신진-09

Physicochemical Properties of Rice Varieties according to Planting Density for Ecotypes

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[Introduction]

Spacious planting cultivation is a rice cultivation method used to paddies per 10a by increasing the number of sowing seeds and decreasing the planting density when transplanting. Rice palatability should be studied for spacious planting cultivation because decreasing the planting density may cause differing rice tillering stage. The present study aimed to investigate rice palatability characteristics in spacious cultivation by studying the variety adapted to Gyeongbuk Province. Specifically, the physicochemical properties of rice starch were analyzed according to planting density for ecotypes.

[Materials and Methods]

The rice varieties used in the study was harvested by Gyeongsangbuk-do Agricultural Research and Extension Services in 2020. Ilpum, the panicle number type, and Baekogchal, the panicle weight type, were used. The trasplanting date for both vareiteis was June 5th, and they were both transplanted with the planting density of 37, 50, 60, and 80 plants per 3.3m^2. The rice flour sample was harvested, milled after drying to reach 14% moisture content, and sieved through a 100-mesh sieve. The protein amylose content in the milled rice was measured non-destructively. Additionally, distribution of particle sizes was performed on rice flour according to the ecological type and planting density. The content of damaged starch, pasting properties, gelatinization properties, and relative crystallinity were studied to characterize rice starch.

[Results and Discussion]

On the evaluation distribution chart, the particle size (D50) of Ilpum was the largest out of the 50 plants per 3.3m^2. The particle size of Baekogchal tended to decrease with the planting density. The damaged starch content was measured to be the highest at 50 plants per 3.3m^2 in Ilpum, while it increased as the planting density decreased in Baekogchal. The peak viscosity was the lowest in Ilpum but the hightest in Baekogchal at 50 plants per 3.3m^2.

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