

## Supplementary Tables and Figures

**Table S1.** List of microsatellites used for the molecular characterization of olive samples.

SSRs markers	Repeat motif	Primer sequence (5'-3')	Bibliographic reference	Ta
DCA03	(GA)19	F 5'-CCCAAGCGGAGGTGTATATTGTTAC-3' R 5'-TGCTTTTGTCTGTTTGTAGATGTTG-3'	Sefc et al. (2000)	50°C
DCA05	(GA)15	F 5'-AACAAATCCCATACGAACTGCC-3' R 5'-CGTGTTGCTGTGAAGAAAATCG-3'	Sefc et al. (2000)	50°C
DCA09	(GA)23	F 5'-AATCAAAGTCTTCCTTCTCATTTTCG-3' R 5'-GATCCTTCCAAAAGTATAACCTCTC-3'	Sefc et al. (2000)	55°C
DCA15	(CA)3G(AC)14	F 5'-GATCTTGTCTGTATATCCACAC -3' R 5'-TATACCTTTTCCATCTTGACGC -3'	Sefc et al. (2000)	50°C
DCA16	(GT)13(GA)29	F 5'-TTAGGTGGGATTCTGTAGATGGTTG -3' R 5'-TTTtagGTGAGTTCATAGAATTAGC-3'	Sefc et al. (2000)	50°C
DCA17	(GT)9(AT)7AGA TA(AGA)38	F 5'-GATCAAATTCTACCAAAAATATA -3' R 5'-TAATTTTTGGCACGTAGTATTGG -3'	Sefc et al. (2000)	50°C
DCA18	(CA)4 CT(CA)3(GA)19	F 5'-AAGAAAGAAAAAGGCAGAATTAAGC-3' R 5'-GTTTTCTGCTCTCTACATAAGTGAC-3'	Sefc et al. (2000)	50°C
GAPU71b	GA(AG)6(AAG)8	F 5'-GATCAAAGGAAGAAGGGGATAAA-3' R 5'-ACAACAAATCCGTACGCTTG-3'	Carriero et al. (2002)	57-60°C
GAPU101	(GA)8(G)3(AG)3	F 5'-CATGAAAGGAGGGGACATA -3' R 5'-GGCACTTGTTGTGCAGATTG -3'	Carriero et al. (2002)	57-60°C

**Table S2:** List of pairwise relatedness based on LRM estimator (Lynch and Ritland, 1999).

<b>LMR =0.5</b>	
M25	CHEMLALI TATAOUINE
M1	BAROUNI
CHEMLALI_SFAX	ZALMATI
M28	MESKI
M24	JEMRI_BC
<b>0.5&lt;LMR&gt;0.36</b>	
M1	M23
M23	BAROUNI
M14	GERBOUI
M23	BESBESSI
M4	CHETOUI
M13	M20
M10	CHEMLALI_SFAX
M10	ZALMATI
M20	NEB_JEMAL TATAOUINE
CHEMLALI_SFAX	CHEMLALI_JERBA
CHEMLALI_JERBA	ZALMATI
M2	M17
M1	BESBESSI
BAROUNI	BESBESSI
M10	CHEMLALI_JERBA
BOSANA	SASSARESE
M13	NEB_JEMAL_TATAOUINE

**Table S3:** The partitioning of genetic variation within and among groups obtained with AMOVA analysis for the 5 groups of Mediterranean olive accessions, Reference, Tunisia centennial trees, and Tunisian commercialized varieties, Greece, Italy and Spain

<b>Source</b>	<b>df</b>	<b>SS</b>	<b>MS</b>	<b>Est. Var.</b>	<b>%</b>
Among Pops	4	40.114	10.028	0.150***	4%
Within Indiv	113	402.000	3.558	3.558***	96%
Total	225	819.270		3.707***	100%

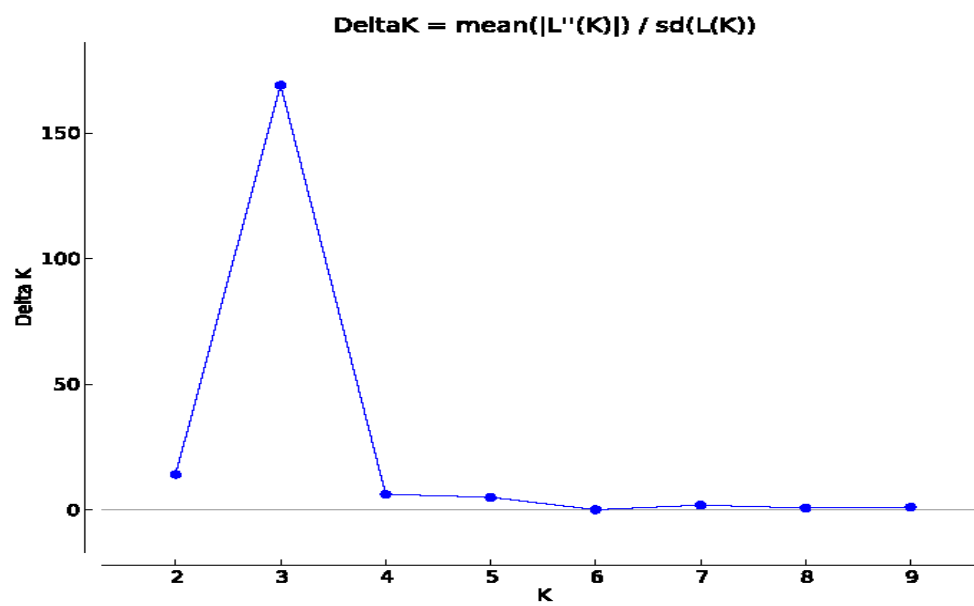
P-value is based on 1,000 permutations. df: degree of freedom; SS: sum of squares; MS: mean squares; %: percentage of total variation

**Table S4:** The detection of first-generation migrants among olive trees from five Mediterranean populations based on the likelihood ratio ( $L_{\text{origin}} / L_{\text{max}}$ ) as outlined by Paetkau et al. (1995).

Cultivar	Origin	Probability	Tunisia's old olives	Tunisia's local olives	Greece	Italy	Spain
			$-\text{Log}_{10}(L)$	$-\text{Log}_{10}(L)$	$-\text{Log}_{10}(L)$	$-\text{Log}_{10}(L)$	$-\text{Log}_{10}(L)$
M1	Tunisia's old olives	0.167	10.062	9.489	19.202	14.993	16.991
M2	Tunisia's old olives	0.649	10.601	12.280	17.860	15.607	18.128
M3	Tunisia's old olives	0.637	12.035	12.281	19.036	16.94	19.175
M4	Tunisia's old olives	0.636	9.474	9.686	15.018	14.17	14.693
M5	Tunisia's old olives	0.012	16.162	13.480	13.143	14.094	15.456
M6	Tunisia's old olives	0.640	12.969	13.629	18.883	14.317	18.871
M7	Tunisia's old olives	0.051	12.179	10.395	15.008	12.801	15.122
M8	Tunisia's old olives	0.639	9.836	11.120	17.258	14.121	19.126
M9	Tunisia's old olives	0.016	13.945	13.884	13.444	11.383	14.303
<b>M10</b>	<b>Tunisia's old olives</b>	<b>0.004</b>	<b>15.212</b>	<b>11.528</b>	<b>14.115</b>	<b>13.473</b>	<b>18.006</b>
M11	Tunisia's old olives	0.252	13.555	13.471	17.911	15.477	16.910
M12	Tunisia's old olives	0.640	15.85	16.593	19.946	17.529	22.631
M13	Tunisia's old olives	0.645	12.159	13.299	17.327	16.531	20.827
M14	Tunisia's old olives	0.032	14.396	12.934	16.008	12.136	14.471
M15	Tunisia's old olives	0.060	16.783	16.374	19.094	15.237	19.762
M16	Tunisia's old olives	0.641	10.618	11.776	17.832	15.590	18.887
M17	Tunisia's old olives	0.645	10.844	12.581	17.86	15.607	17.174
M18	Tunisia's old olives	0.634	10.077	11.410	18.008	16.704	20.444
M19	Tunisia's old olives	0.106	14.998	13.882	17.184	14.722	15.978
M20	Tunisia's old olives	0.633	11.725	12.630	17.026	15.646	19.350
M21	Tunisia's old olives	0.166	11.45	10.831	15.480	12.953	14.360
M22	Tunisia's old olives	0.644	9.854	11.178	19.849	16.928	21.767
M23	Tunisia's old olives	0.644	11.43	12.295	19.247	13.096	17.012
M24	Tunisia's old olives	0.264	10.853	10.805	21.395	14.917	17.499
M25	Tunisia's old olives	0.233	12.619	12.465	18.832	14.759	16.730
M26	Tunisia's old olives	0.040	11.72	9.759	15.684	13.882	18.729
M27	Tunisia's old olives	0.641	12.833	13.295	18.018	15.976	16.493
M28	Tunisia's old olives	0.133	11.962	11.097	20.299	14.925	17.022
CHETOUI	Tunisia's local olives	0.636	10.282	9.854	13.444	13.873	16.629
CHEMLALI_SFAX	Tunisia's local olives	0.070	14.227	12.418	11.125	12.258	15.763
CHEMLALI_ONTHA	Tunisia's local olives	0.628	15.272	13.370	14.717	13.373	16.938
CHEMLALI_JERBA	Tunisia's local olives	0.634	14.16	12.242	12.620	13.297	17.006
CHEMLALI_ZARZIS	Tunisia's local olives	0.623	12.739	11.582	16.865	15.041	17.344
CHEMCHALI_GAFSA	Tunisia's local olives	0.628	12.001	9.349	14.444	14.242	18.531
CHEMLALI_TATAOUINE	Tunisia's local olives	0.014	11.519	14.142	18.832	14.759	16.730
ZALMATI	Tunisia's local olives	0.073	14.227	12.418	11.125	12.258	15.763
GERBOUI	Tunisia's local olives	0.100	13.443	14.225	17.582	13.224	14.346

NEB_JEMAL_TATAOUINE	Tunisia's local olives	0.003	11.043	14.499	17.026	15.725	19.174
OUESLATI	Tunisia's local olives	0.119	11.944	12.771	16.303	15.527	18.432
ZARRAZI_ZARZIS	Tunisia's local olives	0.629	10.545	9.987	13.911	11.956	14.071
SAYALI	Tunisia's local olives	0.630	11.504	10.951	11.949	12.834	15.386
RKHAMI	Tunisia's local olives	0.628	11.153	10.215	15.337	13.050	16.570
BIDH_HMAM	Tunisia's local olives	0.631	10.381	9.408	15.656	13.099	16.285
BAROUNI	Tunisia's local olives	0.138	9.468	10.212	19.202	14.993	16.991
MESKI	Tunisia's local olives	0.070	10.919	12.251	20.299	14.925	17.022
TOFFAHI	Tunisia's local olives	0.635	10.125	9.238	15.832	13.989	15.767
TOUNSI	Tunisia's local olives	0.627	9.707	8.720	16.485	12.860	14.805
MARSALINE	Tunisia's local olives	0.050	13.155	14.790	19.901	16.138	20.185
JEMRI_BOUCHOUKA	Tunisia's local olives	0.207	9.260	9.496	16.462	14.004	15.890
FAKHARI	Tunisia's local olives	0.631	10.986	10.724	18.776	15.074	17.821
BELDI	Tunisia's local olives	0.636	11.037	10.202	18.174	15.228	18.076
BESBESSI	Tunisia's local olives	0.162	9.6440	10.212	19.997	14.788	17.468
JEMRI_BC	Tunisia's local olives	0.042	10.112	11.853	21.395	14.917	17.499
AMIGDALOLIA	Greece	0.036	14.218	14.134	14.682	12.205	14.625
KALAMON	Greece	0.057	15.140	14.887	14.418	12.574	12.748
KERKIRAS	Greece	0.077	15.999	15.938	15.983	14.267	19.531
KONSERVOLIA	Greece	0.093	13.546	13.525	12.835	11.266	12.475
KORONEIKI	Greece	0.612	17.721	17.649	12.460	14.258	17.493
MASTOIDIS	Greece	0.616	19.225	18.347	12.372	15.376	18.293
MAUREYA	Greece	0.597	15.963	16.458	14.293	14.666	16.990
MIRTOLIA	Greece	0.600	19.346	18.186	13.256	14.475	17.854
ASCOLANA TENERA	Italy	0.082	13.990	12.894	15.434	12.800	12.372
BIANCOLILLA	Italy	0.024	11.935	12.4	12.268	13.232	14.751
BORGIONA	Italy	0.577	15.271	15.141	13.809	10.576	11.979
BOSANA	Italy	0.573	14.617	13.037	15.388	11.544	15.066
CAIAZZANA	Italy	0.059	16.636	16.318	14.069	14.896	16.017
CANINO	Italy	0.090	14.452	16.124	16.388	14.121	13.770
CAPOLGA	Italy	0.573	14.204	14.047	13.115	12.418	15.099
CARIASINA	Italy	0.571	14.259	13.586	16.911	12.244	13.838
CAROLEA	Italy	0.105	16.096	16.354	13.745	13.508	13.249
CASSANESE	Italy	0.064	13.654	13.573	16.600	14.298	15.130
CELLINA DI NARDO'	Italy	0.019	19.886	18.777	14.758	16.327	14.688
DOLCE AGOGIA	Italy	0.576	15.118	14.291	16.406	13.163	15.003
FRANGIVENTO	Italy	0.572	14.429	15.083	13.729	11.091	13.406
FRANTOIO	Italy	0.574	16.257	18.034	13.684	13.105	16.952
GARGNA'	Italy	0.567	15.230	15.255	14.082	13.060	17.401
GENTILE DI CHIETI	Italy	0.570	16.410	15.426	13.110	12.866	18.320

LECCINO	Italy	0.570	15.143	14.98	14.400	11.792	13.645
MIGNOLA DI CARTOCETO	Italy	0.571	18.066	18.77	17.133	15.335	19.383
MORAILOLO	Italy	0.571	13.443	14.393	11.597	10.932	13.368
NOSTRALE DI RIGALI	Italy	0.570	15.280	15.76	11.587	10.406	14.258
NOSTRANA DI BRISIGHELLA	Italy	0.568	13.100	13.545	13.985	10.864	11.122
OGLIAROLA SALENTINA	Italy	0.572	17.543	16.652	15.582	15.527	16.499
OLIALONGA	Italy	0.571	15.682	15.844	15.735	12.465	13.281
ORBETANA	Italy	0.569	13.543	14.635	13.013	10.421	11.877
OTTOBRATICA	Italy	0.568	15.556	15.568	16.541	14.971	15.598
PASSALUNARA	Italy	0.568	16.321	17.955	18.645	16.237	17.689
PIANTONE DI MOGLIANO	Italy	0.567	13.503	14.979	14.587	10.866	11.876
RAIA	Italy	0.572	16.172	17.532	14.559	12.644	15.602
RAIO	Italy	0.069	17.495	17.844	18.281	15.544	14.990
SASSARESE	Italy	0.568	14.292	13.091	15.61	11.202	14.969
SEMIDANA	Italy	0.568	15.244	14.636	17.416	13.357	13.615
ZAITUNA	Italy	0.570	15.640	17.388	19.406	13.276	15.359
<b>ARBEQUINA</b>	<b>Spain</b>	<b>0.007</b>	<b>14.641</b>	<b>14.512</b>	<b>13.513</b>	<b>12.676</b>	<b>15.354</b>
BLANQUETA	Spain	0.548	18.352	20.085	16.230	15.559	13.848
CHANGLOT REAL	Spain	0.545	20.902	20.198	18.600	15.453	11.890
CORNEZUELO DE JAEN	Spain	0.543	17.34	16.868	14.990	14.089	12.053
CORNICABRA	Spain	0.547	15.690	14.739	14.087	12.495	8.793
EMPELTRE	Spain	0.548	18.362	16.644	15.901	13.159	12.312
FARGA	Spain	0.015	17.140	17.349	17.572	13.681	15.759
GORDAL SEVILLANA	Spain	0.546	14.655	14.885	15.832	12.432	9.141
HOJIBLANCA	Spain	0.550	15.813	15.211	15.814	12.514	8.346
LECHIN DE GRANADA	Spain	0.546	17.951	17.187	14.115	12.490	9.511
LECHIN DE SEVILLA	Spain	0.552	14.759	14.807	16.434	12.118	10.361
MANZANILLA DE JAEN	Spain	0.547	12.071	12.566	15.416	12.624	9.185
MANZANILLA CACERENA	Spain	0.546	13.249	13.672	12.745	10.751	8.992
MANZANILLA DE SEVILLA	Spain	0.550	17.848	18.652	17.230	12.814	10.064
PICUAL	Spain	0.543	14.651	14.283	14.814	12.360	10.292
PICUDO	Spain	0.547	16.754	16.68	16.531	13.116	9.656
ROYAL DE CAZORLA	Spain	0.549	14.517	14.897	18.434	11.980	8.506
SEVILLENCA	<b>Spain</b>	<b>0.002</b>	<b>12.193</b>	<b>12.313</b>	<b>14.291</b>	<b>10.728</b>	<b>14.814</b>
VERDIAL DE HUEVAR	Spain	0.547	17.525	16.487	16.184	13.591	9.04
VILLALONGA	Spain	0.547	18.984	19.664	17.202	15.413	12.969



Supplementary Figure S1. Evanno test based on Delta K value.