

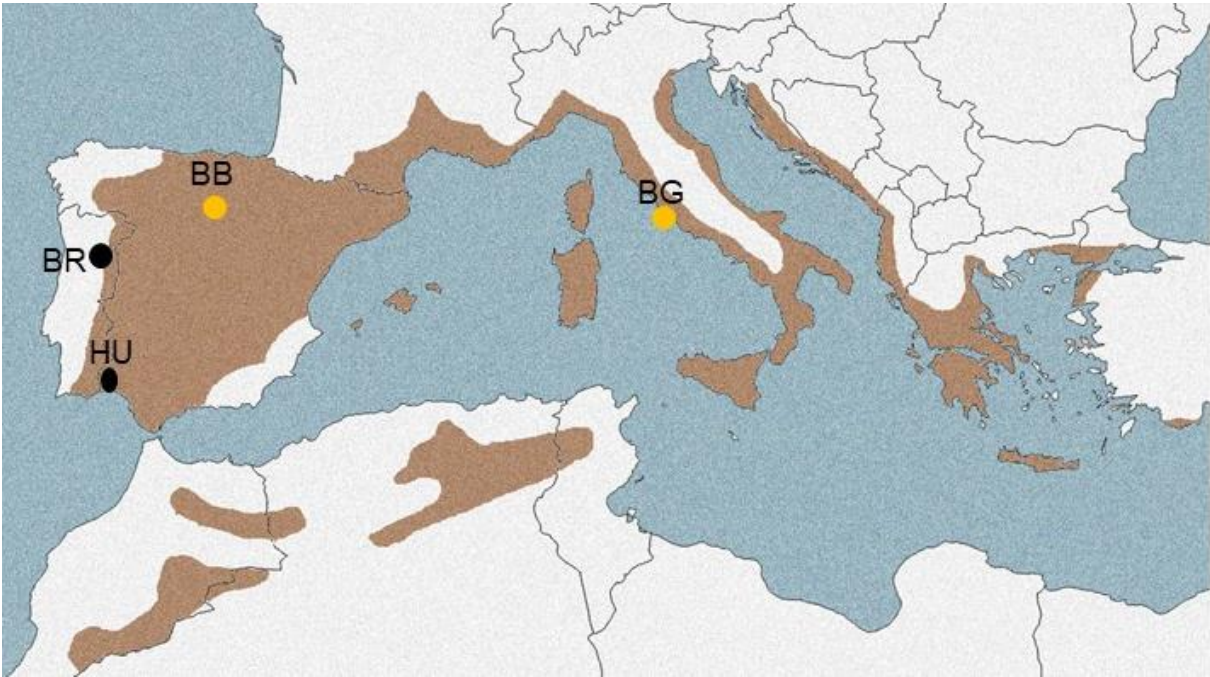
# Supplementary Information S1

**Supplementary information S1A.** Details of *Quercus ilex* stands used to select tolerant plants by researchers at the University of Extremadura (Uex).

Taxon	Location of population (population code)	UTM coordinates (WGS84)	Elevation (m a.s.l.)
<i>Q. ilex</i> ssp. <i>ballota</i>			
PR9	Braganza, Tras-os-Montes e Alto Douro, PT (BR)	29T 0686788 4632672	638
<i>Q. ilex</i> ssp. <i>ilex</i>			
PR8	Barrios de Bureba, Castile and León, ES (BB)	30T 0468560 4723457	662
PR6, PR11	Bagnaia, Lazio, IT (BG)	33T 0265952 4700719	465

<sup>a</sup> ISO country codes: ES, Spain; PT, Portugal; IT, Italy.

**Supplementary information S1B.** Distribution of *Q. ilex* ssp. *ballota* (black circles) and *Q. ilex* ssp. *ilex* (orange circles) populations used in this study: (BR) Braganza, Tras-os-Montes e Alto Douro, Portugal; (BB) Barrios de Bureba, Castile and León, Spain; (BG) Bagnaia, Lazio, Italy; (HU) Huelva, Spain.





**Supplementary information S2.** Complementary information about establishment step. A. Flushed shoots obtained after culture of potted plants on growth chamber. B. Excised flushed shoots from plant showed in A. C. Nodal explants used as initial explants on in vitro culture and excised from shoots showed in B.

Supplementary information S3. Culture media used in the different steps of micropropagation by somatic embryogenesis and axillary shoot proliferation of holm oak.

Components	SE induction	SE proliferation	SE germination	In vitro shoot establishment	Axillary shoot proliferation	Shoot rooting induction <sup>1</sup>	Shoot root expression
Basal medium	MS	SH	GD	WPM	WPM	1/3GD	1/3GD
Casein hydrolyzate (mg L <sup>-1</sup> )	500	--	--	--	--	--	--
BA (mg L <sup>-1</sup> )	0.5 or zero	--	0.1	0.2	0.1 or 0.05	--	--
IAA (mg L <sup>-1</sup> )	4 or zero	--	--	--	--	--	--
IBA (mg L <sup>-1</sup> )	--	--	--	--	--	25	--
Sucrose (g L <sup>-1</sup> )	30	30	30	30	30	30	30
Ascorbic acid (g L <sup>-1</sup> ) <sup>2</sup>	--	--	--	80	--	--	--
STS (μM) <sup>2</sup>	--	--	20	--	20	--	20
Vitro Agar (g L <sup>-1</sup> )	6	6	6	7	--	6	6
Sigma Agar (g L <sup>-1</sup> )	--	--	--	--	8	--	--

BA, 6-benzyladenine; GD, Gresshoff and Doy; 1/3 GD, GD with 1/3 macronutrients; IAA, indole-acetic acid; IBA, indole-3-butyric acid; MS, Murashige and Skoog; SE, somatic embryos; SH, Schenk and Hildebrandt; STS, silver thiosulphate

<sup>1</sup>After 24-48 h in rooting medium, shoots were transferred to shoot root expression medium.

<sup>2</sup>This compound was filter-sterilized before being added to the autoclaved medium.