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Phenotypic characterization of the reciprocal translocation present in the barley variety 'Albacete'

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'Albacete' is a Spanish six-row barley variety adapted to low-yielding West Mediterranean areas and it has been the most widely grown in the driest Spanish areas for the last four decades. 'Albacete' is the only known case of a large reciprocal translocation among widely cultivated barley genotypes. This type of chromosomal rearrangement changes the linear order of genes and, thus, the genetic expression could be modified. Therefore, a deep knowledge about the molecular and physical characteristics of this mutation is needed to study its associated phenotype. In this order, we have established a linkage map for a population of 118 doubled haploid lines (DHLs) from the 'Albacete' x 'Plaisant' cross based on eighty polymorphic markers (SSRs and ESTs) and on around 400 DArT markers. This map genetically confirmed what was cytologically determined by means of "fluorescence in situ hybridization" techniques, the short arms of chromosomes 1H and 3H are the interchanged fragments. Eighty DHLs have been extensively phenotyped for two years (2005 and 2006) under two different agro-ecological conditions. Association analyses will allow us to find a possible relationship between this chromosome rearrangement and the 'Albacete' specific phenotype.