

**PB-24**

## **Selection of Germplasm to Improve the HMW-GS Composition for Bread Quality in Wheat**

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### **[Introduction]**

*Triticum aestivum* L. is a staple crop for half of the world population. Development of varieties with high breadmaking qualities is needed to meet for growing demand. High molecular weight glutenin subunits (HMW-GSs) are major storage proteins and mainly affect the dough elasticity through promoting the formation of larger glutenin polymers. Breadmaking qualities are largely dependent on the number and composition of HMW-GS encoded by *Glu-A1*, *Glu-B1* and *Glu-D1*.

### **[Materials and Methods]**

Plant materials and SDS-PAGE

Nine varieties (Keumgang, Jokyung, Jopum, Anbaek, Joongmo2008, Brimstone, Norin 61, Nanbu-Komugi, and Petrel) were used as reference standards of HMW-GSs. 70 of genetic resources including Korean varieties are used for evaluation of HMW-GSs composition. Protein of HMW-GSs were extracted from seed using 50% of propanol. For SDS-PAGE, 12% of acrylamide gel was used. After electrophoresis, the gel was stained with coassie brilliant blue (CBB) and taken the photography.

### **[Results and Discussion]**

In here, among of 1170 genetic resources, 70 of genetic resources showing proper agricultural traits such as plant height, heading date were selected in the field located in Milyang. The compositions of HMW-GSs of selected 70 of genetic resources were evaluated by SDS-PAGE and DNA markers. Through these analysis, we found that 18, 32, and 20 of genetic resources hold a(1), b(2\*), and c(null) *1Ax* allele, respectively. Most of genetic resources we tested hold d(5+10) allele as *IDx* and *IDy* gene. We found that 6 kinds of types for *Glu-B1* locus : i(17+18), f(13+16), b(7+8), c(7+9), a(7), and 7<sup>oc</sup>. When we examined the protein content of these genetic resources by NIR analysis with whole grain, protein contents are 11.3% to 15.5%. Finally, we chose that 4 varieties (Yecora f-70, Vesna, Nisu, and Cajeme) to improve the bread quality in Korean wheat breeding program.

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