

[P4] Crop Genetics and Physiology

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

12:15 PM - 1:00 PM

[P4-33] Relationship between Pre-Harvest Sprouting Variation and Physicochemical Properties in Varieties of Rice Flour

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This study was conducted to examine the influence of pre-harvest sprouting variation on rice quality and starch properties (morphology and pasting properties) of rice varieties that may be used for the production of rice flour. Pre-harvest sprouting refers to seed germination during ripening, due to loss of dormancy before harvest, which is an important trait of varieties of rice flour. In this study, we investigated four varieties of rice flour with different genetic backgrounds to determine whether their starch is suitable for producing high-quality, dry-milled rice flour. Until now, 'Seolgaeng', 'Hangaru', 'Shingil', and 'Garumi-2' have been varieties developed for the production of dry-milled rice flour developed in Korea. The changes in the rice yield, yield components, and viviparous germination rates in the four varieties of rice flour are investigated. 'Shingil' variety produced the highest comparative grain yield and lowest pre-harvest sprouting rate. On the other hand, 'Garumi-2' produced the highest pre-harvest sprouting rate. The rice grains were ground in a mixture grinder and stored properly at room temperature prior to their use in the actual experiment and investigated for its starch and quality characteristics. Amylose and protein content, amylopectin short-branch chain and pasting properties of rice flours were measured. The pasting and thermal properties of rice flours determined by rapid-visco analyser (RVA) and differential scanning calorimeter (DSC). The morphology of the starch granule of the varieties was determined by SEM.