

THE RESISTANCE OF ADVANCED HIGH OLEIC RESTORER LINES AND THE EVALUATION OF THEIR HYBRIDS' YIELD TRAITS

İbrahim Mehmet YILMAZ¹, Veli PEKCAN¹, Goksel EVCI¹, Tugba Hilal CIFTÇIGİL¹,
Yalçın KAYA²

¹ Trakya Agricultural Research Institute, Edirne, TURKEY

² Trakya University, Edirne, TURKEY

yilmazmehmet22@hotmail.com

ABSTRACT

Downy mildew is the most serious disease in sunflower production in Turkey. To determine the adaptation and combining abilities of inbred lines is key issue in sunflower hybrid breeding. F8 and F9 stage restorer lines having high oleic acid content crossed with 9661-A (CMS) female line used as female tester for general combination ability were used in the study. These restorer lines developed in National Sunflower Hybrid Breeding Project conducted by Trakya Agricultural Research Institute (TARI) were selected as resistant to the broomrape parasite (*Orobancha cumana*) which is the major problem in most of sunflower growing areas in Turkey among other inbred lines in TARI. Mildew tests were conducted in artificial inoculation collected from infected plants as a mixture at various locations across Thrace region in 2014. In downy mildew tests, plant samples having a blend of all the mildew races were dried under shadow as 24-48 hours then they were preserved in the cooler at -80 C°. Based on downy mildew test results, the hybrids with F8-R SN: 1, 2, 7, 8, 17 and F9-R SN: 9, 10, 12, 13 restorer lines were found fully resistant and others were found mid resistant. To determine their performances of these 18 hybrids, yield trial was conducted as randomized complete blocks design with 3 reps in 4 rows and with three commercial controls at Edirne location in 2015. For seed yield, the number of 5, 15 and 12 inbred line hybrids exhibited higher performances than commercial checks. While the numbered of 4, 5, 12, 15 and 16 line hybrids were found as resistant to downy mildew whereas other hybrids were found as mid resistant. As a result, high oleic, resistant to downy mildew and broomrape restorer lines and their hybrids and also exhibited higher yield and quality performance ones were determined. If they keeps higher performances in this year, they will send registration trials and the same testers will be used for developing sunflower hybrids for downy mildew and high oleic types.

Key Words : Sunflower, High Oleic, Downy Mildew Resistant, Tester, Restorer Line