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Breeding quality melons with resistances derived from African accession TGR1551

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The *Cucumis melo* ssp. *agrestis* African accession TGR-1551 has been reported as resistant to three of the most important pathogens affecting melon: *Watermelon mosaic virus* (WMV), *Cucurbit yellow stunting disorder virus* (CYSDV) and powdery mildew (*Podosphaera xanthii*). The availability of a population of recombinant inbred lines in the genetic background of the yellow melon ‘Bola de Oro’ (BO), allowed the mapping of the genomic regions associated to the resistance to these pathogens and the development of molecular markers for marker assisted selection (MAS). In the context of the research projects funded by the ‘Ministerio de Ciencia, Innovación y Universidades’ cofunded by FEDER (AGL2017-85563-C2 1-R and 2-R) and by the ‘Generalitat Valenciana’ (project for excellence groups (PROMETEO 2017/078), we have initiated the breeding program for the introgression of the resistance in the genetic background of commercial melon varieties. MAS was used in advanced backcross generations to select plants carrying the regions associated with the resistance. With the aim of recovering the quality traits of the recurrent parent, ‘Bola de Oro’, selection against the TGR-1551 background was done for the rest of the genome, using previously developed markers uniformly distributed in the 12 chromosomes. The molecular markers associated to the resistance regions were validated by phenotyping for resistance and genotyping selected generations. Moreover, fruits from the resistant plants showed good morphological characteristics and organoleptic quality. Similar work is in progress for the introgression of resistance in the ‘Piel de Sapo’ background. The generations available will be the basis for the development of quality commercial varieties incorporating TGR1551-derived resistances.

Key words: *Cucumis melo*, organoleptic quality, MAS