Identification of Markers Linked to *Sw-7* a New *Tomato Spotted Wilt Virus* Resistance Gene, Derived from *S. chilense*

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Several *Tomato spotted wilt virus* (TSWV) resistance genes have been identified (*Sw*$_{1a}$, *Sw*$_{1b}$, *sw*$_2$, *sw*$_3$, *sw*$_4$, *Sw-6*, and *Sw-5*); however, *Sw-5* is the only gene that has been broadly utilized in tomato breeding because of its durability to multiple tospoviruses (Boiteux and Giordano, 1992; Stevens et al, 1992, Stevens, unreported data). Although rare, there have been new TSWV isolates identified that overcome *Sw-5* (Latham. and Jones, 1998; McMichael et al. 2002). Tospovirus resistance from *Solanum chilense* has been identified by Stevens et al. (1994) and introgression from this species has demonstrated to be useful under field conditions (Canady et al., 2001). This germplasm has demonstrated resistance to isolates that overcome *Sw-5* (Stevens, unreported data). Recently we concluded that this resistance was conferred by a single dominant gene not linked *to Sw*-5 (Scott, Olson, and Stevens, unpublished data). This gene is tentatively being referred to as *Sw-7*. Thirty-seven sister lines putatively containing *Sw-7* (developed from F_2 and BC_1 plants suggesting TSWV resistance) have been used to identify molecular markers. After an initial screening of six *Sw-7* segregating lines using over 256 AFLP primer combinations we identified 16 combinations which revealed 30 candidate markers suggesting linkage to *Sw-7*. These 30 putative *Sw-7* markers have been examined on our carefully screened 37 F_2 and BC_1 lines along with the seven field selected Florida lines. One strong candidate AFLP marker has been identified (~200bp) in both the 37 greenhouse selected lines and the seven Florida field selected lines. This candidate marker is currently being prepared to be cloned and sequenced. We are hoping to use this marker to identify where in the tomato genome *Sw-7* is located. Additionally, analysis with this marker is currently being conducted on a much larger TSWV resistant population derived from the same germplasm.

Literature Cited

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