

ABSTRACTS BOOK

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P0205 GENOME RE-SEQUENCING OF PIEDMONTESE PEPPER ECOTYPES

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1 Full text

Among the vegetables grown in Piedmont (North-West Italy), pepper (*Capsicum annuum* L.) plays a key role. Valuable ecotypes (landraces) are present in cultivation, which are morphologically recognizable and possess a certain genetic identity. They are the result of secular selections for adaptation to specific ecological niches and provide a product with organoleptic and sensorial qualities particularly appreciated by consumers. The recent availability of the of *Capsicum annuum* cv. CM334 genome sequence makes possible the re-sequencing of genotypes of the species and the identification, at high precision, of allelic and structural variants.

We report on the Illumina resequencing (paired-end, 2 x 150 bp), at a coverage of ~35X, of four previously developed breeding lines, which are representative of the main ecotypes (i.e. 'Cuneo', Quadrato', 'Corno' and 'Tumaticot') in cultivation in the Piedmont Region (North-West Italy).

Reads were aligned to the reference genome using standard pipelines. Overall, ~19 M SNP/Indel were shared: 16.65 M in 'Cuneo', 18.01 M in 'Quadrato', 18.07 M in 'Corno', 16.33 M in Tumaticot. The heterozygosity ranged from ~0.2% in 'Corno' to ~0.1% in Tumaticot. The reconstruction of the four genomic sequences at a chromosomal scale, and their structural/functional annotation is ongoing. The identified genetic variants will represent key tools for the development of diagnostic markers and to dissect the path from sequence variation to phenotype.