



Genetic variability of NaCl tolerance in tomato

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ABSTRACT. Cultivation of crops in soils with high salt (NaCl) content can affect plant development. We examined the morphological and physiological mechanisms of salt tolerance in tomato. The responses of 72 accessions of tomato (*Solanum lycopersicum*) to salinity were compared by measuring shoot and root lengths, and fresh shoot and root weights relative to those of controls (plants grown in normal salt levels). All traits were reduced at the seedling stage when salinity levels were increased. The accession x salinity interaction was significant for all traits. Root length had higher heritability than other traits and was used as a selection criterion to identify salt-tolerant and -non-tolerant accessions. On the basis of root length, accessions LA2661, CLN2498A, CLN1621L, BL1176, 6233, and 17870 were considered to be more tolerant than accessions 17902, LO2875 and LO4360. The degree of salt tolerance was checked by analyzing K⁺ and Na⁺ concentrations and K⁺/Na⁺ ratio in tissues of plants treated with 10 and 15 dS/m salinity levels. Tolerance of these accessions to salinity was most associated with low accumulation of Na⁺ and higher K⁺/Na⁺ ratios.

Key words: *Solanum lycopersicum*; NaCl; Tomato; Root length; Relative growth rate; K⁺/Na⁺ ratio