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ONLINE ISSN: 1349-0990
PRINT ISSN: 0011-1848

Japanese journal of crop science
Vol.67 , No.4(1998)pp.492-497

[Full-text PDF (901K)] [References]

Estimate of Rice Cake Hardness by Rapid Visco Analyzer and the Hyper Hardness Variety "Kantomochi 172"

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[Published: 1998/12/05]
[Released: 2008/02/14]

Abstract:
Glutinous upland rice is used as a material for rice crackers in Japan. The elite varieties with higher processing suitability are called on to satisfy the increase of demand. The hardness of glutinous rice is important to improve the working efficiency in the manufacture of rice cakes and crackers. We tried to establish method to estimate of rice cake hardness of upland rice by using a Rapid Visco Analyzer(RVA). At first we established a test condition of RVA. We added 400 ppm solution of copper sulfate and measured each value of the RVA characteristics. Used difference in rice cake hardness between two varieties, idling temperature 40°C and temperature slope 10°C/min were most suitable for glutinous upland rice. Under these conditions, the pasting and peak temperature of RVA showed a significant correlation coefficient with rice cake hardness among the 11 major varieties. The rice cake hardness of glutinous upland rice was estimated by pasting and peak temperature. We carried out indirect varietal screening on rice cake hardness by both temperatures. We thought this estimation method showed a higher possibility for the primary selection of hardness because it can measure 3.5 g of milled rice flour. 136 of total Japanese glutinous upland rice, consisted of local and improved varieties, and breeding materials were evaluated. The upland rice variety "Kantomochi 172" was identified as having a remarkably superior hardness in tested them.

Keywords:
Hardness, Pasting temperature, Peak temperature, Rapid Visco Analyzer, Rice cake, Upland Rice

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