Supplementary information

On the origins and domestication of the olive:

a review and perspectives

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SI Appendix includes:

Table S1. Summary of the current genetic data used to infer histories of cultivated and wild olives, with associated methodologies, limitations and main conclusions, and the future genomic data required to test for the neutral and adaptive genomics of domestication in olive

Table S2. Data matrix for the 147 plastid DNA haplotypes identified in the olive complex with 71 loci

Figure S1. Reduced median networks of Mediterranean olive plastid DNA haplotypes

Figure S2. Median joining network of olive chlorotypes reconstructed with NETWORK

References

Table S1. Summary of the current genetic data used to infer histories of cultivated and wild olives, with associated methodologies, limitations and main conclusions, and the future genomic data required to test for the neutral and adaptive genomics of domestication in olive

Data availability	DNA information	Methodology	Main applications	Limitations	Main results relative to the Olive origins
Available	DNA fingerprint; mostly from the nuclear genome (i.e. RAPD, AFLP, ISSR)	- Genetic relatedness among individuals (phenetic analyses) - Population genetics estimates (AMOVA [61]) - Demographic inferences (BAPS [44])	- Cultivar identification [e.g. 22,75,86,100] - Taxonomy of wild olive relatives to the cultivated olive [70,99] - Population structure and phylogeography of wild and cultivated olives [25,70,89] - Among- populations and subspecies gene flow estimates [96] - Inferring cultivated olive origins [22,24,42,89] - Genetic map reconstruction for QTL mapping [49,102]	- Dominant inheritance: inaccurate estimate of heterozygosity and allele frequencies, poorly suitable to perform demographic inferences - Potential amplification of non-Olive DNA, with putative lack of repeatability (e.g. RAPD) - Possible amplification of organellar DNA (e.g. RAPD, AFLP)	- Distinction of two Mediterranean gene pools, first referred to as "East" and "West" [e.g. 6,25,70,96,99] - Evidence for close genetic relationship of most (but not all) olive cultivars with the eastern wild group [6,25] - Structure related to geographic origin and fruit use of cultivars [e.g. 22,24,42,89]
	Nuclear ribosomal DNA (i.e. ITS)	- Phylogenetic inferences (e.g. MrBayes, PAUP, BEAST [56,95])	- Identification of distinct phylogenetic lineages in wild olives based on a nuclear marker [34,70]	- Complex sequence evolution due to concerted evolution, to selective pressures to maintain secondary structure for the maturation of nrRNA (high GC content), and to the presence of several pseudogenic variants [34]	- Distinction of two ITS Mediterranean lineages (both on functional units and pseudogenes) sustaining the existence of two distinct taxa in West and East Mediterranean [33,34] - First molecular characterization of archeological olive remains [59]
	Nuclear repetitive DNAs and retrotransposons	- Estimation of the number of tandem repeats - Retrotransposon [69]	- Distinction of groups based on their composition in tandem repeats [43] - Potential use for genotype identification [69]	- Descriptive approach, poorly suitable for implementing evolutionary models	- Distinction of two main groups in the Mediterranean Basin [43]
	Organellar plastid and mitochondrial DNAs (i.e. genomic sequences, RFLP, CAP and microsatellites)	- Population genetic estimates - Network analysis - Phylogenetic inferences with molecular dating (e.g. Network, BEAST, Batwing [12,56,101])	- Phylogeography of the olive complex with dating of the diversification and dispersal history of the maternal lineages [31] - Identification of hotspots of genetic diversity in Oleasters [31] - Cytoplasmic male sterility [32]	- Low genetic variation [30,84] - Maternally inherited genomes data only [32] - Biases associated to potential selective sweep in the chloroplastic and mitochondrial genomes [11]	- Distinction of three phylogenetic maternal lineages, referred to as E1 (East), E2 (West) and E3 (West), and Bayesian dating of their diversification [31] - Human-mediated spread of cultivated chlorotypes or mitotypes [31] - Maternal origins of invasive olives [26]

Table S1, continued

Data availability	DNA information	Methodology	Main applications	Limitations	Main results relative to the Olive origins
Available	Nuclear co-dominant markers (i.e. isozymes, RFLP, microsatellites)	- Parentage analyses, genetic relatedness between individuals and co-ancestry analyses [e.g. 54,85] - Population genetic diversity estimates, population structure and demographic inferences (STRUCTURE, ABC [18,92])	- Genetic discrimination among cultivars genotypes, identifications and parentage/paternity analyses [e.g. 10] - Accurate estimate of heterozygosity and allelic frequencies [36,51] - Population structure and inferences of demographic history of the cultivated olives and of its wild relatives [e.g. 10,20,21,54,65,105] - Detection of polyploids in wild olive trees [29,39,64] - Reconstruction of genetic maps (e.g. anchored reference loci) for QTL mapping [e.g. 49,102]	- Sensitive to genotyping errors (limitations to combine SSR datasets generated independantly, for instance from different laboratories) - High mutation rate and homoplasy (potential limitation for parentage analyses and phylogenetic analyses) - Limited number of loci usually used (< 30) - Possible strong selective pressures on isozymatic loci [81]	- Identification of cultivated genotypes (varieties, rootstocks) [4,9,41,71,76,97], and somatic mutations [8,14,57,80] - Distinction of two wild Mediterranean gene pools referred to as WW (E-I) and WE (E-II) [27,38,54,82], as well three main clusters of cultivated olive (Q1, Q2, Q3) [19,27,50,68] (Box 2) - Core-collections for GWAS [19,58,68] - ABC modeling to test scenarios of population demography (e.g. relatedness among genepools, admixture and gene flow, bottleneck) [26,54] - Historical perspective on olive domestications with the reconstruction of cultivar pedigrees or networks [54,85]
Partially Available	ESTs, transcriptomes (Illumina sequencing, RNA-Seq, RT-PCR)	- Functional annotation of transcripts [88] - microRNAs [55,103] - Identification of SNPs between genotypes on ESTs [73]	- Detection of gene expression differential associated to domestication regulatory networks for instance fruit size (e.g. miRNA in apples [104]) and oil content [13] - In olive, transcritomes are available for different organs (e.g. different fruit and flower developmental stages[1,2,3,40,63,90], trichomes [77]) or different environmental conditions [17]	- Require intensive experimental approaches (growth in control conditions, production of clones, genetically modified organisms) which are very limiting in perennials	- Potential use for comparing transcriptomes of wild and cultivated olives (i.e. sequence and transcription variation of genes), and for the validation of candidate genes under selection during domestication
Partially available[a]	SNPs (Sequence, Chip SNP), or genomic profiling with reduced representation libraries [DArT, RAD-Seq; 47, 48]	- Population structure inferences (fastSTRUCTURE, CHROMOPAINTER, ADMIXTURE [5,78,93]) - GWAS (e.g. TASSEL; [37]) - Genomic association with environmental variables (e.g. BAYESCAN, lmm, [62,72,98]) - Phylogenetic inferences [e.g.56,95]	- Genotype identification [e.g. 19], and potential use for parentage/paternity analyses - Genetic mapping [55] - Phylogenetics based on single or low copy genes (diversification of the Olives, and/or multigene families) [27,67] - Population structure and hybridization using a large number of markers (pre-requisite to test further hypotheses presented hereafter) - Genomic basis of domestication of the olive (candidate SNP associated to agronomic interest) - Detection of polymorphism involved in local adaptation to environmental conditions in wild and cultivated olives	- Time-consuming genomic data processing (computing, bioinformatics) - Need of long and costly phenotyping for association mapping studies [e.g. 7,23]	- Identification of cultivated olive varieties [19,35,73,87,94] - Identification of cultivated genepools [19] - High sequence variation in the Mediterranean olive, with the distinction of nuclear gene lineages attesting for a complex history of archaic and modern admixture in Oleasters [27] - Association mapping revealed markers significantly related to some important agronomic traits [74]

Table S1, end

Data availability	DNA information	Methodology	Main applications	Limitations	Main results relative to the Olive origins
Partly available[a]	Genomes (Single molecule Real Time Pacific Biosciences, Illumina sequencing, Exome capture, Pool Seq)	- Linkage disequilibrium estimation - Genome scans for candidates genes and introgressions - Demographic inferences (ABC [60], Diffusion [66], and N_e estimation over time [79]	- Reference Genome (i.e. "Golden path" [83]). - Genomic signs of local adaptation in the cultivated olives (outcomes for breeding programs) and in the wild olives (outcomes in conservation biology through the integrations of adaptive genetic variability) - Genomic signature of wild-to-crop gene flow (introgression along the genomes: heterogeneous versus homogeneous regions of introgressions) - Demographic inferences (i.e. effective populations size over times and scenarios of domestication) - Prerequisite to the analysis of epigenomes and archaeogenomes [46,52,91]	- High frequency of repetitive DNA [15,16] - Complex admixture history in wild and cultivated olives (complex scenario to be tested)	- First genome draft recently published [45]

Abbreviations: ABC: Approximate Bayesian Computation; AFLP: Amplification Fragment Length Polymorphism; CAPS: Cleaved Amplified Polymorphic Sequence; DArT: Diversity Arrays Technology; EST: Expressed Sequence Tag; GWAS: Genome-Wide Association Study; ISSR: Inter Simple Sequence Repeat; ITS: Internal Transcribed Spacer; N_e: Effective population size; QTL: Quantitative Trait Locus; RAD-Seq: Restriction-site Associated DNA Sequencing; RAPD: Random Amplified Polymorphic DNA; RFLP: Restriction Fragment Length Polymorphism; RNA-Seq: RNA sequencing; SNP: Single Nucleotide Polymorphism; SSR: Simple Sequence Repeat (or microstatellite).

Table S2. Data matrix of the 147 plastid DNA haplotypes identified in the olive complex with 71 loci [30]. Alleles of each locus are coded for the median joining network analysis (Fig. S1). Stretch size of the repeated motif is given for each microsatellite locus, while a binary code (0/1) has been defined for indels and single nucleotide. This coding was verified by sequencing alleles of a few haplotypes (for more details see [26,30,31]). The countries or regions where each haplotype were observed is given. For more convenience, sublineages were distinguished within lineages E1 and M defined by [34]: For E1, sublineages *e* (*europaea*), *l*1 (*laperrinei*), *l*2 (*laperrinei*) and *l*3 (*cuspidata*); and for M, sublineages *m* (*maroccana*), *c* (*cerasiformis*), *g*1 (*guanchica*) and *g*2 (*guanchica*). Haplotypes of lineages E1-*l*1, E1-l2, E1-*l*3, M-*m*, M-*c*, M-*g*1 and M-*g*2 are unpublished data.

Haplotype	XapI	ECORI	6C	16A	30B	45C	5A	26D	27C	1B	31A	15B	2A	48B	36A	24A	52B	57B-1	57B-2	54B-1	54B-2	39C	38B	46D	23D	9A	51C-1	51C-2	22C	59C	25A	28C	44A	53D	33D	21A	19A	11C-1	11C-2	42D	47D	41B	17B	49D	56D	29A	50C	58C	10D-1	10D-2	61E	4B	32B	12B	60D	3C	34A	35B	13C	55D	7D-1	7D-2	7D-3	14A	40A	20D	18B	43B	37A	62	8E	Countries
A.1	0	1	8	9	10	9	12	21	8	11	10	17	11	21	15	11	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	11	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.2	0	1	8	9	10	9	12	22	8	11	10	17	11	21	15	11	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.3	0	1	8	9	10	9	12	21	8	11	10	17	9	21	15	11	1	1	13	1	9	12	10	12	10	20	12	1	10	7	13	13	9	9	9	9	33	1	11	12	12	11	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.4	0	1	8	9	10	9	12	21	8	11	10	17	11	21	15	11	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.5	0	1	8	9	10	9	12	22	8	11	10	17	11	21	15	12	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.6	0	1	8	9	10	9	12	21	8	11	10	17	10	21	15	11	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	11	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.7	0	1	8	9	10	9	12	21	8	11	10	17	10	21	15	11	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	11	11	10	17	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.8	0	1	8	9	10	9	12	21	8	11	10	18	10	21	15	11	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	11	11	10	17	11	21	21	1	0	1	9	9	7	5	11	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	South Africa
A.9	0	1	8	9	10	9	12	21	8	11	10	17	10	21	15	12	1	1	13	1	9	12	10	12	10	20	17	1	10	7	13	13	9	9	9	9	33	1	12	12	11	12	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	10	0	1	0	0	9	0	1	0	9	8	5	1	Zimbabwe
A.10	0	1	8	9	10	9	12	21	8	11	10	17	10	21	15	12	1	1	13	1	9	11	10	12	10	20	17	1	10	7	13	13	9	9	9	9	34	1	12	12	12	12	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	10	0	1	0	0	9	0	1	0	9	8	5	1	Zimbabwe
A.11	0	1	8	9	10	9	12	21	8	10	10	17	10	21	15	11	1	1	13	1	10	12	10	12	10	20	15	1	10	7	13	13	9	9	9	9	33	1	11	12	11	11	11	10	16	11	22	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	10	0	1	0	9	8	5	1	Mozambique
A.12	1	1	8	9	10	9	12	21	8	11	11	18	11	21	15	12	1	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	10	9	9	34	1	11	12	12	12	11	10	16	11	21	21	1	0	1	9	9	7	5	11	1	0	11	0	0	0	0	9	0	1	0	9	8	5	1	Malawai
A.13	1	1	8	9	10	9	12	21	8	11	10	19	10	20	15	11	0	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	11	11	10	16	11	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Tanzania
A.14	0	1	8	9	10	9	12	21	8	11	10	16	10	21	15	13	1	1	13	1	9	12	10	12	10	21	16	1	10	7	13	13	9	9	9	9	33	1	11	13	12	12	11	10	16	12	21	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Mascareignes
A.15	1	1	8	9	10	9	12	21	9	12	10	18	10	21	15	11	1	1	13	1	9	13	11	12	10	20	16	1	10	7	13	13	9	9	9	9	34	1	11	12	12	12	11	10	16	11	22	21	1	0	1	9	9	7	5	13	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.16	1	1	8	9	10	9	12	21	9	11	10	19	10	21	15	11	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	34	1	11	12	12	12	11	10	16	11	22	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.17	1	1	8	9	10	9	12	21	9	12	10	19	10	20	15	11	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	34	1	11	12	12	12	11	10	16	11	22	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.18	1	1	8	9	10	9	12	21	9	11	10	19	10	20	15	11	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	10	16	11	22	20	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.19	1	1	8	9	10	9	12	21	8	13	10	18	10	21	15	11	1	1	13	1	9	12	10	13	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	13	11	11	10	16	11	21	22	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.20	1	1	8	9	10	9	12	21	9	11	10	19	10	19	15	10	1	1	13	1	9	12	11	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	11	12	12	12	11	10	16	11	22	21	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
A.21	1	1	8	9	10	9	13	22	8	11	10	18	9	21	15	11	0	1	13	1	9	12	10	12	10	20	16	1	10	7	13	13	9	9	9	9	33	1	12	12	12	11	11	10	16	11	21	20	1	0	1	9	9	7	5	12	1	0	11	0	1	0	0	9	0	1	0	9	8	5	1	Kenya
C1.1	1	1	8	10	11	9	12	20	8	13	10	17	9	22	15	14	1	1	13	1	9	12	10	12	10	20	13	1	12	7	14	13	8	9	9	9	32	1	11	12	14	10	10	10	16	10	22	21	1	0	1	9	9	7	7	11	0	1	10	0	1	1	0	8	0	0	1	10	8	6	0	China
C1.2	1	1	8	10	11	9	12	21	8	12	9	18	9	22	15	14	1	1	13	1	9	12	11	12	10	20	12	1	12	7	13	13	8	9	10	9	33	1	11	12	13	10	10	10	16	10	21	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Afghanistan
C1.3	1	1	8	10	13	9	13	19	8	12	9	17	9	22	14	14	1	1	13	1	9	12	11	12	10	20	12	1	12	7	13	13	8	9	9	9	33	1	11	12	13	10	10	11	17	10	22	24	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Afghanistan
C1.4	1	1	8	10	11	9	13	19	8	12	9	16	9	22	14	14	0	1	13	1	9	12	11	12	10	20	12	1	12	7	13	13	8	9	9	9	33	1	11	12	13	10	10	10	16	10	21	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	9	8	6	0	Iran
C1.5	1	1	8	10	13	9	13	19	8	12	9	17	9	22	14	14	1	1	13	1	9	12	11	12	10	20	12	1	12	7	13	13	8	9	9	9	33	1	11	12	13	10	10	11	16	10	21	24	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Iran & Oman
C1.6	1	1	8	10	11	9	13	20	8	12	10	15	9	22	15	14	1	1	13	1	9	12	10	12	10	21	12	1	12	7	14	13	8	9	9	9	33	1	11	13	12	10	10	10	16	10	21	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Oman
C2.1	0	1	8	10	11	9	13	21	8	12	10	18	9	22	14	13	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	10	9	31	1	11	12	13	10	10	10	16	12	22	22	1	0	1	9	10	7	5	11	1	1	10	0	1	1	0	8	1	0	0	10	8	6	0	Yemen
C2.2	0	1	8	10	11	9	13	21	8	12	10	18	9	22	14	13	0	1	13	1	9	12	11	11	10	21	13	1	13	7	13	13	8	9	11	9	31	1	11	12	13	10	10	10	15	12	22	22	1	0	1	9	10	7	5	11	1	1	10	0	1	1	0	8	1	0	0	10	8	6	0	Yemen
C2.3	0	1	8	10	11	9	13	21	8	12	10	19	9	22	14	13	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	10	9	32	1	11	12	13	10	10	10	16	12	22	22	1	0	1	9	10	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Saudi Arabia
C2.4	1	1	8	10	11	9	13	22	9	13	10	18	10	22	15	14	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	9	9	31	1	11	12	13	10	10	10	16	12	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Ethiopia
C2.5	1	1	8	10	11	9	13	22	8	12	10	18	9	22	15	14	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	10	9	31	1	11	12	13	10	10	10	16	12	23	21	1	0	1	9	10	7	5	11	1	1	10	0	1	1	1	8	1	0	0	10	8	6	0	Somalia
C2.6	1	1	8	10	11	9	13	22	8	12	10	17	9	22	15	14	1	1	13	1	10	12	11	10	10	21	12	1	12	7	13	13	8	9	10	9	31	1	11	12	13	10	10	10	16	12	23	21	1	0	1	9	10	7	5	11	1	1	10	0	1	1	1	8	1	0	0	10	8	6	0	Somalia
C2.7	1	1	8	10	11	9	13	21	8	12	10	18	10	22	15	14	1	1	13	1	9	12	11	11	10	21	12	1	12	7	13	13	8	9	11	9	31	1	11	12	13	10	10	10	17	12	22	21	1	0	1	9	10	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Erythrea
C2.8	1	1	8	10	11	9	13	21	8	12	10	18	9	22	15	14	1	1	13	1	9	12	11	11	10	21	12	1	12	7	13	13	8	9	10	9	31	1	11	12	13	11	10	10	17	12	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Erythrea
C2.9	0	1	8	10	12	9	13	20	8	12	10	18	9	22	15	14	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	9	9	31	1	11	12	13	10	10	10	16	11	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Ethiopia
C2.10	1	1	8	10	12	9	13	21	8	12	10	18	9	22	15	14	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	8	9	33	1	10	12	13	10	10	10	16	11	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Ethiopia
C2.11	1	1	8	10	12	8	13	21	8	11	10	17	9	22	15	14	1	1	13	1	9	12	11	10	10	21	12	1	12	7	13	13	8	9	8	9	31	1	10	12	13	10	10	10	16	11	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Ethiopia
C2.12	0	1	8	10	11	9	13	21	8	11	10	17	9	22	15	16	1	1	13	1	9	12	11	11	10	21	12	1	12	7	13	13	8	9	10	9	32	1	11	12	13	10	10	10	17	11	22	21	1	0	1	9	9	7	5	11	1	1	11	0	1	1	0	8	0	0	0	10	8	6	0	Kenya (NE)
C2.13	1	1	8	10	11	9	14	21	8	12	10	18	9	22	15	14	1	1	13	1	9	12	11	11	10	21	11	1	12	7	14	13	8	9	9	9	31	1	11	12	13	10	10	10	16	11	22	21	1	0	1	9	9	7	5	11	1	1	10	0	1	1	0	8	0	0	0	10	8	6	0	Ethiopia

Table S2. continued

Haplotype	XapI	ECORI	6C	16A	30B	45C	5A	26D	27C	1B	31A	15B	2A	48B	36A	24A	52B	57B-1	57B-2	54B-1	54B-2	39C	38B	46D	23D	9A	51C-1	51C-2	22C	59C	25A	28C	44A	53D	33D	21A	19A	11C-1	11C-2	42D	47D	41B	17B	49D	56D	29A	50C	58C	10D-1	10D-2	61E	4B	32B	12B	60D	3C	34A	35B	13C	55D	7D-1	7D-2	7D-3	14A	40A	20D	18B	43B	37A	62	8E	Countries
E1-*l* 1.1	1	1	8	10	11	10	12	20	10	12	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar), Niger (Aïr)
E1-*l* 1.2	1	1	8	10	11	10	12	20	10	12	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	12	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.3	1	1	8	10	11	10	12	20	10	13	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.4	1	1	8	10	11	10	12	20	10	12	11	15	9	22	15	11	1	1	14	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.5	1	1	8	10	11	10	12	20	10	12	11	15	9	21	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar), Niger (Aïr)
E1-*l* 1.6	1	1	8	10	11	10	12	20	10	12	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	14	12	9	9	11	10	33	0	12	11	11	10	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.7	1	1	8	10	11	10	12	20	10	12	11	16	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	10	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.8	1	1	8	10	11	11	12	20	10	12	11	16	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	12	10	33	0	12	11	11	10	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.9	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar), Niger (Aïr)
E1-*l* 1.10	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.11	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	17	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.12	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	20	17	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.13	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	20	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.14	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	32	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.15	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	16	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.16	1	1	8	10	11	10	12	20	10	10	11	15	9	22	15	11	1	1	16	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Algeria (Hoggar)
E1-*l* 1.17	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	34	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Niger (Aïr)
E1-*l* 1.18	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	12	11	11	10	21	18	1	13	7	13	12	9	9	11	10	34	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Niger (Aïr)
E1-*l* 1.19	1	1	8	10	11	10	12	20	10	11	11	15	10	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	12	9	9	11	10	34	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Niger (Aïr)
E1-*l* 1.20	1	1	8	10	11	10	12	20	10	11	11	15	9	22	15	11	1	1	15	1	10	13	11	11	10	21	18	1	13	7	13	13	9	9	11	10	34	0	12	11	11	11	10	10	16	11	21	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Niger (Aïr)
E1-*l* 2.1	1	1	8	10	11	10	12	20	10	12	10	15	11	23	15	11	1	1	15	1	8	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	35	0	12	12	12	12	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Sudan (Jebel Marra)
E1-*l* 2.2	1	1	8	10	11	10	12	20	10	12	10	15	11	23	15	11	0	1	15	1	8	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	35	0	12	12	12	12	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Sudan (Jebel Marra)
E1-*l* 3.1	1	1	8	10	11	10	12	20	10	13	10	18	12	21	15	11	1	1	14	1	9	12	10	11	10	22	18	1	13	7	13	12	9	9	12	10	34	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Egypt (Gebel Elba)
E1-*l* 3.2	1	1	8	10	11	10	12	20	10	12	10	17	12	21	15	11	1	1	14	1	9	13	10	11	10	22	18	1	13	7	13	12	9	9	11	10	36	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Egypt (Gebel Elba)
E1-*l* 3.3	1	1	8	10	11	10	12	20	10	12	10	17	12	21	15	11	1	1	14	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Sudan (Erkowit)
E1-*l* 3.4	1	1	8	10	11	10	12	20	10	12	10	17	12	21	15	11	1	1	14	1	9	13	10	11	10	22	18	1	13	7	13	12	9	9	11	10	35	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Sudan (Erkowit)
E1-*l* 3.5	1	1	8	10	11	10	12	20	10	12	10	17	12	21	15	11	1	1	14	1	9	13	10	11	10	21	18	1	13	7	13	13	9	9	11	10	33	0	12	12	11	11	10	11	16	12	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Sudan (Karora)
M-*m* .1	0	1	8	10	11	10	12	20	10	11	10	16	10	21	15	13	1	1	13	1	9	13	11	11	10	21	13	1	12	7	14	12	9	9	10	10	36	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*m* .2	0	1	8	10	11	10	12	20	10	11	10	17	10	21	15	13	1	1	13	1	9	13	11	11	10	21	13	1	12	7	13	12	9	9	10	10	35	1	12	13	10	11	10	9	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*m* .3	0	1	8	10	11	10	12	20	10	11	10	16	10	21	15	13	1	1	13	1	9	13	11	11	10	21	13	1	12	7	14	12	9	9	10	10	35	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*m* .4	0	1	8	10	11	10	12	20	10	10	10	16	9	19	15	13	1	1	13	1	9	13	12	11	10	21	13	1	12	7	13	12	9	9	10	10	35	1	12	13	10	11	10	10	16	12	22	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*m* .5	0	1	8	10	11	10	12	19	10	11	10	15	10	20	15	13	1	1	13	1	9	13	11	11	10	21	13	0	12	7	13	11	9	9	10	10	35	1	12	13	10	11	10	10	17	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*m* .6	0	1	8	10	11	10	12	20	10	11	10	15	10	20	15	13	1	1	13	1	9	13	11	11	10	21	13	1	12	7	13	12	9	9	10	10	35	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Morocco (High Atlas)
M-*c* .1	0	1	8	10	11	10	12	19	11	10	10	15	10	20	15	13	1	1	13	1	9	12	10	11	10	22	14	1	12	7	13	12	9	9	10	10	36	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .2	0	1	8	10	11	10	12	19	10	10	10	15	10	20	15	13	1	1	13	1	9	12	10	11	10	22	14	1	12	7	13	12	9	9	10	10	33	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .3	0	1	8	10	11	10	12	19	11	11	10	15	10	21	15	13	1	1	13	1	9	12	10	11	10	22	14	1	12	7	13	12	9	9	9	10	33	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .4	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	12	11	10	22	14	1	13	7	13	12	9	9	10	10	33	1	12	13	10	12	10	10	16	12	22	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .5	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	12	11	10	22	14	1	13	7	13	12	9	9	10	10	34	1	12	13	10	12	10	10	16	12	22	20	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .6	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	12	10	11	10	22	14	1	12	7	13	12	10	9	10	10	33	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .7	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .8	0	1	8	10	12	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .9	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .10	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	33	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira
M-*c* .11	0	1	8	10	11	10	12	19	11	10	10	16	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Madeira

Table S2. continued

Haplotype	XapI	ECORI	6C	16A	30B	45C	5A	26D	27C	1B	31A	15B	2A	48B	36A	24A	52B	57B-1	57B-2	54B-1	54B-2	39C	38B	46D	23D	9A	51C-1	51C-2	22C	59C	25A	28C	44A	53D	33D	21A	19A	11C-1	11C-2	42D	47D	41B	17B	49D	56D	29A	50C	58C	10D-1	10D-2	61E	4B	32B	12B	60D	3C	34A	35B	13C	55D	7D-1	7D-2	7D-3	14A	40A	20D	18B	43B	37A	62	8E	Countries
M-*g* 1.1	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	8	10	10	35	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.2	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	8	10	10	34	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.3	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	10	11	10	21	14	1	12	7	13	12	9	8	10	10	34	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.4	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.5	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.6	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	9	10	10	33	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.7	0	1	8	10	11	10	12	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	15	1	12	7	13	12	9	9	10	10	34	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.8	0	1	8	10	11	10	12	21	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	15	1	12	7	13	12	9	9	10	10	34	1	12	13	10	12	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.9	0	1	8	10	11	10	13	20	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.10	0	1	8	10	11	10	13	20	11	10	11	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.11	0	1	8	10	11	10	13	20	11	10	11	15	10	20	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.12	0	1	8	10	11	10	13	20	11	10	11	15	10	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	13	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.13	0	1	8	10	11	10	13	20	11	10	11	15	9	21	15	13	1	1	13	1	9	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	13	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.14	0	1	8	10	11	10	13	20	11	10	11	15	10	21	15	13	1	1	13	1	10	13	11	11	10	22	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 1.15	0	1	8	10	11	10	12	19	11	10	10	15	10	21	15	13	1	1	13	1	9	13	11	11	10	21	14	1	12	7	13	12	9	9	10	10	34	1	12	13	10	13	10	10	16	12	23	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (West)
M-*g* 2.1	0	1	8	9	11	10	12	19	11	11	10	15	9	21	15	13	1	1	13	1	9	14	11	11	10	21	13	1	12	7	14	11	9	9	10	10	34	1	12	13	10	11	10	10	16	12	22	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	canray Islands (East)
E1-*e* .1	1	0	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Mediterranean Basin
E1-*e* .2	0	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	34	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Mediterranean Basin
E1-*e* .3	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	Mediterranean Basin
E1-*e* .4	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .5	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	34	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .6	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	22	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .7	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	11	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .8	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	10	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	17	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .9	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	14	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	17	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .10	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	12	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .11	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	16	1	9	12	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .12	1	0	8	10	11	10	12	20	10	13	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .13	0	1	8	10	11	10	12	20	10	12	10	15	11	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .14	0	1	8	10	11	10	12	20	10	12	10	15	11	21	15	11	1	1	14	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .15	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	17	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .16	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	20	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .17	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	19	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	20	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .18	1	1	8	10	11	10	12	20	10	12	10	15	11	21	15	11	1	1	15	1	9	13	10	11	10	21	19	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .19	1	1	8	10	11	10	12	20	10	12	10	15	11	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .20	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	32	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .21	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	16	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .22	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	12	10	34	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .23	1	1	8	10	11	10	12	20	10	12	10	16	10	21	15	11	1	1	15	1	9	13	10	11	10	21	17	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .24	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	9	13	10	11	10	21	14	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .25	1	1	8	10	11	10	12	20	10	12	9	15	10	21	15	11	1	1	15	1	10	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	17	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .26	1	1	8	10	11	10	12	20	10	12	10	15	10	21	15	11	1	1	15	1	10	13	10	11	10	21	19	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	17	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin
E1-*e* .27	0	1	8	10	11	10	12	20	10	12	10	16	10	21	15	11	1	1	15	1	9	13	10	11	10	21	18	1	13	7	13	12	9	9	11	10	33	0	12	12	11	11	10	10	16	11	21	21	1	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	East Mediterranean Basin

Table S2. End

Haplotype	XapI	ECORI	6C	16A	30B	45C	5A	26D	27C	1B	31A	15B	2A	48B	36A	24A	52B	57B-1	57B-2	54B-1	54B-2	39C	38B	46D	23D	9A	51C-1	51C-2	22C	59C	25A	28C	44A	53D	33D	21A	19A	11C-1	11C-2	42D	47D	41B	17B	49D	56D	29A	50C	58C	10D-1	10D-2	61E	4B	32B	12B	60D	3C	34A	35B	13C	55D	7D-1	7D-2	7D-3	14A	40A	20D	18B	43B	37A	62	8E	Countries
E2.1	1	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.2	0	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	33	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.3	1	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	1	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.4	0	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.5	1	1	8	10	11	10	12	20	10	11	9	16	10	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.6	1	1	8	10	11	10	12	20	10	11	9	16	10	21	16	11	1	0	13	0	9	13	11	9	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.7	1	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	12	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.8	1	1	9	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	22	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.9	1	1	9	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	11	10	10	15	11	22	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.10	0	1	8	10	11	10	12	20	10	11	9	16	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	14	7	13	12	9	9	11	10	33	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.11	1	1	8	10	11	10	12	20	10	11	9	17	11	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.12	1	1	8	10	11	10	12	20	10	11	9	16	11	20	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	1	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.13	0	1	8	10	11	10	12	20	10	11	9	16	12	21	16	11	1	0	13	0	9	13	11	10	11	20	11	1	13	7	13	12	9	9	11	10	32	1	14	12	12	10	10	10	15	11	21	21	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E2.14	1	1	8	10	11	10	12	20	10	11	9	16	11	22	16	10	1	0	13	0	9	13	11	10	11	20	11	1	13	7	14	12	9	9	11	10	32	1	14	12	12	10	10	10	15	12	21	20	0	0	1	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.3	0	1	8	10	11	10	12	20	11	10	10	16	11	22	15	12	0	1	13	1	9	13	11	11	10	21	18	1	12	6	11	11	9	10	11	10	33	1	11	12	13	9	11	11	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.1	0	1	8	10	11	10	12	20	11	10	10	16	11	22	15	12	0	1	13	1	9	13	11	11	10	21	18	1	12	6	11	11	9	10	11	10	34	1	11	12	13	9	11	11	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.2	0	1	8	10	11	10	12	20	11	9	10	16	11	22	15	12	0	1	13	1	9	13	11	11	10	21	18	1	12	6	11	11	9	10	11	10	34	1	11	12	13	9	11	11	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.6	0	1	8	10	11	10	12	20	11	9	10	16	10	22	15	12	0	1	13	1	9	13	11	11	10	21	18	1	12	6	11	11	9	10	11	10	34	1	11	12	13	9	11	11	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.5	0	1	8	10	11	10	12	20	11	10	10	16	12	22	15	12	0	1	13	1	9	13	11	12	10	21	18	1	12	6	11	11	9	10	11	11	33	1	11	12	13	9	11	10	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin
E3.4	0	1	8	10	11	10	12	20	11	10	10	16	12	22	15	12	0	1	13	1	9	13	11	12	10	21	18	1	12	6	11	11	9	10	11	10	33	1	11	12	13	9	11	11	15	11	21	21	1	0	0	10	9	8	5	12	1	1	10	1	1	0	0	9	0	0	0	9	9	6	1	West & Central Mediterranean Basin

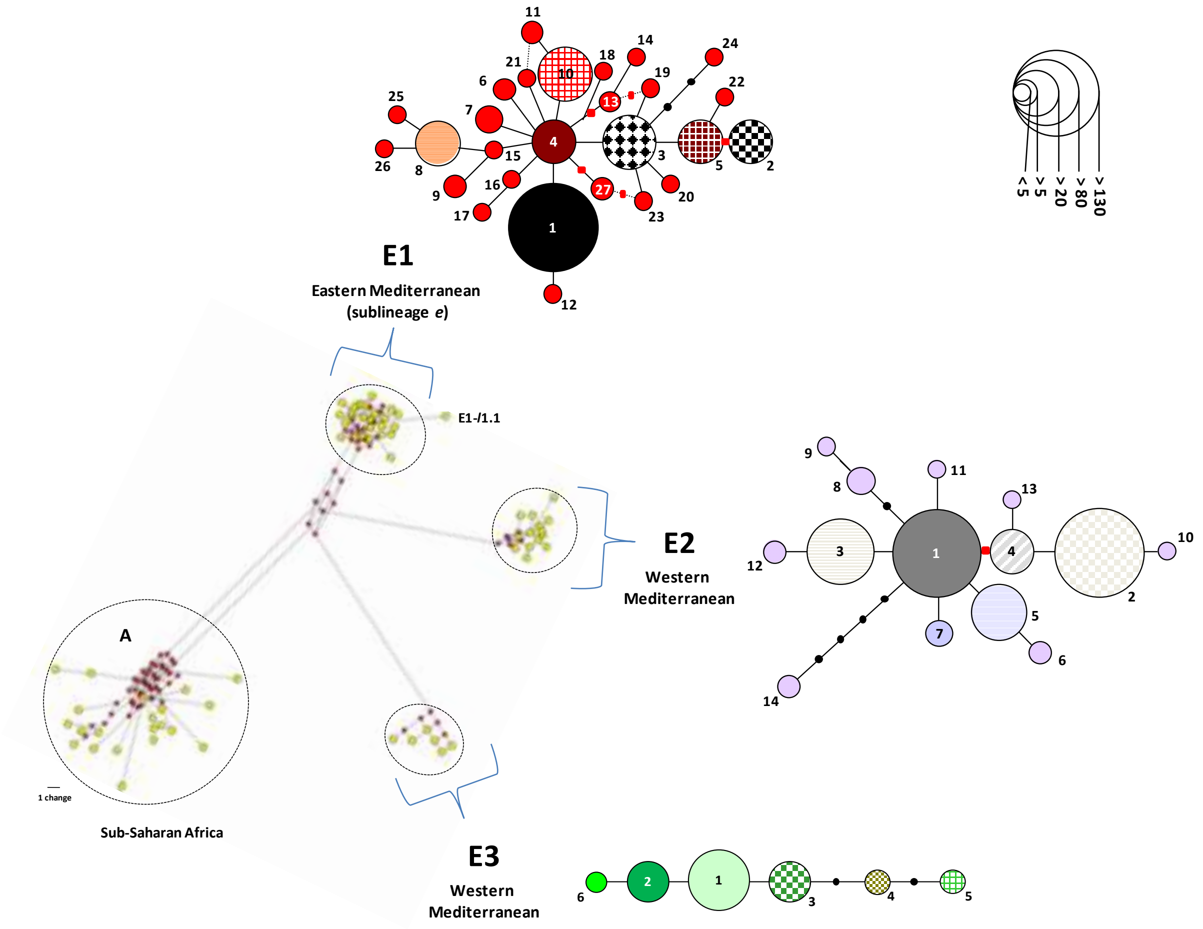

FIG. S1. Reduced median networks [12] of Mediterranean Olive plastid DNA haplotypes (data from 1,797 individuals of cultivated and wild accessions [31]). The bottom left network represents the relationships between 69 chlorotypes detected in the Mediterranean basin (48 haplotypes) and Sub-Saharan Africa (21 haplotypes, here used as an outgroup). All haplotypes detected in the Mediterranean basin were observed in Oleaster, except E1-*l*1.1 (formerly L1.1 [28,31]) that represents the major haplotype of the Laperrine's Olive (from Hoggar, Algeria). Each chlorotype is represented by a yellow circle while the putative intermediate nodes are indicated by small red circles. Four groups of chlorotypes were revealed: lineages E1, E2 and E3 in the Mediterranean area, and lineage A in Sub-Saharan Africa. Detailed relationships between chlorotypes within each Mediterranean lineage are also shown. Each chlorotype is numbered and represented by a symbol with a given color and/or motif. For each chlorotype, symbol diameter is proportional to the number of observations. The missing, intermediate nodes are indicated by small black points. The geographic distribution of chlorotypes is given in Fig. 1.

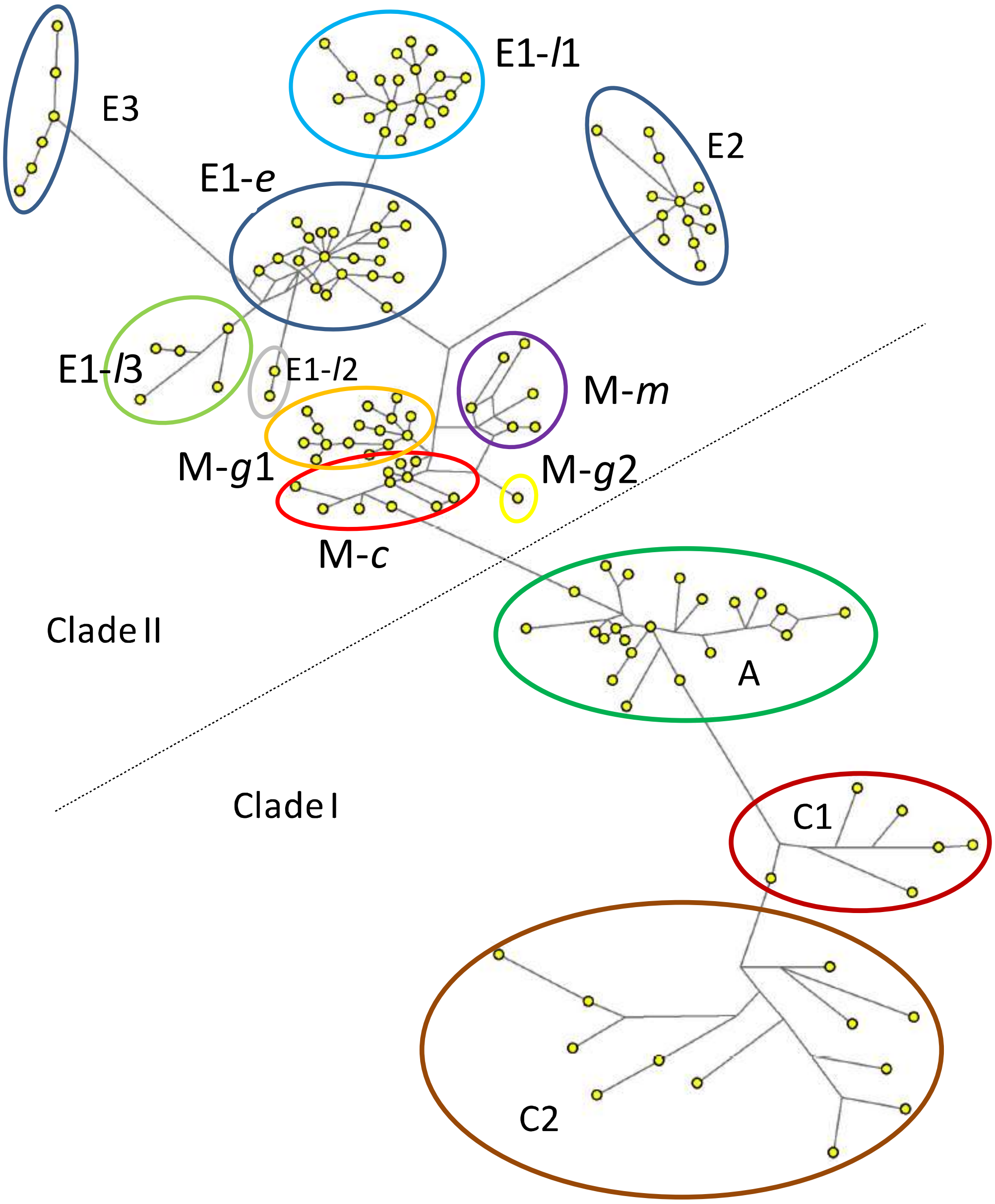

FIG. S2. Median joining network of olive chlorotypes reconstructed with NETWORK [12]. This analysis is based on data given in Table S2. This analysis revealed 13 clusters of haplotypes, hereafter named lineages and sublineages, and identified with a specific code following Besnard *et al.* [34]. Two main clades are distinguished as revealed by Besnard *et al.* [34]. Each plastid lineage/sublineage shows a delimited geographic distribution (see Box 1), except in the central and western Mediterranean regions where lineages E1 (sublineage *e*), E2 and E3 are generally mixed in Oleaster populations [30,31].

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