Assessment of drought tolerance characteristics and performance of chickpea (*Cicer arietinum* L.) genotypes

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Abstract: A field experiment was conducted during the post-rainy season of 2003-04 at the Main Agricultural Research Station, University of Agricultural Sciences, Dharwad to assess the drought tolerance features and performance of chick pea genotypes. The experiment was laid out in randomized completely block design with three replications consisting of 16 chickpea genotypes. The chick pea genotypes representing both *desi* and *kabuli* types of cultivated species varying in their degree of drought tolerance were included in the study. The results revealed significant differences among the genotypes with respect to relative water content (RWC), free proline content, chlorophyll (a, b and total) content, chlorophyll stability index (CSI) and grain yield. In general, RWC, proline content, total chlorophyll content and CSI values were higher at 40 days after sowing (DAS) and decreased at 70 DAS. The chlorophyll stability index (CSI) was higher in high yielding varieties. Correlation between grain yield and physio-biochemical parameters indicated significant positive correlation with RWC (0.77), proline content (0.92), total chlorophyll (0.91) and CSI (0.93). The genotype BG-1092 recorded significantly higher seed yield (1599 kg/ha) than all the other genotypes tested and exhibited superior drought tolerance features such as higher proline content and CSI than the desi genotype A-1.

Key words: Chickpea, Chorophyll, Chlorophyll stability index, Proline, Relative water content