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Changes of anthocyanidin, growth characteristics and brown rice yield of red colored rices at two region of eastern coast in Gyeongbuk province

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Abstract

The tallest culm length was observed in Geonganghongmi cultivar grown in coast area, and culm length was always taller in coast area than that of inland area among these three red rice cultivars. However, number of tiller per rice plant was not affected by different cultural area. Number of spikelets per panicle was much more increased in inland area. Regional difference in number of spikelets per panicle was only observed in Jeongjinju cultivar. Among these red rice cultivars, the highest brown rice yield was Jeongjinju rice cultivar having 702kg in inland area and 692kg in coast area, respectively. The L^* values, which expresses the brightness, were in the range of 36.3 ~ 36.7, 36.7 ~ 37.0, and 38.7 ~ 39.6 in Jeogjinju, Hongjinju, Geonganghongmi rice cultivars, respectively. The a^* values, which expresses the redness positively and greenness negatively were in the range of 12.3 ~ 12.8, 12.2 ~ 12.3, and 12.1 ~ 11.9 in Jeogjinju, Hongjinju, Geonganghongmi rice cultivars, respectively. In addition, the b values, which expresses the yellowness positively and blueness negatively were in the range of 13.8 ~ 14.0, 13.6 ~ 13.5, and 14.9 ~ 14.7 in Jeogjinju, Hongjinju, Geonganghongmi rice cultivars, respectively. Anthocyanidin content ranged 524 to 610 $\mu\text{g/g}$ dry weight basis. Cyanidin content was 11.4 to 14.0 times higher than that of delphinidin under coast and inland area. Among these rice cultivars, anthocyanidin content was always higher in rice cultivar grown at coast area. Highest head brown rice rate was only observed in Geonganghongmi to 95.2 at coast area and 95.4 inland area, respectively. Protein content was always higher in coast area than that of inland area. The lowest protein content was measured in Jeogjinju and amylose content was relatively increased in inland area compared to that of coast area. Consequently, in considered with brown rice yield and pigment content, Hongjinju rice cultivar was recommended in optimal pigment rice cultivar in eastern coast of Gyeongsangbuk-do Province.

Keywords: red rice, anthocyanidin, head rice, protein, amylose.

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