

NUCLEAR AND CHLOROPLAST MICROSATELLITE DIVERSITY IN *PHASEOLUS VULGARIS* L. FROM SARDINIA (ITALY)

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Domesticated *Phaseolus vulgaris* L. originated in America and was introduced into Europe after the travels of Columbus in 1492. The European common bean comes from two centres of domestication of the species, Mesoamerica and the Andes. Over the last few decades, the common bean agro-ecotypes have been gradually replaced by modern cultivars. However, as with other European countries, in Italy it has been reported that several local populations still survive on-farm in marginal areas. When possible, these should be first conserved and then characterized, to make their conservation, evaluation and use for breeding purposes possible and easier. Moreover, an analysis of local landraces could also help to reconstruct the dissemination pathway and the evolution of the crop into the Old World.

In collaboration with the 'Centro per la Conservazione e Valorizzazione della Biodiversità Vegetale' (Centre for Conservation and Evaluation of Vegetal Biodiversity), we collected 73 local varieties in Sardinia, Italy (*i.e* cultivated by the same farmer for at least 30 years) in areas where traditional farming is still practised. The genetic diversity was investigated with molecular and morphological traits with three main aims: 1. to determine the relative contribution of the Andean and the Mesoamerican gene pools to the Sardinian collection; 2. to compare local landraces with commercial varieties that have been introduced over the last few decades in Sardinia and to assess the degree of distinctiveness of the local accessions; 3. to estimate and compare the relative levels of genetic diversity in the common bean species in a single region of Europe (Sardinia, Italy). Molecular analyses were carried out using simple sequence repeats (SSRs) developed from gene (5 loci) and genome (5 loci) sequences, and with chloroplast SSRs (cpSSRs, 14 loci) as cytoplasmic markers, including all of the Sardinian landraces, 22 American genotypes (13 Andean and 9 Mesoamerican) and 15 commercial varieties. A morphological characterisation of the seeds based on the IPGRI descriptor list for the common bean was also performed.

The results suggest that: 1. the majority of the local *P. vulgaris* varieties is of Andean origin; 2. the Sardinian accessions share the same multilocus genotypes with the commercial varieties more frequently using cpSSRs compared to nuclear SSRs; 3. a relevant but not high overall level of diversity is present within the *P. vulgaris* genetic resource collection from the Sardinia region.