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Genetic characterization of heat tolerant tomato (*Solanum lycopersicon*) genotypes by SRAP and RAPD markers

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ABSTRACT. We employed RAPD and sequence-related amplified polymorphism (SRAP) markers to evaluate polymorphisms in 15 tomato (*Solanum lycopersicon*) genotypes that were obtained from a tomato breeding program. Four local tomato genotypes selected from the Sanliurfa province (Southeastern Anatolia Region of Turkey), 10 heat-tolerant tomato genotypes, received from the Asian Vegetable Research and Development Center, and a sample of *S. pimpinellifolium* were genotyped with RAPD and SRAP markers. Eleven SRAP primer combinations were used and 66 bands were scored. The number of bands scored per primer combination ranged from three to 12, with a mean of six alleles per primer combination. All fragments scored for each primer combination were polymorphic. The percentage of polymorphic products ranged from 25 to 80%. The 15 tomato genotypes were screened for RAPD markers using 50 primers in a PCR-based DNA amplification procedure; 46 primers produced clear and good amplification. Ten of these 46 primers amplified monomorphic

fragments in the tomato genotypes. A dendrogram was constructed by combining data from the RAPD and SRAP analyses. Similarity ratios of genotypes ranged from 0.87 to 0.99. The dendrogram was divided into two branches; the first main branch included only genotype CL 5915, and the second main branch included all the other genotypes.

Key words: *Solanum lycopersicon*; Heat tolerance; Molecular markers; Polymorphism; DNA fingerprinting; Genetic characterization

