

Evaluation of drought tolerance in barley doubled haploid lines using drought tolerance indices

Authors:

**Mojgan Mahbubi¹,
Ali Khomari² and
Ramin Belali³**

Institution:

1. Department of Agronomy and Plant Breeding, Sanandaj Branch, Islamic Azad University, Sanandaj, Iran.
2. Department of Agronomy and Plant Breeding, Young Research and Elite Club, Karaj Branch, Islamic Azad University, Karaj, Iran.
3. Department of Agronomy and Plant Breeding, Tabriz Branch, Islamic Azad University, Tabriz, Iran

**Corresponding author:
Mojgan Mahbubi**

ABSTRACT:

Forty five barley doubled haploid lines (DH) resulted from integrating Morex and Steotoe cultivars, as the parent cultivars, along with three native cultivars are compared based on the Randomized Complete Block design (RCB) with three replications under both normal irrigation and drought stress at Agricultural Research Station of Marand during 2011-12. Based on the stress tolerance indices of SSI1 and TOL2, the lines 5, 37, 34, 13 and 19, and based on the indexes of STI3, GMP4 and MP5, the lines 15, 6, 16, 22, 30 and 29 are identified as the drought stress tolerant lines. The cluster analysis through Ward method has clustered the lines in both normal irrigation and drought stress conditions into two clusters. Under the normal irrigation condition, the lines of second cluster have better yield than the lines of first cluster. Furthermore, under the drought stress, the second cluster lines have higher yield and drought tolerance than the first cluster lines.

Keywords:

Cluster analysis, drought tolerance indices, doubled haploid lines.