



**HAL**  
open science

## Genetic structure of a worldwide germplasm collection of *Prunus armeniaca* L. species

Hedia Bourguiba, Jean Marc Audergon, Boris Krška, Tatyana Zhebentyayeva,  
Arnaud A. Remay, Claudio d'Onofrio, Craig A. Ledbetter, Hiroyuki Iketani,  
Danilo Christen, Weisheng Liu, et al.

► **To cite this version:**

Hedia Bourguiba, Jean Marc Audergon, Boris Krška, Tatyana Zhebentyayeva, Arnaud A. Remay, et al.. Genetic structure of a worldwide germplasm collection of *Prunus armeniaca* L. species. 16. International Symposium on Apricot Breeding and Culture, Jun 2015, Shenyang, China. 10.17660/Acta-Hortic.2018.1214.35 . hal-02736957

**HAL Id: hal-02736957**

**<https://hal.inrae.fr/hal-02736957>**

Submitted on 2 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

XVI International Symposium on Apricot Breeding and Culture  
and XV Chinese National Symposium on Plum and Apricot

# ABSTRACTS



ISHS



CSHS



LAAS

June 29-July 3, 2015, Shenyang, China  
Edited by: Weisheng LIU, Shuo LIU, Xiaoxue MA

## Genetic Structure of a Worldwide Germplasm Collection of *Prunus armeniaca* L. species

Hedia Bourguiba<sup>1</sup>, Jean-Marc Audergon  
INRA Centre PACA, UR 1052 GAFL, Domaine St Maurice, allée des chênes, CS60094,  
84143 Montfavet Cedex

France

<sup>1</sup>LR99ES12. Laboratoire de Génétique Moléculaire, Immunologie et Biotechnologie.  
Faculté des Sciences de Tunis, Université Tunis El Manar  
Campus universitaire Tunis-El Manar, Tunis  
Tunisie

Boris Krska  
Mendel University, Faculty of  
Horticulture  
691 44 Lednice  
Czech Republic

Tatyana Zhebentyayeva  
Clemson University  
USA

Arnaud Remay  
Pôle de génotypage BioGeves  
Domaine du Magneraud-CS 40052  
France

Claudio D'Onofrio  
Department of Fruit Science and Plant  
Protection of Woody Species 'G.  
Scaramuzzi' Università di Pisa  
Via del Borghetto, 80, 56124 Pisa  
Italy

Craig A. Ledbetter  
San Joaquin Valley Agricultural Sciences  
Center, Crop Diseases, Pests & Genetics  
9611 S. Riverbend Avenue, Parlier,  
CA 93648-9757  
USA

Hiroyuki Iketani  
NARO Institute of Fruit Tree Science,  
2-1 Fujimoto, Tsukuba, Ibaraki, 305-8605  
Japan

Danilo Christen  
Département fédéral de l'économie DFE,  
Station de recherche Agroscope  
Changins-Wädenswil ACW, Centre de  
recherche Conthey, 1964 Conthey  
Switzerland

Weisheng Liu  
Chinese germplasm repository for plum  
and apricot, Yingkou 115009  
PR China

Guillaume Roch<sup>2</sup>  
CEP Innovation  
23 rue Jean Baldassini, 69364 LYON  
cedex7  
France

<sup>2</sup>INRA Centre PACA, UR 1052 GAFL,  
Domaine St Maurice, allée des chênes,  
CS60094, 84143 Montfavet Cedex  
France

**Keywords:** Apricot (*Prunus armeniaca* L.), domestication, genetic diversity, SSR markers

### Abstract

Analyses of genetic structure and phylogenetic relationships illuminate the origin and domestication of crop species and have important implications for plant

breeding programs and the conservation of genetic resources. We provide the first study on apricot (*Prunus armeniaca* L.) genetic resources using 25 SSR markers and collection that are widely dispersed around the world. Analysis of allelic diversity of SSR data revealed at least a double pattern of diffusion from Central Asia to the eastern and to the western countries with a clear east-west loss of genetic diversity related to the genetic bottleneck during apricot domestication. Structure and phylogenetic analysis indicated that accessions from Central Asia and China were genetically most diversified suggesting that this large region constitutes the apricot centre of origin. Starting from the centre of origin, apricot spread (i) to Central Asia up to the Irano-Caucasian region from there two apricot diffusion routes were evidenced: one through South Eastern Europe up to Mediterranean countries and one through the Central European countries and (ii) to Eastern countries with another route up to Japan. These results provide answers to apricot evolution and domestication and inform breeders on genetic structure of apricot genetic resources.