



## CORK IN SCIENCE 2019

New trends in Cork Innovation:  
From the Wine Industry  
to the new applications

### Genetic variation of cork oak a tool for improving regeneration of cork oak woodlands

\*M<sup>a</sup> Helena, Almeida<sup>1</sup>; Ismael, Aranda<sup>2</sup>; M<sup>a</sup> Regina, Chambel<sup>2</sup>; Filipe, Costa e Silva<sup>1</sup>; Sandro, Dettori<sup>3</sup>; Carla, Faria<sup>1</sup>; M Rosaria, Filigheddu<sup>3</sup>; Elena, Fernández<sup>3</sup>; Abedelhamid, Khaldi<sup>4</sup>; M<sup>a</sup> Sameiro, Patrício<sup>5</sup>; Felipe, Perez<sup>6</sup>; José Alberto, Ramírez - Valiente<sup>2</sup>; Ana Rodrigues<sup>1</sup>; Teresa, Sampaio<sup>1</sup>, M<sup>a</sup> Carolina, Varela<sup>7</sup>

\* Alphabetic order

<sup>1</sup> Centro de Estudos Florestais, Instituto Superior de Agronomia, Universidade de Lisboa,  
Tapada da Ajuda 1349 -017, Lisboa, Portugal  
e-mail: [nica@isa.ul.pt](mailto:nica@isa.ul.pt)

<sup>2</sup> Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Centro de Investigación Forestal,  
Carretera de La Coruña Km. 7.5 Madrid, 28040  
e-mail: [josealberto.ramirezvaliente@gmail.com](mailto:josealberto.ramirezvaliente@gmail.com)

<sup>3</sup>Dipartimento di Agraria, Università degli Studi di Sassari, Sardegna, Italia  
Via De Nicola, 9. 07100 Sassari, Sardegna, Italia  
e-mail: [sdettori@uniss.it](mailto:sdettori@uniss.it)

<sup>4</sup>Institut National de Recherche en Génie Rural Eaux et Forêts (INRGREF)  
Rue Elmenzah, Tunis, Tunisia  
e-mail: [khalditn@yahoo.fr](mailto:khalditn@yahoo.fr)

<sup>5</sup> Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança,  
Campus de Santa Apolónia, 5300-253 Bragança, Portugal  
e-mail: [sampat@ipb.pt](mailto:sampat@ipb.pt)

<sup>6</sup> Unit of Forest Genetic Resources. Directorate General of Rural Development, Innovation and Forest Policy.  
Spanish Ministry of Agriculture, Fisheries and Food.  
Av. Gran Vía de San Francisco 4 - 6, 28005 MADRID (SPAIN)  
e-mail: [FPerez@mapa.es](mailto:FPerez@mapa.es)

<sup>7</sup>INIAV (Retired)  
e-mail: [maria\\_carolina\\_varela@hotmail.com](mailto:maria_carolina_varela@hotmail.com)

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**Abstract.** The European Academies' Science Advisory Council (2017) reports that the Mediterranean forest is already being affected by climate change (IPCC, 2014) and cork oak woodlands are particularly vulnerable to high-end climate scenarios that go above the Paris Agreement 2° C increase in temperature. Since longer, more frequent, and more intense drought periods are expected, stress caused by the expansion of arid and semi-arid climate will affect the species distribution. Consequently, not only established stands may be prone to tree mortality, but also the current reforestation effort may be jeopardized by low survival rates attributed to the use of unsuitable genetic material.

It is expected that, through genetic adaptation and/or phenotypic plasticity, cork oak populations may have developed significant differences in fitness and the traits related to it. In this context, provenance and progeny trials are the best resource of material to assess the variability between and within populations from seed sources sampled in a wide range of locations (stands) covering the geographical distribution of the species. Profiting from the multi-locality provenance and progeny trials belonging to a Network, established in 1998, in the initiative frame of FAIR I CT 0202 for the evaluation of genetic resources of cork oak for appropriate use in breeding and gene conservation strategies”, where 35 cork oak populations covering all the natural distribution area are represented. The provenance trials that were set up in different countries are entering now the age of first debarking and this should allow to have first data about the influence of genetics on production by different site qualities. INCREDIBLE project should document this knowledge

First A. Author, Second B. Author and Third C. Coauthor.  
and this has been identified as a priority theme for the Cork iNET within the INCREDIBLE project – Innovation networks for Cork, Resins & Edibles (<https://www.incredibleforest.net/>). In this communication we present a summary of the results (interprovenance variability and phenotypic plasticity in growth, survival, phenology and drought tolerance) observed so far in Tunisia, Italy, Spain and Portugal.

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