



EXPLORING GENOME-WIDE DIVERSITY IN THE NATIONAL PEACH (*PRUNUS PERSICA*)
REFERENCE COLLECTIONS AT CITA AND EAD-CSIC (ZARAGOZA, SPAIN)



ABSTRACT NUMBER	P0097
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AREA OF INTEREST	2 Genetic variability and crop evolution
2ND AREA OF INTEREST	4 Genomics-informed breeding and new breeding tools

ABSTRACT:

Peach [*Prunus persica* (L.) Batsch] is one of the most studied stone fruits. Many genetics and genomics resources are available for this species, including a high quality genome. More recently, a high-density Illumina peach SNP chip (18K) has been developed by an international consortium involving FruitBreedomics and RosBREED projects' partners as an add-on to a previous 9K array. This 18K peach SNP chip has been selected and used to perform population structure analysis and genome-wide association studies (GWAS). In this work, a total of 284 accessions have been sampled from the National Peach Germplasm Collection of the "Centro de Investigación y Tecnología Agroalimentaria de Aragón" (CITA) and the "Estación Experimental de Aula Dei" (CSIC), both of them located in Zaragoza (northern Spain). All peach accessions are currently being screened for postharvest disorders and disease susceptibility as part of the Spanish collaborative national project "PostPeachBreed" (RTI2018-094176-R). In a preliminary step, a subset of 90 accessions was selected and characterized. For these 90 samples, an initial set of ~16000 SNPs were obtained after genotyping. This large amount of SNPs is being scored with the GenomeStudio™ Genotyping Module v2.0 from Illumina (Illumina, Inc.) using different parameters to guarantee a high-quality final set. In a near future, the whole population will be scored and characterized to investigate the biological and genetic basis under the susceptibility to postharvest disorders and fungal diseases. "PostPeachBreed" aims to provide peach breeding programs with tools and plant material to assist the breeding of new cultivars with high quality fruit organoleptic traits, long storage and shelf-life and low susceptibility to fungal diseases.



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