



# **iwcc** 1ST INTERNATIONAL WHEAT CONGRESS

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## **ABSTRACT PROCEEDINGS**

## **POSTER PRESENTATIONS**



## UNCOVERING POPULATION STRUCTURE IN A COLLECTION OF SPANISH BREAD WHEAT LANDRACES

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Ex situ collections preserve valuable genetic resources collected over time that include germplasm from different gene pools. The Spanish bread wheat collection maintained in the Spanish Plant Genetic Resources Center (CRF-INIA) composed by more than 800 landraces locally adapted to a wide diversity of eco-climatic conditions, represent a highly valuable material for breeding. However, their efficient use requires an exhaustive characterization. The overall aim of this study was to characterize for the first time at genetic level a selection from this bread wheat collection. In order to do so, we have pre-selected a set of 189 bread wheat landraces (*Triticum aestivum subsp. vulgare* L.  $2n=6x=42$ , AABBDD), based on geographic origin and agro-morphological traits. This set plus 29 modern cultivars have been genotyped at genomic level using GBS by DArTseq technology. We have been able to identify 50K SNP and 100K DArT markers from which more than 8K SNPs and 40K DArT high quality markers were selected. The population stratification of the bread wheat landraces identified four groups with a great divergence according to the  $F_{ST}$  values. One of the four groups detected was clearly more genetically distant. This group was composed by landraces from western Spain, showed spring growth habit and carried the *f* allele at *Glu-B1* locus, which was absent in the other three groups. The group with the higher number of landraces overlapped with the reference modern varieties suggesting that some of accessions may not be true local landraces, but rather old adopted cultivars wrongly classified. This mixture can also be indicating a pedigree relationship and it is possible that some of these landraces were among those utilized by the early breeders to develop pure lines. The collection of Spanish landraces characterized in the present study has shown a high degree of diversity and represents a strategic platform and a valuable genetic resource that must be further study. In order to allow its efficient management and use, a core subset of Spanish bread wheat based in the present results is in progress.