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Response of Chickpea (Cicer arietinum L.) Genotypes to Drought Stress at Different Growth Stages

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Abstract : Chickpea (Cicer arietinum L.) is one of the important grain legume crops in the world. However, drought stress is a serious threat to chickpea production, and development of drought-resistant varieties is a necessity. Field experiments were conducted to evaluate the response of 8 chickpea genotypes (MCC* 696, 537, 80, 283, 392, 361, 252, 397) and drought stress (S1: non-stress, S2: stress at vegetative growth stage, S3: stress at early bloom, S4: stress at early pod visible) at different growth stages. Experiment was arranged in split plot design with four replications. Difference among the drought stress time was found to be significant for investigated traits except biological yield. Differences were observed for genotypes in flowering time, pod information time, physiological maturation time and yield. Plant height reduced due to drought stress in vegetative growth stage. Stem dry weight reduced due to drought stress in pod visibly. Flowering time, maturation time, pod number, number of seed per plant and yield cause of drought stress in flowering was also reduced. The correlation between yield and number of seed per plant and biological yield was positive. The MCC283 and MCC696 were the high-tolerance genotypes. These results demonstrated that drought stress delayed phonological growth in chickpea and that flowering stage is sensitive.

Keywords : chickpea, drought stress, growth stage, tolerance
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