Characterizing Early Season Vigor and Low Temperature Tolerance in Sorghum bicolor. (C01-pandravada204607-Oral)

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Abstract:

Sorghum bicolor (L.) Moench is grown in diverse environments around the world. Studies have shown that early planting of grain sorghum in temperate environments should contribute to better utilization of residual soil moisture in spring, lower pest infestation and should lead to early harvest, while improving overall productivity. The crop possesses excellent drought and heat tolerance. However, sorghum generally is susceptible to low temperature stress, which limits its cultivation in cooler temperate areas. Germplasm characterization studies have identified several sources of early-season cold tolerance in sorghum. Accessions that produce cold tolerant F1 hybrids are being used to evaluate the genetic basis for this trait. A population of 112 recombinant inbred lines was developed from a cross between ShanquiRed (cold tolerant high altitude kaoling line) and Tx430 (cold susceptible). This population is being characterized for early season vigor in field and growth chamber trials. Initial results indicate significant differences among lines for emergence, dry matter and vigor. Gene mapping studies are being conducted to identify molecular markers for these quantitative traits for further use in marker-assisted selection and map-based cloning

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