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Relationship between the Starch Properties of White-Core Tissue and Polishing Characteristics in Brewers' Rice Kernels

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Abstract: The kernels of Hattan-nishiki No. 1 and Kairyō-omachi have larger air spaces in the white-core tissue and are broken easily during the process of polishing when compared with those of Senbon-nishiki and Yamada-nishiki. The polishing characteristics of brewers' rice kernels are closely related with the structure of the white-core tissue of kernels. In this study, the varietal differences in the starch properties of white-core tissue of brewers' rice kernels on polishing characteristics were studied. The starch properties were studied by rapid visco analysis (RVA) and differential scanning calorimetry (DSC); the amylose content of the rice flour of each variety was also analysed. No significant differences were observed in the amylose content among the four varieties. The two RVA parameters, peak viscosity and breakdown, were higher in Hattan-nishiki No. 1 and no significant differences were observed in them among Senbon-nishiki, Yamada-nishiki and Kairyō-omachi. The DSC parameters, gelatinization onset and peak and conclusion temperatures, were higher in Hattan-nishiki No. 1, lower in Senbon-nishiki and Yamada-nishiki, and intermediate between them in Kairyō-omachi. These results suggest that the polishing characteristics of brewers' rice kernels are related with not only the endosperm structure but also the starch property of white-core tissue, except for Kairyō-omachi.

Keywords: [Brewers' rice](#), [Polishing property](#), [Starch property](#), [White-core kernel](#)[\[PDF \(626K\)\]](#) [\[References\]](#)

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