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Evaluation of some Petaloid Type of Male Sterility Inbred Lines of Carrot (*Daucus carota* L.) in the South Area and South East Area of Romania

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SUMMARY

Male sterility of petaloid type is genetic controlled, but is also influenced by some environmental factors especially temperature. These studies aimed to evaluate the inbred lines in order to establish both the phenotypically stability of the male sterile character and general combinative ability regarding their use as female genitor for F_1 hybrids. During the 2007-2009 period, three petaloid type of male sterility inbred lines of carrot (LMP14; LMP15; LMP53) developed at the Research and Development Institute for Vegetable and Flower Growing – Vidra, were investigated in comparative trials for evaluation order the growing conditions of the southern part (Research and Development Institute for Vegetable and Flower Growing – Vidra, Ilfov District) and southern-eastern part of Romania (Research and Development Station for Vegetable Growing - Buzau and Commercial Society Petrosu – joint stock company - Braila). Phenotypically stability of the inbred lines was appreciated in flower stage on the basis the male sterile percent grown every year (850 for each line). General combinative ability of the inbred lines was estimated by the determination of the yielding potential of the eighteen hybrid combinations. For each male sterile line used as female genitor were used six inbred male fertile lines used as male genitors (LFM14; LFM15; LFM53; LFM74; LFM77; LFM86). The results represent average values for the three experimental years in three different growing areas. The signification of differences was established by the multiple comparison method. Evaluation of inbred lines revealed that the LMP53 line was the most stabile from phenotypically point of view during all the flower stage (99.2%).The lowest percent of male sterile plants was recorded in LMP14 line (98,8%) male sterile plants). The highest yielding potential (74.5t/ha) was recorded in LMP53XLFM74 combination while the lowers was of 49.2t/ha in LMP15xLFM14 combination. One could conclude that the three male sterile inbred lines have phenotypically stability for southern and southeastern part of the country. For the both selection criteria (phenotypically stability of male sterile and general combinative ability) was evident LMP53 line, which was used as female genitor for the promising hybrid HMV1 (LPM53X LFM74 combination).

Keywords: yield, carrot, inbred lines, male sterile