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Grapevine Diversity and Genetic Relationships in Northeast Portugal Old Vineyards

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Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1, **Table S1.** List of *Vitis vinifera* L. cultivars (52) and new genotypes (13) identified and corresponding accession codes; **Table S2.** List of 31 grape samples with local names and SSR and SNP identifications according to the legal cultivar name in Portugal; **Table S3.** List of the 65 grape genotypes detected at 6 nSSR and 3 cpSSR loci analysed; **Table S4.** List of the 65 non-redundant grape genotypes detected at 46 polymorphic SNP loci; **Table S5.** Genetic parameters, and allele sizes and frequencies over 6 microsatellite loci in the 65 non-redundant genotypes analysed in this study; **Table S6.** Structure results at K = 2 based on 226 SNP markers. Genotypes with membership coefficients (*q* - values) below the threshold of 0.7 for genetic group assignment were admixed; **Figure S1.** Delta K plots obtained from STRUCTURE HARVESTER to set the most likely number of genetic groups within the 65 non-redundant grape population identified in the present study, based on 226 SNP data.

Table S1. List of *Vitis vinifera* L. cultivars (52) and new genotypes (13) identified and corresponding samples.

Cultivar prime name	Samples[1]
Afus Ali	QC7.59
Alfrocheiro	J38Ed
Alvarelhão Ceitão	QSI19
Baga	Qs9
Barca	QC4.21, M66Ed
Black Monukka	QSI8, Vs17
Camarate Tinto	V1, V28, Qs21, QC4.51, QC5.37, QC7.43, QC8.33, QC9.41, QC10.10, J68Ed
Carrega Branco	Ag10, Ag13, Sd6, Sd7, Sd14, Sd21, Sd23, Sd31, Sd32, Sd33, Sd56
Carrega Tinto	R59Ed
Casculho	Sd2, Sd3, Sd4, Sd9, Sd13, Sd24, Sd30, Sd35, Sd43, Sd46, Sd49, Sd52, Sd53, Qs14, QC4.28, QC4.47, QC6.69, QC7.20, QC7.41, QC8.06, QC8.31, QC8.39, QC10.58
Castelão	V33, QC9.27
Chasselas	Vs20, QSI2
Cidadelhe	Qs4
Cornifesto	Sd20, QC8.07, J75Ed
Dodrelyabi	QSI5, QSI7, QSI11, QSI22
Donzelinho Roxo	Vs21, Vs22
Folha de Figueira	Ag6, V10
Gouveio	Ag2, Ag12, Sd47, Sd63
Grand Noir	Qs18
Grec Rouge	J17Ed
Hebén	QSI3, QSI10
Jeronimo	Vs23
Malandra	M61Ed, M89, M90, J61Ed, J37Ed
Malvasia Fina	QC4.33
Malvasia Preta	QC4.40, QC5.14, QC5.41, QC6.04, QC6.05, QC6.25, QC7.33, QC8.37, QC8.52, QC8.62, QC9.53
Marufo	Ag11, Vs12, Vs14, Vs15, Vs19, QSI16, Sd58, V20, V32, Qs13, QC4.13, QC6.12, QC8.01
Molar	Ag1
Montua	Vs2, Vs4
Mouratón	Ag7, Vs5, Vs7, Vs10, Sd15, Sd17, Sd18, Sd28, Sd36, Sd38, Sd39, Sd41, Sd42, Sd48, Sd54, Sd55, Qs10
Mourisco de Semente	QC5.36, QC5.38, QC5.42, QC6.37, QC6.38, QC7.34, QC8.35
Nevoeira	QC4.17, QC4.53, QC5.07, QC6.36, QC6.49, QC9.28
Palomino Fino	QSI1, QSI12, QSI13, QSI15, QSI24, QSI28
Parraleta	QC6.50
Perlette	Sd25, Sd27

Table S1. (cont.)

Cultivar prime name	Accession Code[1]
Roseira	Qs1, Qs2, Qs5, Qs8, Qs11, Qs20, QC6.45, QC6.28, QC6.56, QC8.09, QC8.14, QC8.40, QC8.41, QC8.53, QC8.54, QC9.56
Rufete	Qs19
Samarrinho	Vs9
Síria	Vs11, Vs18, QSI6, QSI18, QSI20, QSI23, QSI29, QSI33, QSI34, Sd5, Sd10, Sd19, Sd22, Sd29, Sd34, Sd37, Sd61
Tamarez	R93
Tempranillo	Vs24, Sd44, Sd45, V4, V6, V8, V9, V14, V15, V17, V39, QC5.11, QC6.67
Tinta Aguiar	V44, C22Ed
Tinta Barroca	Sd57, QC5.21
Tinta Carvalha	Vs3, Vs8, V34, V47, QC6.29, QC8.15, M5.3
Tinta Francisca	V12, V19, V29, V50, Qs15, QC4.50, QC10.56
Tinta Mesquita	C24Ed
Tinto Cão	Vs16, Sd50, QC9.01, QC10.68
Touriga Fêmea	QC4.38, QC4.45, QC4.55, QC5.19
Touriga Franca	Sd12, QC4.30, QC5.46, QC7.09, QC9.45, QC9.57, M5.1
Touriga Nacional	V7, V23, Qs6, QC4.64, QC9.13, QC9.42
Trincadeira	Vs13, Vs27, QSI4, QSI17, QSI21, QSI25, QSI26, QSI27, QSI30, QSI31, QSI35, Sd8, Sd11, Sd51, Sd62, V5, V13, V22, V27, V30, V38, V40, V46, QC8.50, QC9.08, J36Ed, J40Ed, J92
Trousseau Noir	Vs25, Vs26, QSI9, QSI14, QSI32, Sd1, Sd16, Sd59, Sd60, Qs7
Vinhão	Qs12, QC4.62, QC8.65
New genotypes	**Accession Code[1]**
NG001	Ag3, Ag5, Vs6
NG002	Ag8
NG003	Ag9
NG004	Ag14
NG005	Sd40
NG006	QC4.20
NG007	QC4.25, QC6.09, QC6.11, QC7.23
NG008	QC5.17, QC7.05, QC7.06, QC8.25
NG009	QC5.35, QC6.66, QC8.29, QC8.47
NG010	QC10.42
NG011	Qs17
NG012	C25Ed
NG013	J18Ed, J39Ed, J42Ed, J43Ed, J44Ed, J84Ed, J91

[1] Ag - Aguieiras; C - Quinta do Cruzeiro; J - Quinta do Junco; M - Quinta dos Muros; QC - Quinta das Carvalhas; Qs - Quinta do Seixo; QSI - Quinta de Santa Isabel; Sd - Sendim; V - Quinta dos Lagares; Vs - Vassal; R - Quinta da Roêda.

Table S2. List of 31 grape samples with local names and SSR and SNP identifications according to the legal cultivar name in Portugal.

Sample code [1]	**Local names**	**Recommended *VIVC* name** or **provisional name** (ICVV-SNP genotype)
Ag2	Verdelheira / Verdelho	Gouveio
Ag6	Loulela / Folgazona	Folha de Figueira
Ag7	Mourisco	Mouratón
Ag8	Lázaro / Raposeira	Lázaro (NG002; GEN_DNA_4343)
Ag14	Rosada	Rosada (NG004; GEN_DNA_4347)
Vs13	Tinta Amarela Antiga	Trincadeira
Vs27	Tinta Amarela Antiga	Trincadeira
Sd2	Tinta Grossa	Casculho
Sd5	Polita	Síria
Sd12	Tinta Garcia / João Garcia	Touriga Franca
Qs1	Roseira	Roseira
Qs2	Mourisco de Semente	Roseira
Qs4	Preto Martinho	Cidadelhe
Qs5	Mesquita	Roseira
Qs6	Touriga Fêmea	Touriga Nacional
Qs7	Bastardo	Trousseau Noir
Qs8	Tinta Carvalha	Roseira
Qs9	Tinta Bairrada	Baga
Qs10	Bastardinho	Mouratón
Qs11	Intorzeira	Roseira
Qs12	Sousão	Vinhão
Qs13	Barca	Marufo
Qs14	Casculho	Casculho
Qs15	Tinta Francisca	Tinta Francisca
Qs17	Mourisco	Mourisco Falso (NG011; GEN_DNA_4349)
Qs18	Grand Noir	Grand Noir
Qs19	Rufete	Rufete
Qs20	Cornifesto	Roseira
Qs21	Moreto	Camarate Tinto
J17Ed	Rabigato Francês	Grec Rouge
C24Ed	Tinta do Bragão	Tinta Mesquita
C25Ed	Mourisco de Semente	Mourisco de Semente Falso (NG012; GEN_DNA_4350)
M5.1	Tinta Malandra	Touriga Franca

[1] Ag - Aguieiras; C - Quinta do Cruzeiro; J - Quinta do Junco; M - Quinta dos Muros; Qs - Quinta do Seixo; Sd - Sendim; Vs - Vassal.

Table S3. List of the 65 grape genotypes detected at 6 nSSR and chlorotypes obtained from 3 cpSSR loci analysed.

Genotype	nSSR sizes (bp)[1]												Chloro-types[2]	References
	VVS2		VVMD5		VVMD7		VVMD27		VrZAG62		VrZAG79			
Afus Ali	132	134	222	228	239	249	181	181	189	191	241	249	A	[1]
Alfrocheiro	142	150	222	234	253	257	175	185	191	203	249	249	A	[2]
Alvarelhão Ceitão	142	150	222	236	239	243	185	191	191	191	249	255	A	[3]
Baga	142	**154**	228	236	239	239	175	185	191	207	245	249	A	[4]
Barca	142	150	222	228	239	239	179	185	191	191	243	255	D	[4]
Black Monukka	140	150	230	236	253	253	177	191	191	191	245	255	C	[1]
Camarate Tinto	144	150	232	234	243	253	177	185	191	203	245	249	A	[2]
Carrega Branco	136	150	232	234	243	257	177	185	191	197	243	245	D	this study
Carrega Tinto	142	150	230	234	239	253	175	191	191	203	249	255	A	[1,2]
Casculho	144	150	232	234	249	253	177	185	203	207	245	249	A	[5]
Castelão	142	144	232	234	243	257	175	177	191	191	245	249	A	[2]
Chasselas	132	142	224	232	239	247	181	185	197	207	249	257	D	[4]
Cidadelhe	142	142	228	230	243	253	177	191	195	203	245	255	D	[1]
Cornifesto	142	144	230	234	249	253	177	185	203	207	245	249	A	[2]
Dodrelyabi	132	134	222	232	247	**255**	175	181	207	207	249	249	B	[1]
Donzelinho Roxo	142	150	224	234	239	243	185	191	189	195	249	255	D	[5]
Folha de Figueira	142	156	232	236	239	239	175	181	189	189	249	249	A	[1]
Gouveio	150	156	222	234	239	243	181	185	189	191	249	249	A	[2,4]
Grand Noir	**138**	150	222	230	239	243	177	179	191	191	241	257	A	[1]
Grec Rouge	132	142	224	232	247	253	181	181	191	197	**237**	249	A	[1]
Hebén	142	144	230	236	239	243	177	191	191	191	245	255	A	[1]
Jeronimo	134	142	230	234	243	243	191	191	191	191	255	255	A	[1]
Malandra	142	150	222	236	239	253	175	177	191	203	249	259	D	[1]
Malvasia Fina	142	144	222	236	239	257	175	191	191	191	245	249	A	[2,4]
Malvasia Preta	136	150	222	232	249	253	177	185	203	207	245	249	A	[1]
Marufo	142	144	224	228	239	243	179	191	191	195	245	255	D	[2,4]
Molar	132	150	222	234	239	257	177	185	191	197	243	259	A	[1]
Montua	142	150	230	234	243	253	177	181	191	191	245	255	A	[2,3]
Mouratón	136	150	230	234	249	257	177	185	191	207	245	249	A	[1]
Mourisco de Semente	134	142	228	234	239	239	177	191	191	197	245	255	D	[1]
Nevoeira	150	156	228	232	239	257	175	185	189	197	245	245	A	this study
Palomino Fino	132	144	224	236	239	249	181	191	191	197	249	255	D	[2]

Table S3. (cont.)

Genotype	nSSR sizes (bp)[1]												Chloro-types[2]	References
	VVS2		VVMD5		VVMD7		VVMD27		VrZAG62		VrZAG79			
Parraleta	132	132	218	234	239	239	175	185	189	191	249	259	A	[2]
Perlette	132	144	230	232	247	253	175	177	191	207	245	**253**	A	[1]
Roseira	142	142	222	228	239	253	177	191	191	203	245	245	D	this study
Rufete	132	156	222	232	239	257	177	185	191	197	243	245	A	[2]
Samarrinho	132	150	228	228	239	257	175	185	189	197	243	249	D	[2]
Síria	136	150	218	230	239	249	177	177	189	207	245	245	A	[2]
Tamarez	144	150	222	232	239	243	175	177	191	197	245	249	D	[2]
Tempranillo	142	144	232	232	239	253	179	179	199	203	245	249	A	[2,4]
Tinta Aguiar	142	144	222	228	239	243	185	191	195	197	243	255	D	[1]
Tinta Barroca	142	150	224	232	239	243	177	179	191	195	243	245	D	[4,6]
Tinta Carvalha	144	150	228	232	249	263	177	185	197	207	245	249	D	[4]
Tinta Francisca	132	132	234	236	239	239	181	185	189	201	241	245	A	[4]
Tinta Mesquita	132	144	222	228	239	263	185	191	191	199	243	255	D	[1]
Tinto Cão	132	132	228	230	239	263	177	181	189	197	245	249	A	[4,6]
Touriga Fêmea	142	142	232	236	239	257	175	185	191	197	243	249	A	[1]
Touriga Franca	142	150	222	224	239	243	177	179	195	197	243	245	D	[2,4,6]
Touriga Nacional	142	152	222	232	239	239	177	185	191	197	243	243	A	[4]
Trincadeira	132	150	230	234	239	249	177	181	191	207	245	249	D	[2,4]
Trousseau Noir	142	150	234	234	239	257	171	185	191	191	243	245	A	[2,7]
Vinhão	132	134	218	222	239	263	185	185	191	199	243	249	A	[4]
NG001	136	150	230	234	241	243	177	185	189	191	245	249	D	this study
NG002	136	158	222	232	239	239	177	185	189	189	245	249	D	this study
NG003	144	152	224	234	239	239	185	185	191	191	243	255	D	this study
NG004	142	158	222	224	241	243	179	185	191	195	245	249	D	this study
NG005	132	150	232	234	239	239	177	185	189	191	245	249	D	this study
NG006	132	144	224	230	239	263	177	191	191	197	245	255	D	this study
NG007	144	144	228	232	243	253	185	191	199	203	249	255	D	this study
NG008	142	144	224	232	239	239	181	181	189	191	245	249	D	this study
NG009	132	142	224	230	239	243	177	191	191	195	245	255	D	this study
NG010	142	150	222	232	239	239	177	185	191	197	241	249	D	this study
NG011	132	144	224	236	243	249	181	191	195	**205**	249	255	D	this study
NG012	132	144	224	230	**237**	239	177	185	191	201	249	255	D	this study
NG013	132	140	226	228	239	243	171	175	191	195	**247**	249	A	this study

[1] Specific SSR alleles (those which occurred in no more than one genotype) are bold underlined.

[2] Designation according to Arroyo-García *et al.* [8].

Table S4. List of the 65 non-redundant grape genotypes detected at 46 polymorphic SNP loci. Chlorotypes were determined using the combination of SNP_NG_C_001, SNP_NG_C_003 and SNP_NG_D_003 loci (**CCG** correspond to chl **A**, **CTG** to chl **B**, **TTG** to chl **C** and **CCA** to **D**).

Genotype	SNP1003_336	SNP1015_67	SNP1027_69	SNP1035_226	SNP1079_58	SNP1127_70	SNP1157_64	SNP1215_138	SNP1229_219	SNP1323_155	SNP1349_174	SNP1399_81	SNP1411_565	SNP1445_218	SNP1453_40
Afus Ali	AA	GG	CC	CT	AG	GG	TT	TT	CC	CC	AG	AA	TT	AG	AG
Alfrocheiro	AC	GG	CT	CT	AG	GT	AT	TT	CG	AA	AG	AA	AT	AG	AG
Alvarelhão Ceitão	AC	AG	CT	TT	AG	GG	TT	CT	CG	AC	GG	AA	TT	AG	GG
Baga	CC	AG	TT	CT	GG	GT	AT	CT	CG	CC	GG	AG	TT	AG	AG
Barca	AC	GG	CC	CC	GG	GT	AT	TT	GG	CC	GG	AA	AT	AA	AG
Black Monukka	AC	AG	CT	CT	AG	GT	AT	TT	CG	AC	GG	AA	TT	AG	AG
Camarate Tinto	AC	AG	CT	TT	AG	GG	AT	CT	CG	AC	AA	AA	TT	AA	AG
Carrega Branco	CC	AG	CC	CC	AG	GT	TT	CT	CC	CC	GG	AA	TT	AG	AG
Carrega Tinto	CC	AG	TT	TT	AG	GT	AT	CT	CG	AC	AG	AA	TT	GG	AG
Casculho	AC	AG	CC	CT	AA	GG	TT	CT	CG	AC	AA	AA	AT	AG	GG
Castelão	CC	AG	CT	CC	AA	GT	TT	CT	CG	AC	AA	AA	TT	AA	GG
Chasselas	AA	GG	CT	CT	AG	TT	TT	CT	CC	AC	AG	AA	TT	AG	AA
Cidadelhe	AC	GG	CC	CC	AG	GT	TT	CC	GG	AC	GG	AA	TT	AA	AA
Cornifesto	CC	AG	CT	TT	AA	GT	TT	CT	CG	AC	AG	AA	TT	AG	AG
Dodrelyabi	AC	GG	CT	TT	AG	GG	TT	TT	CG	CC	AA	AA	TT	AG	AA
Donzelinho Roxo	--	AG	CC	CC	AG	GT	TT	CT	CG	AC	AA	AA	AT	AA	AG
Folha de Figueira	AC	GG	TT	CT	AG	GG	TT	CT	CC	CC	AG	AA	AT	AG	AA
Gouveio	CC	AG	CC	CT	GG	GT	TT	CT	CC	AC	AG	AA	AT	AA	AG
Grand Noir	CC	AG	CC	CC	GG	GT	AT	TT	CG	AC	GG	AA	AA	AG	AA
Grec Rouge	CC	AG	CT	CT	GG	TT	TT	TT	CG	AC	AA	AA	AT	AG	GG
Hebén	CC	AG	TT	CT	AG	GG	TT	CC	CC	CC	GG	AA	TT	GG	AG
Jeronimo	CC	GG	CT	CT	AG	GG	TT	CT	CC	CC	AG	AA	TT	GG	AA
Malandra	CC	GG	CT	TT	GG	GT	TT	CT	CG	AC	GG	AA	TT	AG	AG
Malvasia Fina	CC	GG	TT	CT	AG	GG	AT	CT	CC	AC	GG	AA	TT	AG	AG
Malvasia Preta	AC	AG	CT	CT	AA	GT	AT	CT	CG	AC	AA	AA	TT	GG	AG
Marufo	CC	AG	CT	CT	AG	GG	TT	CT	GG	CC	AG	AA	AT	AA	AG
Molar	AC	AG	CT	CT	GG	GT	AT	TT	CG	AA	AG	AA	AT	AG	AG
Montua	AC	AG	CT	CT	AG	GG	TT	CC	CC	CC	AG	AA	TT	GG	AA
Mouratón	CC	AG	CC	CT	AG	GT	AT	CT	CG	AC	AG	AA	TT	AG	AG
Mourisco de Semente	AC	AG	CT	TT	GG	GT	AT	CC	CG	AC	GG	AA	AT	AG	AG
Nevoeira	AC	GG	CT	CT	AG	GT	TT	CC	CG	CC	AA	AA	TT	AA	AA
Palomino Fino	AC	GG	TT	TT	AG	GG	TT	CT	CC	CC	AG	AA	AT	GG	AG
Parraleta	AC	GG	CT	TT	GG	GG	TT	CT	CG	AA	AG	AA	AT	AA	AA
Perlette	AA	GG	CC	CC	AG	GG	AT	CC	CC	AC	AG	AA	AT	GG	AG

Table S4. (cont.)

Genotype	SNP1003_336	SNP1015_67	SNP1027_69	SNP1035_226	SNP1079_58	SNP1127_70	SNP1157_64	SNP1215_138	SNP1229_219	SNP1323_155	SNP1349_174	SNP1399_81	SNP1411_565	SNP1445_218	SNP1453_40
Roseira	CC	AG	CT	CT	GG	GG	TT	CT	GG	CC	GG	AA	TT	AG	AG
Rufete	AC	AG	CC	TT	AG	TT	TT	CT	CG	AA	AG	AA	TT	AG	AA
Samarrinho	AC	GG	CT	CT	AG	GT	AT	CT	CC	AC	AG	AG	TT	AG	AA
Síria	CC	AG	CC	TT	AG	GG	TT	CT	CC	CC	AG	AA	TT	AA	AG
Tamarez	CC	AG	TT	TT	AA	GG	TT	CT	CC	AA	AG	AA	TT	AG	AG
Tempranillo	CC	GG	CC	CT	AG	GG	TT	CC	CC	AC	AA	AA	AT	GG	GG
Tinta Aguiar	CC	GG	CT	CC	GG	GT	TT	TT	GG	CC	GG	AA	AA	AA	AG
Tinta Barroca	CC	AG	CT	CC	AG	GT	TT	TT	GG	CC	AG	AA	AT	AA	AG
Tinta Carvalha	CC	AG	CC	CT	AA	GT	TT	CT	CG	CC	AA	AA	TT	GG	AG
Tinta Francisca	CC	GG	CC	TT	AA	GT	AT	CT	CG	AC	GG	AA	AT	GG	AA
Tinta Mesquita	CC	AG	CT	TT	GG	GG	TT	CC	GG	AC	AG	AA	AT	AG	AA
Tinto Cão	AC	AG	CT	TT	AG	GG	TT	CC	CG	AC	AG	AG	AT	AG	AA
Touriga Fêmea	CC	GG	CT	CC	GG	GT	TT	TT	CG	CC	AG	AA	TT	AG	AG
Touriga Franca	AC	AG	CC	CC	GG	GT	TT	CT	GG	CC	AG	AA	AT	AA	AA
Touriga Nacional	AC	GG	CC	CT	GG	TT	AT	TT	CG	CC	AG	AA	AT	AG	AA
Trincadeira	CC	AG	CT	TT	AA	GG	TT	CC	CG	AC	AG	AA	TT	AG	AG
Trousseau Noir	AC	GG	CC	CT	GG	GT	AT	CT	CC	CC	AG	AG	TT	AG	AA
Vinhão	CC	GG	CT	CT	GG	GT	AT	CT	GG	AA	AG	AA	TT	AG	AG
NG001	AC	AA	CC	CT	AG	GT	TT	CT	CC	CC	AG	AA	TT	GG	GG
NG002	CC	AG	CC	CC	AG	GT	TT	CT	CC	AC	GG	AA	TT	AA	GG
NG003	CC	AG	CT	CT	GG	GT	TT	CT	CG	CC	AA	AG	TT	AG	AG
NG004	CC	AG	CT	CC	AG	GT	TT	CT	CG	CC	AG	AA	AT	AA	AG
NG005	AC	AA	CC	TT	AG	GT	TT	CT	CC	CC	AG	AA	TT	AG	AG
NG006	CC	AA	CT	TT	AG	GG	TT	CT	CG	CC	AG	AA	AT	AA	AA
NG007	CC	GG	CT	TT	GG	GG	AT	CT	GG	AC	AG	AA	AT	AA	AG
NG008	AC	AG	TT	CC	AA	GG	TT	TT	CG	CC	AA	AA	AT	AA	AG
NG009	CC	GG	CC	TT	AA	GG	TT	CT	GG	AC	AG	AA	AT	AA	AG
NG010	--	AG	--	CT	GG	--	TT	CT	GG	CC	--	AA	--	--	AG
NG011	CC	AA	CT	TT	AG	GG	TT	CT	CG	CC	AA	AA	AT	AG	AG
NG012	CC	AG	CT	CT	GG	GG	AT	CT	GG	AC	GG	AA	AT	AG	AG
NG013	AC	GG	CT	CC	AG	TT	TT	TT	CG	AC	AA	AA	AT	GG	AA

Table S4. (cont.)

Genotype	SNP1513_153	SNP191_100	SNP197_82	SNP259_199	SNP269_308	SNP325_65	SNP425_205	SNP447_244	SNP555_132	SNP579_187	SNP581_114	SNP593_149	SNP613_315	SNP697_296	SNP819_210
Afus Ali	TT	CC	AC	AA	AG	AT	AA	CT	AA	TT	AA	TT	CC	AA	AT
Alfrocheiro	TT	CC	AC	AA	AG	AA	AA	CC	AC	TT	GG	CT	CC	AA	AT
Alvarelhão Ceitão	CT	CC	AC	AT	GG	AT	AA	CT	AC	TT	GG	CT	TT	AG	AT
Baga	CT	CT	AC	AT	AG	AA	AA	CC	AC	CT	GG	TT	CC	AG	TT
Barca	CT	CT	CC	TT	GG	AA	AA	CT	AA	CT	GG	CT	CC	--	AT
Black Monukka	TT	CC	AC	AT	AA	AA	AA	CT	AC	TT	AG	TT	CT	AA	TT
Camarate Tinto	TT	CC	CC	AA	AG	AA	AA	CC	AC	CT	GG	TT	CC	AG	AT
Carrega Branco	CT	CC	CC	TT	GG	AA	AA	CT	AA	CT	AG	TT	TT	AG	AT
Carrega Tinto	TT	CC	CC	AT	GG	AT	AA	CC	AC	CT	GG	CT	CC	AA	AA
Casculho	TT	CC	CC	AT	GG	AA	AA	CC	AC	TT	AG	CT	CT	AG	AT
Castelão	TT	CC	AC	AT	GG	AA	AA	CC	AA	CT	GG	CT	CT	AG	AA
Chasselas	CC	CT	CC	AT	AA	AT	AA	CC	AC	TT	AG	CC	CT	AA	AT
Cidadelhe	TT	CC	CC	AT	AA	AA	AA	CC	AA	CT	GG	CC	CT	GG	AA
Cornifesto	TT	CC	CC	AT	AG	AA	AA	CC	AA	CT	AG	CT	CC	AG	AA
Dodrelyabi	TT	CC	CC	TT	AG	TT	AA	CT	AC	TT	AG	CT	CC	AA	TT
Donzelinho Roxo	TT	CC	CC	AT	AA	AA	AA	CT	AA	CC	GG	CT	CT	AG	AA
Folha de Figueira	CC	CC	AC	AA	GG	AT	AA	CT	AC	CT	AG	CT	CC	AA	AT
Gouveio	CT	CC	AC	AA	AG	AA	AA	CT	AA	CT	GG	TT	CC	AA	AT
Grand Noir	CC	CC	AC	TT	AG	AT	AA	CT	AA	TT	AG	TT	CT	AA	AA
Grec Rouge	CT	CC	CC	AT	AG	AT	AC	CT	AC	CT	AG	CC	CT	AA	AT
Hebén	TT	CC	CC	TT	GG	AT	AA	CC	AA	CT	GG	CT	CT	AG	AT
Jeronimo	TT	CC	CC	AT	AG	AT	AA	CT	AA	TT	AG	TT	CT	AG	TT
Malandra	CT	CC	AA	AT	AG	TT	AA	CC	AC	TT	AG	TT	CC	AA	TT
Malvasia Fina	TT	CC	CC	AT	AG	AA	AA	CC	AC	TT	GG	TT	CT	AA	TT
Malvasia Preta	TT	CC	CC	AT	AG	AA	AA	CC	AA	CT	GG	TT	CC	AG	AA
Marufo	CT	CC	CC	TT	AG	AA	AA	CT	AA	CT	GG	CT	CT	GG	AA
Molar	TT	CT	AA	AT	AG	AA	AA	TT	AA	TT	GG	CT	CC	AA	AT
Montua	TT	CC	CC	TT	GG	AA	AA	CC	AA	TT	AG	TT	CT	AG	AA
Mouratón	TT	CC	CC	AT	AG	AA	AA	CC	AC	CT	AG	CT	CT	AG	AA
Mourisco de Semente	TT	CC	CC	AT	AG	AA	AA	CC	AC	CT	GG	CC	CC	AG	AT
Nevoeira	CC	CC	AA	AT	AG	AT	AC	CT	AC	TT	AA	TT	CC	AA	TT
Palomino Fino	CT	CC	CC	TT	AG	AT	AC	CC	AA	CT	AG	CT	CT	AA	TT
Parraleta	CT	CC	CC	TT	AG	AT	AA	CC	AC	CT	AG	TT	CT	AA	AT
Perlette	CC	CC	CC	AA	AG	AA	AA	TT	AA	TT	AG	CT	CC	AA	AT

Table S4. (cont.)

Genotype	SNP1513_153	SNP191_100	SNP197_82	SNP259_199	SNP269_308	SNP325_65	SNP425_205	SNP447_244	SNP555_132	SNP579_187	SNP581_114	SNP593_149	SNP613_315	SNP697_296	SNP819_210
Roseira	TT	CC	AC	AT	AG	AA	AA	CC	AA	CT	GG	TT	TT	GG	AA
Rufete	CT	CC	AA	TT	AA	AA	AA	CT	AA	CT	AG	CT	CT	AG	AA
Samarrinho	CT	CC	AC	AT	AG	AA	AA	CT	AA	TT	GG	TT	CC	AA	AT
Síria	TT	CC	AC	AT	AG	AA	AA	CC	AC	CT	AG	TT	CT	AG	AT
Tamarez	TT	CC	CC	TT	AG	AA	AA	CC	AA	TT	GG	TT	TT	AG	AT
Tempranillo	CC	CC	AA	AA	GG	TT	AA	CC	AC	TT	AG	TT	CC	AA	AA
Tinta Aguiar	CT	CT	CC	TT	GG	AA	AA	CC	AA	CT	GG	CT	CC	AG	AT
Tinta Barroca	CC	CT	AC	TT	AG	AA	AA	CC	AA	TT	GG	CT	CT	AG	AT
Tinta Carvalha	CT	CT	CC	TT	AG	AA	AA	CT	AC	TT	AG	TT	CT	AG	AT
Tinta Francisca	CC	CC	AA	TT	AA	AA	AC	CC	AC	TT	AA	TT	CC	AA	TT
Tinta Mesquita	CC	CC	CC	TT	AA	AA	AA	TT	AC	TT	GG	CT	CT	AG	AT
Tinto Cão	CC	CC	CC	AT	AG	AA	AA	CC	AA	TT	AG	TT	CT	AG	AT
Touriga Fêmea	CT	CC	CC	TT	GG	AA	AA	CC	AA	TT	GG	TT	CT	AA	TT
Touriga Franca	CC	CC	AC	TT	AG	AA	AA	CT	AA	CT	GG	TT	CC	AG	AT
Touriga Nacional	CC	CT	AC	TT	AG	AA	AA	CC	AA	TT	GG	TT	CC	AA	TT
Trincadeira	TT	CC	AC	AT	AG	AT	AA	CC	AC	CT	AG	TT	TT	AG	TT
Trousseau Noir	CT	CC	AC	TT	AA	AA	AA	CT	AC	TT	GG	TT	CC	AA	AT
Vinhão	CT	CC	AC	TT	AG	AA	AA	CT	CC	TT	GG	CT	CC	AA	AT
NG001	CT	CT	AC	AA	GG	AA	AA	CC	AC	TT	AG	TT	CT	AG	AT
NG002	CC	CT	AC	AA	AG	AA	AA	CT	AA	TT	GG	TT	CC	AG	AT
NG003	CT	CC	AC	TT	AG	AA	AA	CT	AA	TT	GG	CT	CC	AG	AT
NG004	TT	CC	AC	AT	GG	AA	AA	CT	AA	CC	GG	TT	CT	AG	AA
NG005	CC	CT	AA	TT	AG	AA	AA	CC	AA	TT	AG	TT	CT	AA	AT
NG006	CC	CC	CC	AT	AA	AA	AA	CT	AA	TT	AG	TT	CC	GG	AT
NG007	TT	CC	CC	AT	AG	AA	AA	CC	AC	CT	GG	CT	CC	AG	AA
NG008	CC	CC	AC	AT	GG	AA	AA	TT	AC	TT	AG	CC	CC	AG	AT
NG009	CT	CC	CC	TT	GG	AT	AA	CT	AA	CT	AG	CT	TT	GG	AT
NG010	CT	CC	AC	AT	AG	AA	AA	--	AA	CT	GG	TT	--	--	--
NG011	CT	CC	CC	TT	GG	AA	AA	CT	AC	CC	AG	CT	CT	GG	AT
NG012	CC	CC	AC	TT	AA	AA	AA	CT	AC	CT	GG	CT	CT	AG	AA
NG013	CC	CC	AC	TT	AG	AT	AA	CT	AA	CT	GG	TT	CC	AA	AT

Table S4. (cont.)

Genotype	SNP829_281	SNP873_244	SNP879_308	SNP895_382	SNP945_88	SNP947_288	Vvi_10113	Vvi_10353	Vvi_10992	Vvi_12882	Vvi_1617	Vvi_9227	Vvi_9920	SNP_NG_C_001	SNP_NG_C_003	SNP_NG_D_003
Afus Ali	GG	CC	AG	AA	AG	AG	AA	GG	TT	CT	CC	AA	AA	C	C	G
Alfrocheiro	GG	CT	AA	AA	AA	AG	AG	GG	AT	CT	CC	TT	GG	C	C	G
Alvarelhão Ceitão	GG	CT	GG	TT	AG	GG	GG	GG	AA	TT	AA	AT	GG	C	C	G
Baga	GG	CC	AA	AT	AG	GG	AA	GG	TT	CT	AA	TT	GG	C	C	G
Barca	AG	CT	AA	AT	AG	GG	--	GG	AT	CC	AC	TT	GG	C	C	A
Black Monukka	AG	CT	AG	AT	AG	AA	AA	AA	AT	TT	CC	TT	GG	T	T	G
Camarate Tinto	GG	CC	AA	AA	AG	AG	AG	GG	AT	TT	AC	TT	GG	C	C	G
Carrega Branco	AG	CT	AA	AT	AG	GG	AG	AG	AT	TT	AC	AT	GG	C	C	A
Carrega Tinto	GG	CT	AA	AA	AA	AG	AG	GG	AT	TT	CC	AT	GG	C	C	G
Casculho	GG	CC	AG	AT	AG	AG	GG	GG	AT	CT	AC	AT	GG	C	C	G
Castelão	GG	CC	AG	AA	AG	AA	AA	GG	AT	TT	CC	TT	GG	C	C	G
Chasselas	AA	TT	AA	AT	AG	AG	AA	GG	AA	TT	AA	TT	AG	C	C	A
Cidadelhe	GG	CC	AA	TT	GG	AG	GG	GG	TT	TT	AC	TT	GG	C	C	A
Cornifesto	GG	CC	AA	AT	AG	AA	AG	GG	AT	TT	CC	AT	GG	C	C	G
Dodrelyabi	AA	CT	GG	AT	AG	GG	AA	GG	AA	TT	AC	TT	AG	C	T	G
Donzelinho Roxo	GG	TT	AA	AA	AG	AG	GG	GG	AA	CT	AA	TT	GG	C	C	A
Folha de Figueira	AA	CC	AG	AT	AG	GG	AG	GG	AA	TT	AC	AA	GG	C	C	G
Gouveio	AG	TT	AA	AT	AG	AA	GG	GG	AA	TT	AC	AT	GG	C	C	G
Grand Noir	AG	TT	AG	AA	AA	GG	AA	GG	AT	CC	AC	TT	AG	C	C	G
Grec Rouge	AA	TT	AA	AA	AA	GG	AG	GG	AA	TT	AC	AA	GG	C	C	G
Hebén	AG	CT	AG	AT	AG	AG	AG	GG	AT	TT	AC	AT	GG	C	C	G
Jeronimo	GG	CT	AG	AA	AG	AG	AG	GG	AA	TT	AA	AT	GG	C	C	G
Malandra	AG	CT	GG	AT	AG	AA	AG	GG	TT	TT	AC	TT	AG	C	C	A
Malvasia Fina	GG	CT	AG	AT	AG	GG	AA	GG	TT	CT	AC	TT	GG	C	C	G
Malvasia Preta	GG	CT	AA	AT	AG	AG	AG	GG	AT	TT	AC	TT	GG	C	C	G
Marufo	GG	CT	AA	AT	GG	GG	AG	GG	AT	CT	AC	TT	AG	C	C	A
Molar	GG	CT	AG	AA	AA	AG	AA	GG	AA	CT	CC	TT	GG	C	C	G
Montua	AG	CT	AA	AT	AA	AA	AA	GG	AT	TT	AC	AT	AG	C	C	G
Mouratón	GG	CC	AA	AT	AG	GG	GG	GG	TT	CT	AC	AT	GG	C	C	G
Mourisco de Semente	AG	CT	AG	TT	AG	GG	AG	AG	AA	TT	AA	TT	GG	C	C	A
Nevoeira	AA	CC	GG	TT	AG	AG	GG	AG	AA	TT	AC	AT	GG	C	C	G
Palomino Fino	AG	TT	GG	AT	AG	AG	AG	GG	AT	TT	AC	AT	GG	C	C	A
Parraleta	AG	CC	AG	AT	AG	AG	AA	GG	AT	CT	AC	AT	GG	C	C	G
Perlette	GG	CC	AA	AT	AA	GG	AA	GG	TT	TT	AC	TT	GG	C	C	G

Table S4. (cont.)

Genotype	SNP829_281	SNP873_244	SNP879_308	SNP895_382	SNP945_88	SNP947_288	Vvi_10113	Vvi_10353	Vvi_10992	Vvi_12882	Vvi_1617	Vvi_9227	Vvi_9920	SNP_NG_C_001	SNP_NG_C_003	SNP_NG_D_003
Roseira	GG	CC	AA	AA	AG	AG	GG	GG	AT	CT	AC	TT	AG	C	C	A
Rufete	GG	CT	AG	AT	AA	AG	AG	AG	AT	CT	CC	AT	GG	C	C	G
Samarrinho	AG	CT	AG	TT	AA	AG	AA	GG	AT	CT	CC	TT	GG	C	C	A
Síria	AG	CC	AG	TT	AG	GG	AA	GG	AT	TT	CC	AT	GG	C	C	G
Tamarez	GG	CT	AG	TT	GG	AG	AA	AG	AT	TT	AC	AT	GG	C	C	A
Tempranillo	AA	TT	AA	AA	AG	AG	AA	GG	TT	TT	AC	TT	AA	C	C	G
Tinta Aguiar	AG	--	AA	AT	AG	GG	AG	GG	AT	CC	AC	TT	AG	C	C	A
Tinta Barroca	AG	CC	AA	AA	AG	AG	AA	GG	AT	CT	AC	TT	GG	C	C	A
Tinta Carvalha	GG	CC	AG	AT	GG	GG	GG	GG	AT	TT	AC	AT	GG	C	C	A
Tinta Francisca	AG	CT	AA	AT	AG	AA	AG	AG	AT	TT	AC	AT	AG	C	C	G
Tinta Mesquita	AG	CT	AG	AT	AG	GG	GG	GG	AT	TT	AC	TT	GG	C	C	A
Tinto Cão	AG	CC	AG	TT	AG	--	AA	AG	AT	TT	CC	AT	GG	C	C	G
Touriga Fêmea	AG	--	AG	AT	AA	AG	AA	GG	AT	CC	AA	TT	GG	C	C	G
Touriga Franca	AG	CT	AA	TT	AG	AG	AA	GG	AA	CT	AA	TT	AG	C	C	A
Touriga Nacional	AA	--	AA	AT	AA	--	AA	GG	AT	CT	AC	TT	GG	C	C	G
Trincadeira	AA	CC	AG	AT	AA	GG	AA	GG	TT	TT	AC	AT	GG	C	C	A
Trousseau Noir	GG	CC	AG	AT	AG	GG	AA	AG	AA	CC	AC	AT	GG	C	C	G
Vinhão	AA	CT	AG	TT	AA	GG	AG	AG	AA	TT	CC	TT	AG	C	C	G
NG001	GG	CT	AG	AT	AG	GG	AG	GG	TT	CT	AC	TT	GG	C	C	A
NG002	AG	CT	AA	TT	AG	AG	AG	GG	AT	TT	CC	TT	GG	C	C	A
NG003	GG	CT	AG	AT	GG	GG	AG	AG	AT	CT	AC	TT	AG	C	C	A
NG004	GG	TT	AA	AT	AG	AG	AG	GG	AT	TT	AC	TT	AG	C	C	A
NG005	GG	CT	AG	AA	AG	GG	GG	GG	AT	CT	CC	AA	AG	C	C	A
NG006	AG	CT	AG	AT	GG	GG	AG	AG	AT	CT	CC	AT	AG	C	C	A
NG007	GG	CC	AA	AT	GG	GG	GG	GG	AT	TT	AC	TT	AG	C	C	A
NG008	AG	CT	AA	AA	GG	GG	AA	GG	AT	CT	AC	AT	GG	C	C	A
NG009	AG	CC	AG	TT	AG	GG	AG	GG	AT	CT	AC	AT	AG	C	C	A
NG010	--	--	AA	AT	AG	AG	AG	GG	AT	CT	AC	TT	AG	C	C	A
NG011	AG	CC	AA	TT	AG	GG	AG	GG	TT	CT	AA	AT	GG	C	C	A
NG012	AG	CT	AG	AT	AG	GG	GG	AG	AA	CT	CC	TT	AA	C	C	A
NG013	AA	CT	AG	AA	AA	GG	AA	AG	TT	CT	CC	AT	GG	C	C	G

Table S5. Genetic parameters, and allele sizes and frequencies over 6 microsatellite loci in the 65 non-redundant genotypes analysed in this study.

SSR markers	**VVS2**		**VVMD5**		**VVMD7**		**VVMD27**		**VrZAG62**		**VrZAG79**	
Na	12		9		10		7		9		10	
Ne	5.545		6.995		3.928		5.027		4.120		4.154	
Ho	0.892		0.954		0.785		0.877		0.785		0.862	
He	0.820		0.857		0.745		0.801		0.757		0.759	
PIC	0.793		0.844		0.736		0.777		0.738		0.749	
Allele no.	***AS***	***AF***	***AS***	***AF***	***AS***	***AF***	***AS***	***AF***	***AS***	***AF***	***AS***	***AF***
1	132	0.185	218	0.023	**237**	**0.008**	171	0.015	189	0.123	**237**	**0.008**
2	134	0.038	222	0.169	239	0.438	175	0.115	191	0.431	241	0.031
3	136	0.046	224	0.108	241	0.015	177	0.262	195	0.077	243	0.115
4	**138**	**0.008**	226	0.015	243	0.177	179	0.062	197	0.138	245	0.300
5	140	0.015	228	0.115	247	0.031	181	0.123	199	0.031	**247**	**0.008**
6	142	0.262	230	0.138	249	0.077	185	0.277	201	0.015	249	0.331
7	144	0.162	232	0.177	253	0.123	191	0.146	203	0.085	**253**	**0.008**
8	150	0.215	234	0.169	**255**	**0.008**			**205**	**0.008**	255	0.162
9	152	0.015	236	0.085	257	0.085			207	0.092	257	0.015
10	**154**	**0.008**			263	0.038					259	0.023
11	156	0.031										
12	158	0.015										

Na - Average number of different alleles per locus; *Ne* - number of effective alleles; *Ho* - observed heterozygosity; *He* - expected heterozygosity; *PIC* - polymorphism information content.
AS - Allele sizes, in base pairs; *AF* - allele frequencies (AF).
Unique alleles show an *AF* = 0.08 and they are bold underlined (see **Supplementary table S3**).

Table S6. Structure results at K = 2 based on 226 SNP markers. Genotypes with membership coefficients (*q* - values) below the threshold of 0.7 for genetic group assignment were admixed.

Prime name	*q*-value		Estimated genetic group
	SNP-group 1	SNP-group 2	
Afus Ali	0.455	0.545	Admixed
Alfrocheiro	0.982	0.018	1
Alvarelhão Ceitão	0.648	0.352	Admixed
Baga	0.767	0.233	1
Barca	0.019	0.981	2
Black Monukka	0.582	0.418	Admixed
Camarate Tinto	0.997	0.003	1
Carrega Branco	0.702	0.298	1
Carrega Tinto	0.994	0.006	1
Casculho	0.980	0.020	1
Castelão	0.996	0.004	1
Chasselas	0.243	0.757	2
Cidadelhe	0.510	0.490	Admixed
Cornifesto	0.995	0.005	1
Dodrelyabi	0.523	0.477	Admixed
Donzelinho Roxo	0.301	0.699	2
Folha de Figueira	0.403	0.597	Admixed
Gouveio	0.529	0.471	Admixed
Grand Noir	0.514	0.486	Admixed
Grec Rouge	0.405	0.595	Admixed
Hebén	0.726	0.274	1
Jerónimo	0.532	0.468	Admixed
Malandra	0.632	0.368	Admixed
Malvasia Fina	0.994	0.006	1
Malvasia Preta	0.997	0.003	1
Marufo	0.018	0.982	2
Molar	0.735	0.265	1
Montua	0.636	0.364	Admixed
Mouratón	0.996	0.004	1
Mourisco de Semente	0.258	0.742	2
Nevoeira	0.556	0.444	Admixed
Palomino Fino	0.532	0.468	Admixed

Table S6. (cont.)

Prime name	*q*-value		Estimated genetic group
	SNP-group 1	SNP-group 2	
Parraleta	0.606	0.394	Admixed
Perlette	0.582	0.418	Admixed
Roseira	0.535	0.465	Admixed
Rufete	0.768	0.232	1
Samarrinho	0.632	0.368	Admixed
Síria	0.835	0.165	1
Tamarez	0.840	0.160	1
Tempranillo	0.510	0.490	Admixed
Tinta Aguiar	0.007	0.993	2
Tinta Barroca	0.025	0.975	2
Tinta Carvalha	0.689	0.311	Admixed
Tinta Francisca	0.548	0.452	Admixed
Tinta Mesquita	0.135	0.865	2
Tinto Cão	0.379	0.621	Admixed
Touriga Fêmea	0.503	0.497	Admixed
Touriga Franca	0.005	0.995	2
Touriga Nacional	0.204	0.796	2
Trincadeira	0.962	0.038	1
Trousseau Noir	0.633	0.367	Admixed
Vinhão	0.336	0.664	Admixed
NG001	0.957	0.043	1
NG002	0.636	0.364	Admixed
NG003	0.388	0.612	Admixed
NG004	0.205	0.795	2
NG005	0.595	0.405	Admixed
NG006	0.347	0.653	Admixed
NG007	0.709	0.291	1
NG008	0.015	0.985	2
NG009	0.318	0.682	Admixed
NG010	0.158	0.842	2
NG011	0.292	0.708	2
NG012	0.268	0.732	2
NG013	0.634	0.366	Admixed

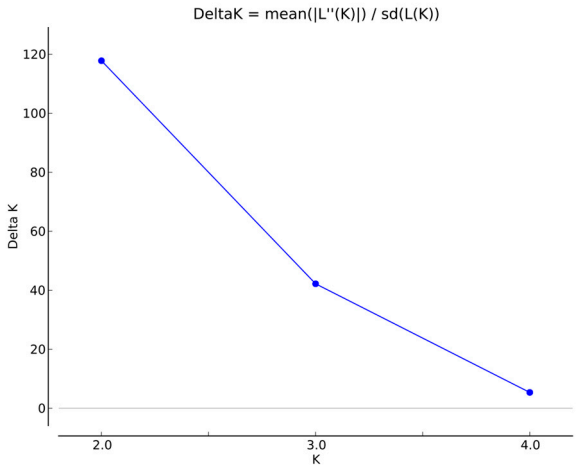

Figure S1. Delta K plots obtained from STRUCTURE HARVESTER to set the most likely number of genetic groups within the 65 non-redundant grape population identified in the present study, based on 226 SNP data.

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