

Genotypic Variation in the Germination Performance and Seed Vigor of Safflower (*Carthamus tinctorius* L.)

Authors : Mehmet Demir Kaya, Engin Gökhan Kulan, Onur İleri, Süleyman Avcı

Abstract : Due to variation in seed size, shape and oil content of safflower cultivars, germination and emergence performance have been severely influenced by seed characteristics. This study aimed to determine genotypic variation among safflower genotypes for one thousand seed weight, oil content, germination and seed vigor using electrical conductivity (EC) and cold test. In the study, safflower lines ES37-5, ES38-4, ES43-11, ES55-14 and ES58-11 which were developed by single seed selection method, and Dinçer and Remzibey-05 were used as standard varieties. The genotypes were grown under rainfed conditions in Eskişehir, Turkey with four replications. The seeds of each genotype were subjected to standard germination and emergence test at 25°C for 10 days with four replications and 50 seeds per replicate. Electrical conductivity test was performed at 25°C for 24 h to assess the seed vigor. Also, cold test were applied to each safflower genotype at 10°C for 4 days and 25°C for 6 days. Results showed that oil content of the safflower genotypes were different. The highest oil content was determined in ES43-11 with 36.6% while the lowest was 25.9% in ES38-4. Higher germination and emergence rate were obtained from ES55-14 with 96.5% and 73.0%, respectively. There was no significant difference among the safflower genotypes for EC values. Cold test showed that ES43-11 and ES55-14 gave the maximum germination percentages. It was concluded that genotypic factors except for soil and climatic conditions play an important role for determining seed vigor because safflower genotypes grown at the same condition produced various seed vigor values.

Keywords : *Carthamus tinctorius* L., germination, emergence, cold test, electrical conductivity

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