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Identification Related SNP that Salinity Stress at Heading Date and Ripen Period in Korean Wheat Core Collection Accession by GWAS Analysis

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[Introduction]

The reproductive growth period is an important period in relation to the panicle formation stage of wheat and the flowering seeds. So, it is considered to be important because abiotic stress on negatively affects plant flowering and seeding as decreasing in quantity. Soil condition and moisture content are expected to have a huge impact on the overall growth period plants. Therefore, the viability of crops is threatened by acidification and droughts caused by extreme climates. In order to cope with these circumstance, we would like to explore resources with resistant drought and salt stress. And promoting breeding development through exploration

[Materials and Methods]

We are evaluating salt or drought tolerant index in heading date and ripening stage under stress treatment with Korean wheat core collection for phenotyping. For genotyping, a total of 566 accessions of the 614 core collection selected after consideration of DNA QC to SNP chip. Process to GWAS in R on GAPIT method's FarmCPU.

[Results and Discussion]

Salt treatment and drought treatment carried out for heading and ripening stage. Exploring changes in soil moisture, pH, and chlorophyll content were compared in the seedling and maturation period using a spad-502(chlorophyll meter). In wheat at the salt stress treated in reproductive stage, 4 SNP chip code (each 3A, 5D, 6D, 1B chromosome) were selected for excellent candidate resources by chlorophyll measurement. Additionally, a total of 22,776 SNPs were selected by more 1% of minor allele frequency and higher 90% calling rate. In the future, drought tolerance gene or SNP for performing Genome Wide Associated Study (GWAS) based on the sorted phenotype and genotype data.

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