

Physiological and morphological response of maize (*Zea mays* L.) inbred lines under drought condition

■ K.T. VENKATESHA, M. ASIF, K.V. VIJAY KUMAR AND H. SHIVANNA

SUMMARY

The present study was conducted to assess drought tolerant and grain yield traits in maize. Seventeen stable and productive inbred lines were evaluated under drought condition. Results revealed that, The analysis of variance in respect to four drought tolerant and twelve yields and yield attributing characters indicated highly significant differences among the genotypes as revealed by 'F' test. Among the inbred lines, SKV-70, CML-249, CML-357 showed the better mean values for drought tolerant traits viz., SPAD chlorophyll meter reading (SCMR), specific leaf area (SLA), anthesis silking interval (ASI), carbon isotope discrimination ($\Delta^{13}\text{C}$) in desirable direction. Lines NAI-143, NAI-156, SKV-70 had higher yielding ability along with good drought tolerance ability compared to other inbred lines.

Key Words : SPAD chlorophyll meter reading (SCMR), Specific leaf area (SLA), Anthesis silking interval (ASI), Carbon isotope discrimination ($\Delta^{13}\text{C}$)

How to cite this article : Venkatesha, K.T., Asif, M., Vijay Kumar, K.V. and Shivanna, H. (2013). Physiological and morphological response of maize (*Zea mays* L.) inbred lines under drought condition. *Internat. J. Plant Sci.*, 8 (1) : 131-133.

Article chronicle : Received : 17.08.2012; Revised : 30.09.2012; Accepted : 19.11.2012

Maize (*Zea mays* L.) is the third most important crop among the cereal crops grown in India. Maize grain is gaining popularity in our country due to huge demand, particularly for poultry feed industry. Besides, maize has diversified uses as food and industrial raw materials. Maize acreage and production have an increasing tendency with the introduction of hybrids due to its high yield potential.

A good number of inbreds developed recently is available at the All India Coordinated Research Project on Maize, Zonal Agricultural Research Station, Mandya whose

combining ability has not yet been studied for utilization in hybrid development programme. Most efficient use of such materials would be possible only when adequate information on the amount and type of genetic variation and combining ability effects in the materials is available. A wide array of biometrical tools is available to breeders for characterizing genetic control of economically important traits as a guide to decide upon an appropriate breeding methodology to involve in hybrid breeding. The present investigation was carried out to identify the drought tolerant inbred lines along with high yielding ability by evaluating them under drought condition in field.

MATERIALS AND METHODS

Seventeen high yield potential inbred lines were evaluated under controlled moisture condition along with two checks NAH 2049 and NAH-1137 in a Randomized Complete Block Design with two replications at Zonal Agricultural Research Station, V.C. Farm, Mandya, University of Agricultural Sciences, Bangalore, which is located at a latitude of $12^{\circ} 30' \text{N}$, longitude of $76^{\circ} 50' \text{E}$ and altitude of 694.65 meters

MEMBERS OF THE RESEARCH FORUM

K.T. VENKATESHA, Department of Genetics and Plant Breeding, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA
Email: venki5441@gmail.com

Address of the Co-authors:

M. ASIF AND K.V. VIJAY KUMAR, Departments of Genetics and Plant Breeding, G.K.V.K., University of Agricultural Sciences, BENGALURU (KARNATAKA) INDIA
.....

H. SHIVANNA, Directorate of Research, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA