Sincik, M., A.T. Göksoy And Z.M. Turan, 2011. The heterosis and combining ability of diallel crosses of rapeseed ınbred lines. Notulae Botanicae Horti Agrobotanici, 39(2):242-248.

Abstract

The heterosis and combining ability of four rapeseed (*Brassica napus* L.) genotypes were estimated using diallel crosses. An experiment was conducted at Uludag University, Bursa, Turkey, during the 2005-2006 and 2006-2007 growing seasons using 4x4 full diallel crosses. All of the 12 F1 hybrids and their parents were planted in a randomized complete block design with three replications. The data obtained from the experiment were subjected to an analysis of variance. The analysis of variance indicated significant differences among parents and their hybrids in the F1 generation for all the characters studied except for 1000-seed weight, which was non-significant. Positive better-parent heterosis for seed yield per plant were found in all 12 hybrids tested. An analysis of the components of combining ability showed that general combining ability (GCA) and reciprocal combining ability (RCA) were highly significant ($p \leq 0.01$) for plant height and number of pods per main raceme, whereas specific combining ability (SCA) was highly significant for all traits but 1000-seed weight. The parent genotypes PR1, PR3 and PR4 with the hybrids PR1 x PR3 and PR1 x PR4 showed higher GCA and SCA effects, respectively, and therefore could be used to develop high-yielding lines.

Keywords: *Brassica napus* L., better-parent, combining ability, seed yield, yield components