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Regional Variation of Valuable Characteristics on Red Bean Varieties

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[Introduction]

As the efficacy of red bean is known, the demand for red beans from health-conscious consumers is increasing, and the consumption is increasing in a new form such as red bean butter and red bean paste. This study was conducted to compare of agricultural characteristics and physicochemical contents by cultivated region on the red bean varieties and to share the information of results with researchers.

[Materials and Methods]

For the research, Cultivar 'Arari', 'Guomguseul', and 'Hongjin' were used to evaluate agricultural characteristics and physicochemical contents and cultivated at 5 regions in 2018. Seed size, 100 seeds weight, growing days and yield potential were investigated as a agricultural characteristics. And crude protein, amylose, and total polyphenol contents were analyzed as a physicochemical properties.

[Results and Discussion]

The seed length, width and thickness of Guomguseul ranged 6.82 − 8.51, 5.05 − 5.77 and 4.72 − 5.45mm, respectively. Similarly, the seed dimensions of Arari were 7.11 − 8.14, 5.39 −5.94 and 5.09 − 5.66mm and those of Hongjin were 7.61 − 8.46, 5.65 − 6.33 and 5.05 −5.96mm. In weight of 100 seeds, Hongjin (21.36 g) and Guomguseul (19.40 g) cultivated at Cheonan were havier than Arari (18.32 g) at Paju. The days of growth on the cultivars by region were ranged 107 (Gyeongju) - 115 days (Jeju) in Guomguseul, 96 (Gyeongju and Sinan) - 106 days (Jeju) in Arari, and 105 (Gyeongju) -113 days (Cheonan) in Hongjin. The yield of cultivars were showed 120 (Paju) - 160 kg (Jeju) in Guomguseul, 130 (Jeju) - 170 kg (Gyeongju) in Arari and 147 (Jeju) -165 kg (Sinan) in Hongijin. The crude protein components of harvested at Jeju were higher than other regions. The amylose contents were high in Guomguseul (16.68 %) at Cheonan, Arari (16.5 %) at Gyeongju and Hongjin (14.82 %) at Gyeongju. The total polyphenol contents were distributed 278.3 (Cheonan) - 488.5 mg/100g (Jeju) in Guomguseul, 333.4 (Gyeongju) - 499 mg/100g (Cheonan) in Arari and 214 (Cheonan) - 422.8 mg/100g (Jeju) in Hongjin. As a this result, we recognized difference of agricultural and physicochemical characteristic on red bean cultivar by region. This will be useful information when selecting suitable cultivar by region. Further research is also needed on the characteristics of various varieties according to regions.

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