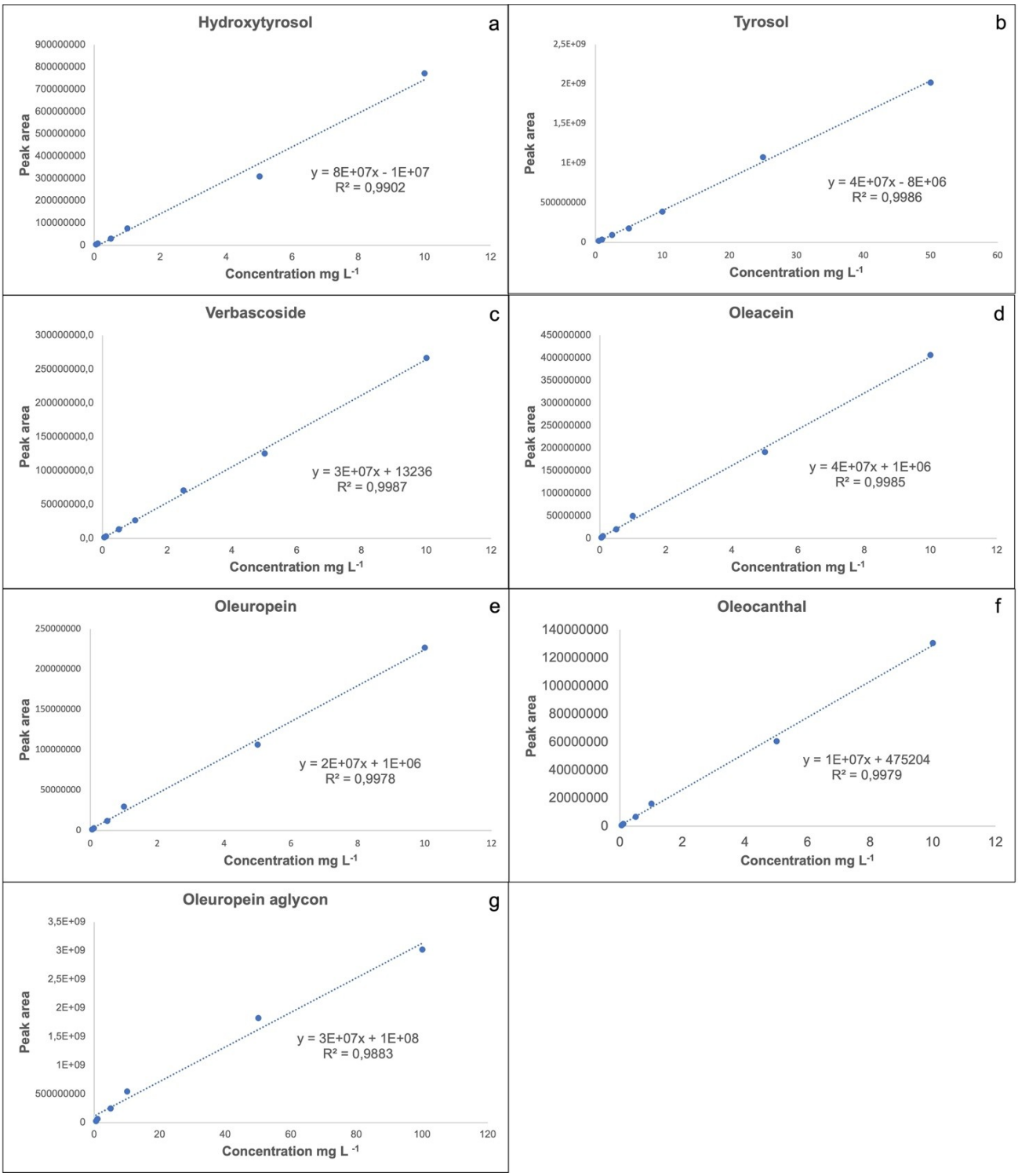

Figure S3. Correlation of the peak area obtained by UHPLC-ESI-HRMS and analytical standard concentration of hydroxytyrosol (a); tyrosol (b); verbascoside (c); oleacein (d); oleuropein (e); oleocanthal (f) and oleuropein aglycon (g).

Table S3. Linearity validation results of the analytical method by UHPL-ESI-HRMS.

Compounds	Concentration range (mg L^{-1})	Calibration curve	R^2
Hydroxytyrosol	0.05-10	Y=8E+07X-1E+07	0.9902
Tyrosol	0.5- 50	Y=4E+07X-8E+06	0.9986
Verbascoside	0.05-10	Y=3E+07X+13236	0.9987
Oleacein	0.05-10	Y=4E+07X+1E+06	0.9985
Oleuropein	0.05-10	Y=2E+07X+1E+06	0.9978
Oleocanthal	0.05-10	Y=1E+07X+475204	0.9979
Oleuropein aglycone	0.5-100	Y=3E+07X+1E+08	0.9983

Table S4. Statistical and analytical parameters: variation coefficients (CV_r and CV_R); limit of repeatability (r); percentage recovery (R) and extended uncertainty (U_e) for each considered concentrations (mg g^{-1}).

	mg g^{-1}	CV_r (%)	CV_R (%)	r (%)	R (%)	U_e (%)
	0.033	2.3	2.9	7.2	94	25
Hydroxytyrosol	0.037	6.1	7.2	19.4	109	20
	0.047	6.6	7.3	20.8	93	33
	0.37	2.9	3.5	9.8	97	32
Tyrosol	0.58	6.8	7.7	20.7	96	36
	0.75	3.3	3.9	10.5	96	31
	0.003	9.3	9.9	29.0	97	29
Verbascoside	0.007	8.8	9.7	27.8	98	18
	0.015	1.9	2.6	7.3	104	22
	0.09	1.7	2.4	5.5	94	33
Oleacein	0.13	7.5	8.0	24.0	108	31
	0.28	5.7	6.3	18.2	99	29
	0.002	9.7	10.9	32.0	89	38
Oleuropein	0.005	9.0	9.4	28.8	104	20
	0.013	2.1	2.8	6.2	95	23
	0.16	5.0	5.4	6.9	93	38
Oleocanthal	0.23	5.8	6.6	18.7	93	39
	0.53	4.4	5.2	14.2	97	26
	0.36	3.1	3.9	9.9	98	36
Oleuropein aglycon	0.53	6.8	7.2	21.9	95	34
	0.72	3.2	3.7	10.2	96	33