
Oral sessions | Field Crop Production | O12: Concepts, Prospects, and Potentiality of Crop Production in East Asia

[O12] Concepts, Prospects, and Potentiality of Crop Production in East Asia

*Sponsored by the Korean Society of Crop Science

Chair: Sang-In Shim (Gyeongsang National University, Korea)

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Chair: Hiroshi Ehara (Nagoya University, Japan)

Thu. Sep 9, 2021 2:30 PM - 4:30 PM Room 1 (Oral) (Field Crop Production)

4:10 PM - 4:25 PM

[O12-07]Improvement of Wheat Quality for End-use Quality in Korean Wheat Breeding Program: *Glu-B1a1* and Glu-D1y12.K

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Wheat glutenin contributes to improve end-use quality, especially quality of bread. The objectives of this study were to identify high molecular weight molecular glutenin subunits (HMW-GSs) of Korean wheat landrace and to demonstrate genetic characteristics of *Glu-B1a1* and Glu-D1y12.K as a novel y-type in HMW-GS. 310 wheat accessions and F₉ populations, derived from a Keumkang/Chinese Spring cross were used to screen genetic resources for improvement of bread-making quality. It was verified that Korean wheat landrace had *Glu-B1a1* (Bx7^{OE} + By8) among wheat accessions. As a result of RP-HPLC, the proportion of the Bx7 subunit in IT166460 ($56.17 \pm 0.22\%$) was higher than that of CS ($34.75 \pm 1.03\%$) and Glenlea ($46.25 \pm 1.76\%$). Furthermore, the peak height of IT166460 (~30 mAU) was higher than that of CS (~200 mAU) and Glenlea (~580 mAU). In the F₉ population, a novel HMW-GS was found, and this novel HMW-GS showed faster electrophoretic mobility and lower molecular weight than Dy12 HMW-GS. It was designated as Glu-D1y12.K. In the future, it will be important to evaluate the quality of bread made with wheat from the wheat lines from a crossing between IT166460 and elite Korean wheat cultivars and to evaluate the effect of Glu-D1y12.K subunit on the dough rheology and bread-making quality.