

## **Effects of different transplanting dates on amylopectin branch chain length in varieties for rice flour**

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### **[Introduction]**

Four different transplanting dates, for five varieties for rice flour grown in Daegu and Andong Republic of Korea, were examined to find the changes in growth, rice quality, and characteristics of those amylopectin.

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

The study was conducted at the paddy fields of Gyeongsangbuk-do Agricultural Research & Extension Services in Daegu and Andong. The five varieties for rice flour, 'Seolgaeng', 'Hangaru', 'Milyang317', 'Suweon542', and 'Hanareum4' grown for 20days in nursery beds were transplanted on May 20, May 30, Jun. 10, and Jun. 20, respectively. Planting distance was 30×15 cm and fertilizer amount was N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O = 9-4.5-5.7 kg/10a, and fertilizer split application was basal-tillering stage and panicle initiation = 50-25-25 ratio. And in the other cultivation management, we determined growth data by rice standard culture of National Institute of Crop Science. In order to analyze growth and quality of rice from each cultivar, rice grains were sampled 45 days after heading from each transplanting date. The chain-length distribution of amylopectin was determined by HPAEC with pulsed amperometric detection (HPAEC-PAD) according to the method with some modifications. The HPAEC system consisted of the following components: a GP50 gradient pump, an LC20-1 chromatography organizer, an ED40 electrochemical detector, a CarboPac PA-1 guard column, a CarboPac PA1 analytical column, and an AS40 automated sampler.

### **[Results and Discussions]**

Four different transplanting dates for five varieties for rice flour grown in Daegu, Andong region Republic of Korea, were examined to identify the changes in growth, rice quality, and characteristics of amylopectin. With respect to changes in the amylopectin branch-chain length distribution, the amylopectin structure of the 'Seolgaeng', 'Hangaru', 'Suweon542' and 'Hanareum4' rice cultivar transplanted in Daegu on May 30 was characterized by a significant increase in short chains with DP < 12. Meanwhile, the amylopectin structure of 'Seolgaeng', 'Hangaru', 'Suweon542' and 'Hanareum4' rice cultivars transplanted in Andong on May 20 showed more increased in DP<12 than that of June 10. However, the proportion of amylopectin short chains of 6 to 10 in DP of the 'Milyang317' rice was significantly lower than that of the others. These results indicate that the amylopectin structure is altered by different transplanting dates depending on the characteristics of the rice cultivar and area.

### **[Acknowledgements]**

This work was carried out with the support of "Cooperative Research Program for Agriculture Science & Technology Development (Project No. PJ012960062018)" Rural Development Administration, Republic of Korea.

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