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FINE-MAPPING OF *QSBM.UBO-2BS*, A MAJOR QTL FOR RESISTANCE TO SOIL-BORNE CEREAL MOSAIC VIRUS (SBCMV)

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Qsbm.ubo-2BS, a major QTL responsible for SBCMV (Soil-borne cereal mosaic virus) response in durum wheat, was characterized in Meridiano (resistant) x Claudio (moderately susceptible) Recombinant Inbred Lines (RILs). *Qsbm.ubo-2BS* was mapped as a unique major QTL ($R^2 = 88.5\%$) within a 2 cM-wide interval (LOD-2) in the distal region of chromosome arm 2BS, with *wPt-2106* (DarT[®]) as the closest marker. The Illumina 90K SNPs array allowed to map 36 gene-associated SNP markers in the region containing the mendelized QTL. Five SNPs from the Illumina 90K and ten SNPs from the Affimetrix 420K wheat array were converted to KASP[™] markers. High resolution mapping was constructed using KASP[™] markers flanking the QTL interval on ~2000 RILs Svevo (resistant) x Ciccio (moderately susceptible) developed by UNIBA. In total, 330 recombinant RILs were identified and characterized for SBCMV response in an inoculated field. Symptom severity was scored on a 0 to 5 scale and screened with five KASP[™] markers distributed along the QTL interval confirming its presence. Based on the markers physical position, the gene space of *Qsbm.ubo-2BS* was defined. On a total of 43 genes, 12 could be described as candidates of resistance response. As to future perspectives, exome capture analysis will be conducted to identify allelic variants among the candidate resistant genes. Moreover, an RNAseq experiment was performed on two groups of five susceptible and five resistant haplotypes each. Two large recombinant populations obtained by crossing resistant and susceptible parents, produced and advanced at F₄ generation, are being analyzed to identify new informative recombinants and heterozygotes to obtain F_{4:6} contrasting genetic stocks. The research was supported by FSOV (*Le Fonds de soutien à l'obtention végétale*): *Développement d'outils phénotypique et génotypique pour améliorer la sélection de la résistance du blé dur à deux virus des mosaïques du blé.*

ABSTRACT