

¹H NMR and Multivariate Analysis for Geographic Characterization of Commercial Extra Virgin Olive Oil: A Possible Correlation with Climate Data

Table S1. Fatty acid composition data calculated on the basis of ¹H NMR, expressed in molar percentage.

Region/Country	Linolenic Acid	Linoleic Acid	UFA	MUFA (Oleic Acid)	Squalene	β-Sitosterol
Toscana	0.78	7.94	73.37	64.66	2.05	0.27
Sicilia	0.71	9.14	74.32	64.46	2.05	0.23
Puglia	0.76	9.26	75.50	65.48	1.86	0.21
Tunisia	0.74	16.12	69.51	52.65	1.66	0.29
Chile	0.69	6.26	75.42	68.46	2.09	0.23
Portugal	0.73	8.27	73.36	64.36	1.85	0.31
Spagna	0.71	7.78	73.84	65.35	2.00	0.24
Australia	0.75	5.84	74.54	67.95	2.22	0.22
Turchia	0.70	9.47	72.64	62.47	2.33	0.30

UFA: unsaturated fatty acid. MUFA: monounsaturated fatty acid. Reference: Merchak, N.; El Bacha, E.; Khouzam, R.B.; Rizk, T.; Akoka, S.; Bejjani, J. Geoclimatic, morphological, and temporal effects on lebanese olive oils composition and classification: A ¹H NMR metabolomic study. *Food chemistry* **2017**, 217, 379-388.

Table S2. One-Way ANOVA.

Attribute_Y	Attribute X	Description			Statistical Test		
%Ln	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	0.7801	0.0527	Source	Sum of square	d.f.
		Sicilia	0.7113	0.0567	BSS	0.1483	8
		Puglia	0.7586	0.0625	WSS	0.8626	196
		Tunisia	0.7401	0.0449	TSS	1.0109	204
		Chile	0.6932	0.0674	Significance Level		
		Portogallo	0.7262	0.0785	Statistics	Value	Proba
		Spagna	0.7102	0.0933	Fisher's F	4.212873	0.000111
		Australia	0.7456	0.0665			
		Turchia	0.6989	0.0510			
%L	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	7.9365	0.8026	Source	Sum of Square	d.f.
		Sicilia	9.1443	0.7493	BSS	3064.0098	8
		Puglia	9.2636	1.8809	WSS	1060.1774	196

		Tunisia	16.1206	2.7524	TSS	4124.1872	204
		Chile	6.2647	1.3447	Significance level		
		Portogallo	8.2742	2.3938	Statistics	Value	Proba
		Spagna	7.7812	3.2854	Fisher's F	70.807244	0.000000
		Australia	5.8446	1.0478			
		Turchia	9.4721	1.0373			
%UFA	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	73.3734	1.9277	Source	Sum of square	d.f.
		Sicilia	74.3158	2.2741	BSS	1011.8906	8
		Puglia	75.5020	1.0008	WSS	639.1924	196
		Tunisia	69.5089	1.3819	TSS	1651.0830	204
		Chile	75.4207	1.7388	Significance Level		
		Portogallo	73.3643	1.7448	Statistics	Value	Proba
		Spagna	73.8449	1.9564	Fisher's F	38.785380	0.000000
		Australia	74.5445	3.0442			
		Turchia	72.6362	2.2141			
%MUFA	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	64.6567	2.3109	Source	Sum of square	d.f.
		Sicilia	64.4602	2.5256	BSS	7491.3733	8
		Puglia	65.4799	2.1788	WSS	2555.2227	196
		Tunisia	52.6481	3.8532	TSS	10046.5959	204
		Chile	68.4629	2.6334	Significance Level		
		Portogallo	64.3639	3.8619	Statistics	Value	Proba
		Spagna	65.3535	4.8761	Fisher's F	71.828827	0.000000
		Australia	67.9543	2.5815			
		Turchia	62.4652	2.8104			
%squalene	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	2.0477	0.4621	Source	Sum of Square	d.f.
		Sicilia	2.0452	0.2738	BSS	6.9502	8
		Puglia	1.8570	0.2118	WSS	16.9565	196
		Tunisia	1.6623	0.1368	TSS	23.9067	204
		Chile	2.0939	0.3565	Significance Level		

		Portogallo	1.8540	0.1948	Statistics	Value	Proba
		Spagna	2.0019	0.2330	Fisher's F	10.042216	0.000000
		Australia	2.2202	0.7850			
		Turchia	2.3309	0.3408			
%b-sitosterol	Region	Value	Average	Std-dev	Variance Decomposition		
		Toscana	0.2664	0.0315	Source	Sum of square	d.f.
		Sicilia	0.2343	0.0575	BSS	0.1506	8
		Puglia	0.2139	0.0827	WSS	0.9355	196
		Tunisia	0.2878	0.0377	TSS	1.0861	204
		Chile	0.2328	0.1055	Significance Level		
		Portogallo	0.3083	0.1053	Statistics	Value	Proba
		Spagna	0.2369	0.0727	Fisher's F	3.944440	0.000239
		Australia	0.2241	0.1174			
		Turchia	0.2971	0.0841			