

Identification of QTL associated with resistance to bacterial spot of tomato, race T4

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Resistance to bacterial spot of tomato (*Solanum lycopersicum*), race T4 (*Xanthomonas perforans*) has been characterized in advanced breeding lines Fla. 8326, Fla. 8233 and Fla. 8517. Generation means analyses showed that genetic control of resistance is mainly by dominance and epistasis. Resistant and susceptible progeny derived from each breeding line were selectively genotyped with polymorphic markers, and QTL were identified by tests for transmission disequilibrium. Significant QTL were located on chromosomes 3, 9, 11 and 12, and marginally non-significant QTL were on chromosomes 1, 5 and 10. Three F₂ populations corresponding to each of the three resistant breeding lines were evaluated in fall 2008 for QTL confirmation. Two of these populations utilized the susceptible parent Fla. 7946, a heat-tolerant breeding line with resistance to *Fusarium oxysporum* f. sp. *lycopersici* race 3 (I3+). Preliminary data analysis showed that all three F₂ populations confirm the chromosome 11 introgression as a major race T4 QTL. Additionally, the two populations involving Fla. 7946 each indicate a significant association between I3+ and greater bacterial spot disease severity. These and results from further data analysis will be discussed.