Sara Sintayehu, J Food Process Technol 2018, Volume: 9
DOI: 10.4172/2157-7110-C3-084

The study of growth and physiological characters in Sorghum *(Sorghum bicolor (L.) Moench)* introgression lines under post flowering drought stress

Sara Sintayehu
Haramaya University, Ethiopia

Drought is serious problem in rainfed areas due to rapid change in climatic conditions. Among prevailing abiotic stresses, it is the most significant and severe factor inhibiting plant growth and production through impairing normal growth, disturbance of water relations, reduction of water use efficiency and yield performance. The objective of this study was to evaluate growth, physiological and yield performance of sorghum introgression lines under post-flowering stress. The field experiment was conducted on seven stay-green QTLs introgression lines (marker assisted backcrossing derivatives), two stay-green donor parents and three recurrent parents obtained from Melkassa Agricultural Research Center. The experimental materials were tested in split plot design under well watered (WW) and drought stress (DS) growing conditions at Melka Werer field sites during the post-rainy cropping season of 2014. The combined ANOVA revealed that effect due to moisture regimes (MR) was highly significant ($P<0.05$) for all traits. Differences among the genotypes were also highly significant ($P<0.05$) for all traits considered. Post-flowering drought stress reduced growth, physiological and yield related traits relative to the well watered condition. Drought induction reduced average leaf area, green leaf number, chlorophyll content, relative water content, CO2 assimilation, transpiration, water use efficiency, root length, root dry weight, grain yield, hundred kernel weight and panicle weight. B35, E36-1, Meko x B35-120, Meko x B35-116, Teshale x B35-2011 and Teshale x E36-1 showed better drought stress tolerance and stay green property. Meko x B35-120, Meko x B35-116, Teshale x B35-2011 and Teshale x E36-1 was selected for maximum grain yield under post-flowering drought condition. Correlation, analysis revealed that chlorophyll content, green leaf area, assimilation rate, water use efficiency, lower rate of leaf senescence, root length, root dry weight and grain yield have been found to be growth and physiological traits for drought tolerance and for stay-green property during post-flowering stage.

Biography

Sara Sintayehu has her expertise in Plant Biology and Biodiversity Management. She has Master of Science in Plant Physiology. At the time being she is a Lecturer in Hararmaya University, College of Agriculture, Ethiopia. Her thesis has focused on Drought Tolerance Mechanism of Drought Tolerant Genotypes which was backcrossed With Stay Green Parent. Currently she is working on project of Wild Edible Plants in Eastern Ethiopia for increasing the Food Demand of the Community.

sara_sintayehu2009@yahoo.com

Notes: