

Category: Research-related student presentations (poster)

Title: MOLECULAR TECHNIQUES FOR GENETIC ANALYSIS OF SORGHUM

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The application of genetics in crop research today centers around the use of high-tech equipment and analytical procedures to investigate a crop's DNA. Molecular genetic research in regards to improving sorghum (*Sorghum bicolor* L. Moench) varieties is no exception. Without the latest molecular technology we would be walking into the field of genetics blindfolded. The various equipment used during my internship were geared to conduct genomic DNA extractions, dilution, and electrophoresis of DNA and application of polymerase chain reaction (PCR) protocols to isolate desired genes. Current techniques for efficient extraction of multiple samples of DNA (medium throughput method) required the use of a lyophilizer to “freeze dry” leaf samples in preparation for DNA isolation, multi sample bead grinder, incubator, centrifuge, fume hood, and pipetting skills using single-channel and multichannel pipettors, repeater pipettors and 96-well pipette plates. After extraction, DNA samples had to be quantified using NanoDrop spectrophotometer and carefully diluted prior to running PCR to isolate the desired gene we are looking for. Thanks to the advances in technology and high-tech equipment, such as a thermo cycler and PCR apparatus, that we are able to make such advancements in the research of sorghum genetics. This has allowed us to make faster determination of different genetic make-up of the plant, rather than the time consuming aspects of traditional plant breeding.

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