

## Supplementary data

**Table S1.**  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios for wine, soil and rock samples from selected Portuguese vineyards

Demarcated region	Vineyards	Grape variety	Geology	Wine		Soil		Rock	
				$^{87}\text{Sr}/^{86}\text{Sr}$	2 $\sigma$	$^{87}\text{Sr}/^{86}\text{Sr}$	2 $\sigma$	$^{87}\text{Sr}/^{86}\text{Sr}$	2 $\sigma$
Vinho Verde	Quinta da Torre de Bardo - Monção	Alvarinho	Biotite granite	0.719349	0.000022	0.753405	0.000020	0.748155	0.000025
Vinho Verde	Quinta de Muros Antigos - Melgaço	Alvarinho	Two-mica granite	0.713981	0.000024	0.779035	0.000019	0.783222	0.000020
Douro	Estrada da Capela - Seixo de Ansiães	Touriga Nacional	Two-mica granite	0.719199	0.000046	0.779225	0.000034	0.770011	0.000028
Douro	Quinta do Portal - Celeirós	Touriga Nacional	Metasediment from Desejosa Formation	0.718108	0.000030	0.740815	0.000031	0.739819	0.000036
Douro	Quinta do Portal - Celeirós	Moscatel Galego	Metasediment from Desejosa Formation	0.715493	0.000016	0.757269	0.000026	0.766515	0.000025
Douro	Quinta do Portal - Celeirós	Touriga Franca	Metasediment from Desejosa Formation	0.716454	0.000019	0.751334	0.000018	0.727938	0.000020
Douro	Quinta do Confradeiro - Celeirós	Touriga Nacional	Metasediment from Desejosa Formation	0.719856	0.000020	0.757056	0.000020	0.764387	0.000015
Douro	Quinta dos Muros - Alijó	Touriga Franca	Metasediment from Pinhão Formation	0.721478	0.000017	0.739361	0.000024	0.734324	0.000022
Douro	Quinta da Abelheira - Alijó	Alvarinho	Metasediment from Rio Pinhão Formation	0.719344	0.000014	0.728944	0.000020	0.728796	0.000019
Douro	Quinta da Abelheira - Alijó	Moscatel Galego	Metasediment from Rio Pinhão Formation	0.720706	0.000017	0.752811	0.000023	0.739859	0.000022

Douro	Quinta da Abelheira - Alijó	Touriga Nacional	Metasediment from Rio Pinhão Formation	0.721116	0.000019	0.751095	0.000029	0.755171	0.000015
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**Table S2.** Particle size distribution in soils from from selected Portuguese vineyards

Demarcated region	Vineyards	Grape variety	Geology	Clay (g/kg)	Silt (g/kg)	Fine sand (g/kg)	Coarse sand (g/kg)	Soil texture
				(< 0.002 mm)	(0.002 – 0.02 mm)	(0.02 – 0.2 mm)	(0.2 – 2 mm)	
Vinho Verde	Quinta da Torre de Bardo - Monção	Alvarinho	Biotite granite	97	129	213	562	Sandy loam
Vinho Verde	Quinta de Muros Antigos - Melgaço	Alvarinho	Two-mica granite	77	110	191	622	Loamy sand
Douro	Quinta do Confradeiro - Celeirós	Touriga Nacional	Metasediment from Desejosa Formation	108	165	316	412	Sandy loam
Douro	Quinta da Abelheira - Alijó	Touriga Nacional	Metasediment from Rio Pinhão Formation	112	231	399	257	Sandy loam

**Table S3.**  $^{206}\text{Pb}/^{204}\text{Pb}$ ,  $^{207}\text{Pb}/^{204}\text{Pb}$  and  $^{208}\text{Pb}/^{204}\text{Pb}$  ratios for bedrock samples from selected Portuguese vineyards

Demarcated region	Vineyards	Grape variety	Geology	Rock					
				$^{206}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$	$^{207}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$	$^{208}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$
Vinho Verde	Quinta da Torre de Bardo - Monção	Alvarinho	Biotite granite	19.2859	0.0006	15.6930	0.0006	39.0449	0.0018
Vinho Verde	Quinta de Muros Antigos - Melgaço	Alvarinho	Two-mica granite	19.0647	0.0007	15.6922	0.0006	38.7425	0.0018
Douro	Quinta do Portal - Celeirós	Touriga Franca	Metasediment from Desejosa Formation	18.3067	0.0009	15.6797	0.0008	39.1033	0.0022
Douro	Quinta do Confradeiro - Celeirós	Touriga Nacional	Metasediment from Desejosa Formation	18.3871	0.0008	15.6687	0.0008	39.0905	0.0023
Douro	Quinta dos Muros - Alijó	Touriga Franca	Metasediment from Pinhão Formation	18.4169	0.0008	15.6475	0.0007	38.8575	0.0020
Douro	Quinta da Abelheira - Alijó	Alvarinho	Metasediment from Rio Pinhão Formation	18.5655	0.0010	15.6653	0.0009	39.0449	0.0025
Douro	Quinta da Abelheira - Alijó	Touriga Nacional	Metasediment from Rio Pinhão Formation	18.5879	0.0009	15.6570	0.0009	39.2372	0.0026

**Table S4.**  $^{206}\text{Pb}/^{204}\text{Pb}$ ,  $^{207}\text{Pb}/^{204}\text{Pb}$  and  $^{208}\text{Pb}/^{204}\text{Pb}$  ratios for wine samples from selected Portuguese vineyards

Demarcated region	Vineyards	Grape variety	Geology	Wine					
				$^{206}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$	$^{207}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$	$^{208}\text{Pb}/^{204}\text{Pb}$	2 $\sigma$
Vinho Verde	Quinta da Torre de Bardo - Monção	Alvarinho	Biotite granite	18.4441	0.0008	15.6264	0.0007	38.3963	0.0021
Vinho Verde	Quinta de Muros Antigos - Melgaço	Alvarinho	Two-mica granite	18.5474	0.0010	15.6601	0.0010	38.5834	0.0025
Douro	Quinta do Portal - Celeirós	Touriga Franca	Metasediment from Desejosa Formation	18.7577	0.0012	15.6357	0.0011	38.6669	0.0029
Douro	Quinta do Confradeiro - Celeirós	Touriga Nacional	Metasediment from Desejosa Formation	18.7834	0.0010	15.6290	0.0009	38.6760	0.0023
Douro	Quinta dos Muros - Alijó	Touriga Franca	Metasediment from Pinhão Formation	18.7825	0.0010	15.6244	0.0009	38.6557	0.0023
Douro	Quinta da Abelheira - Alijó	Alvarinho	Metasediment from Rio Pinhão Formation	18.7847	0.0008	15.6699	0.0008	38.8573	0.0020
Douro	Quinta da Abelheira - Alijó	Touriga Nacional	Metasediment from Rio Pinhão Formation	18.7505	0.0010	15.6310	0.0010	38.6888	0.0026