

Carrot breeding for *Alternaria* leaf blight resistance

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Abstract

Studies were conducted in a field research plot of the Kazakh Research Institute of Potato and Vegetable Growing on furrow-irrigated, clay-loam, dark-chestnut soils. Carrot selections were visually screened over three seasons for *Alternaria* leaf blight (ALB) (*Alternaria* ssp.) resistance. Field evaluation of carrot leaf infection by ALB was visually scored one month before harvest, at maximum display of foliage infection. The rating scale was: 0 - disease symptoms are absent; 1 - low susceptible (1-10% of foliage); 2 - moderately susceptible (11-25% of foliage); 3 - susceptible (26-50% of foliage); and 4 - highly susceptible (more than 51% of foliage). For the assessment of carrot plants' resistance to leaf infection by ALB, the coefficients of weighted-mean infection, intensity of distribution and degree of infection development were calculated. Of the 86 carrot selections screened visually, 69 carrot selections exhibited very low susceptibility to ALB (0.1-1.0 points), 16 accessions were considered low susceptible (1.1-2.0 points), and selection number CR425 was moderately susceptible (2.1-3.0 points) to ALB. Correlation analysis indicated the lack of any association between ALB infection rates and yield or other carrot quality traits ($R=-0.002-0.115$).