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The Effects of Environmental Temperature on the Rice Starch Characteristics during Ripening

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The effects of environmental temperature during grain filling period were investigated on starch structural characteristics and grain quality using Ilpumbyeo and Chucheongbyeo, which were grown after heading in the glasshouse under temperature controlled condition. The glasshouses were maintained at the four average temperatures. The appearance characteristics were measured by temperature and cultivar. Amylose contents and branch chain-length distributions of amylopectin were analyzed using a high performance size exclusion chromatography and a high performance anion exchange chromatography with pulsed amperometric detector. Pasting properties were also measured using a rapid visco analyzer. The amylose contents were decreased by temperature increase in both varieties. The percentage of head rice grown at low temperature was higher than others grown at the high temperature. And texture analysis showed the lowest hardness of the grain grown at highest temperature in both varieties.

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Change of Quality of Glutinous Black Rice on Different Milling Ratio

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Although a black rice mainly used as brown rice and has highly nutritional and functional properties, it is less digestible than polished rice. This study performed to investigate milling condition that is more digestible, less reduced anthocyanin content in brown rice. In first, the milling ratio setted on 5.6 to 9.6%, it was milled in black brown rice. It was to investigate pasting characteristics for the degree of glutinous black rice on milling ratio. The setback viscosity of pasting characteristics was more increased toward negative value, the peak viscosity, trough viscosity, breakdown viscosity and final viscosity was also more increased in milling brown rice than brown rice. In result of investigation for whiteness(L), redness(a), yellowness(b) of Hunter's value in milling brown rice and rice bran, whiteness(L) was increased on milling ratio in brown rice, but it was decreased in rice bran. redness(a) was slightly increased on milling ratio in brown rice and rice bran. yellowness(b) was gradually decreased on milling ratio in brown rice and rice bran. In the content of anthocyanin, has functional properties known as antioxidant activity, The higher milling ratio was, the more decreased the content of anthocyanin was in brown rice. The rice bran was increased the content of anthocyanin on the higher milling ratio.

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