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HMW-GS Composition and Protein Content of Wheat Genetic ResourcesDongjin Shin^{1*}, Jinkyong Cha¹, So-Myeong Lee¹, Jong-Hee Lee¹¹Dep. of Southern Area Crop Science, National Institute of Crop Science, RDA, Miryang 50424, Korea**[Introduction]**

High-molecular-weight glutenin subunits (HMW-GSs) are major storage proteins in bread wheat (*Triticum aestivum* L.). HMW-GSs effect dough elasticity by promoting the formation of larger glutenin polymers. HMW-GSs are encoded by *Glu-A1*, *Glu-B1* and *Glu-D1*. Each locus consists of two tightly linked genes that encode an x-type and a y-type subunit. Breadmaking qualities are largely dependent on the number and composition of HMW-GS. Of the six HMW-GS genes, three (*1Bx*, *1Dx*, and *1Dy*) to five (*1Ax*, *1Bx*, *1By*, *1Dx*, and *1Dy*) subunits are usually expressed and the *1Ay* subunit is always silent.

[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]

HMW-GSs composition is an important information to generate breeding materials in bread wheat. In here, to evaluate HMW-GSs composition of 70 of genetic resources, we have performed SDS-PAGE analysis and PCR analysis with specific 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 *1Dx* and *1Dy* 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^{oc}. 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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