

Development of Drought Tolerant Chilli (*Capsicum annuum* L.) Hybrids

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Chilli is grown as a rainfed crop in many parts of Tamil Nadu and India. Drought stress causes early flowering in chilli plants and many other phenotypic changes that lead to poor growth and yield. To date, there is no chilli variety or hybrid exclusively developed for drought tolerance in India. Therefore, a study on climate resilient chilli (*Capsicum annuum* L.) hybrid development was carried out in the Department of Vegetable Science, Horticultural College and Research Institute, Tamil Nadu Agricultural University, India. The wild relatives of chilli viz., *Capsicum chinense*, *C. baccatum* var. *pendulum* and *C. eximium* are recognized as drought tolerant species used for the development of inter and intra-specific F1 hybrids with a special emphasis to thrive under high water deficit regimes along with the production of high yielding and better-quality fruits. In view of the above considerations, chilli germplasm consisted of *C. annuum*, and their related species was chosen to develop F1 hybrids, and screening was carried out at the laboratory level using PEG and then under pot culture studies. Hybridization was done among the screened drought tolerant chilli genotypes and wild species. The results showed that the *C. annuum* hybrids viz., IC-119233 x Arka Lohit, IC-045986 x Arka Lohit and IC-119233 x IC-119231 and the inter-specific hybrid IC-119233 x EC-362917 (*C. annuum* x *C. baccatum*) were identified as promising and best-performing hybrids for drought tolerance.

Keywords: Chilli, Climate resilient, F1 hybrids, Drought tolerant