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Screening Wheat Germplasm for high Amylose Content

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[Abstract]

Wheat (*Triticum* spp.) is an important source of food worldwide and the focus of considerable efforts to identify new combinations of genetic diversity for crop improvement. In particular, wheat starch composition is a major target for changes that could benefit human health. Starches with increased levels of amylose are of interest because of the correlation between high amylose content and elevated levels of resistant starch, which has been shown to have beneficial effects on health for combating obesity and diabetes.

In this study, high amylose wheat germplasms from other countries were collected and cultivated in Korea, and then the content of amylose was evaluated. we examined amylose content in 614 wheat germplasm. Furthermore, amylose content was validated using several milling processes such as roller, hammer, and grinding mill. As a result, the amylose content distribution was divided into five groups. The range of the amylose levels in whole wheat flour was 18.3% to 29.6%. In addition, the mutant lines were screened for high amylose, and two mutant lines (WX-1046 and WX-1074) exhibited a comparable amylose content to Keumkang whole wheat (19.6%). It has been established that high amylose indicated SS IIa null and necessitate GBSS.

Based on these findings, it may be helpful to develop high amylose wheat germplasm and production techniques, particularly in Korea.

[Acknowledgement]

본 연구는 ‘수입밀 대체 대사질환 개선 특수용 밀 육종 소재 개발’사업(과제번호:PJ015149012022)의 지원에 의해 이루어진 결과로 이에 감사드립니다.

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