

[P4] Crop Genetics and Physiology

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 4 (Poster) (Crop Genetics and Physiology)

1:15 PM - 2:00 PM

[P4-34] Physicochemical Properties of Rice Varieties Adapted to a Mountainous Region in Mid-South Korea

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With global warming, the cultivation period by climate zone for major food crops is expected to change, so the crops' growth and production variations need to be evaluated. In this research, we studied the changes in rice starch properties of the varieties adapted to the changing climate in the mountainous mid-South region in Korea and provided palatability data of major crops. The post-harvest rice starch of varieties such as Ilpum, Saechucheong, Samkwang, Chilbo, and Dasomssal was evaluated for its physicochemical properties. All varieties used in this study were harvested by Gyeongsangbuk-do Agricultural Research and Extension Services in 2020. The sowing date was April 20th and transplanting was done on May 20th. The sample rice flour was harvested, milled after drying to reach 14% moisture content, and passed through a 100-mesh sieve, from which the starch was separated using alkaline immersion. The protein amylose content of the white rice was measured non-destructively and the distribution of particle sizes was analyzed. The pasting properties, gelatinization properties, and crystallinity were measured by RVA, DSC, and XRD to examine starch properties, respectively. In the analysis of particle size distribution, the particle size (D50) of Saechucheong was the largest, while that of Chilbo was the smallest. The damaged starch content was the highest in Chilbo and the lowest in Ilpum. In examining the pasting properties, the peak viscosity was the highest in Samkwang and the lowest in Chilbo. The BD value was the highest in Samkwang but the lowest in Ilpum.