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Effect of Heat-moisture Treatment of Glutinous Rice on Promotion of Hardness of Mochi-kiji

Satoshi Kurinami[1)] and Masatoshi Sugimoto[2)]

1) Fukui Prefectural Horticultural Experiment Station
2) Fukui Prefectural Office

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Effect of the heat-moisture treatment of glutinous rice on the gelatinization temperature, the color tone of rice, and promotion of the hardness of mochi-kiji were studied. Heat-moisture treatment was carried out under both the limited moisture condition (the sealing system) and 100% relative humidity condition (the open system), using Hakuchomochi from Hokkaido, adjusting to 15.2 and 20.3% of moisture content of rice. By means of the heat-moisture treatment, the gelatinization temperature of glutinous rice shifted to the high temperature, and the hardness of mochi-kiji increased. The movement to the high temperature was affected by the method of the heat-moisture treatment, the heating temperature, the heating time, and the moisture content of rice before the treatment. It was recognized that a closed relationship existed between the effective accumulative temperature [[heating temperature - 80°C]×heating time (h)] and the gelatinization temperature. The gelatinization temperature of the heat-moisture treated rice showed an almost fixed value, when the total effective temperature was 120 (°C·h) in the sealing system, and was 60 (°C·h) in the open system. The whiteness of glutinous rice decreased with the heat-moisture treatment. However, the whiteness of the heat-moisture treated rice was improved by reducing to 88% the percentage milling.

Key words: glutinous rice, heat-moisture treatment, gelatinization temperature, hardness of mochi-kiji

[PDF (351K)] [References]