Generation Challenge Programme

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Poster Abstracts

1.7 Mining allelic diversity associated with drought and salinity tolerance in the reference subset of chickpea germplasm collections

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Drought, salinity, and extreme variations in temperature are the major abiotic constraints to chickpea production worldwide. With support from GCP, we developed a global composite collection (3,000 accessions), profiled its structure and diversity using SSRs (50), and a reference set of 300 accessions (211 chickpea mini core + 89 additional diverse accessions) identified using DARwin-5.0. This reference set captured 78% (1403 alleles) of the 1791 alleles of the composite collection. Currently, we are saturating this reference set with additional SSRs and have plans to survey this reference set using DArT markers once the DArT technology is established at ICRISAT. Techniques for screening for drought (root traits) and salinity tolerance have been standardized. Published studies revealed genetic variability for traits associated with drought and salinity tolerance among chickpea mini core germplasm accessions. We plan to extensively evaluate this reference set (300 accessions) for drought and salinity tolerance besides agronomic and quality traits and associate this variation with allelic diversity present in the reference subset. The genetically diverse accessions with contrasting response to drought and salinity will be identified for diverse uses in chickpea genomics and breeding.

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