

# Physiological Parameters in Relation to Drought Tolerance in Chickpea (*Cicer arietinum* L.)

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## ABSTRACT

Field experiment was conducted with nine chickpea genotypes during three successive *Rabi* seasons of 2007, 2008 and 2009 at Regional Agricultural Research Station, Nandyal to identify high yielding chickpea genotypes with tolerance to drought. Pooled analysis of variance indicated that highly significant differences was observed among the genotypes for yield and drought tolerant parameters. The highest mean seed yield was recorded in Vijay (1011 kg/ha) followed by JAKI-9218 (977 kg/ha) and JG-11(968 kg/ha). Genotype JAKI-9218 (63%) and JG-11 (62%) also recorded higher relative water content. Higher proline content was recorded at filling stage in all genotypes. Apart from high proline content (3.13  $\mu$  mol per g tissue), the genotype JAKI-9218 has high RWC and SCMR. JG-11 also recorded high RWC Where as Vihar, a kabuli genotype exhibited higher SCMR. Higher SPAD chlorophyll Meter values at 60 DAS were recorded in JAKI-9218 (45) and Vihar (45). JAKI-9218 also recorded higher value of SPAD chlorophyll Meter reading at 30 DAS and comparatively higher proline content (3.13  $\mu$  mol per g tissue). Thus these promising genotypes identified for various drought tolerance and yield attributes can be exploited further in breeding programmes in order to develop high yielding drought tolerant chickpea genotypes.

**Key words :** Chickpea, R.W. C, Proline, Seed yield, SPAD chlorophyll meter readings.