

Author: [ADVANCED](#) | Volume Page
 Keyword: |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(272K\)\]](#) [\[References\]](#)

Determination of Maximum Viscosity of Milled Rice Flours Using Near-Infrared Transmittance Spectroscopy

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The objective of this study was to develop a partial least squares regression (PLS) calibration method of maximum viscosity determination of Japanese milled rice flours using near-infrared transmittance (NIT) spectroscopy. The diversity of spectra and maximum viscosity of wide ranging of rice subfamilies were much more than those of *japonica* type rices. The variations of spectra and maximum viscosity were found to influence PLS loading weights. C-H and O-H in ROH and H₂O absorbances presented by the loading weights were significant in the 8th loading of the PLS model for *japonica* type rices. The performance of this PLS calibration model (11 components) for maximum viscosity of a rapid visco analyser (RVA) was the standard error of prediction (SEP) of 17.7, square of regression coefficient (R²) of 0.75 and the ratio of the SEP to the standard deviation of the original data (RPD) of 1.9. This method can be applied to the determination of maximum viscosity of *japonica* type rices.

Keywords: [japonica](#), [amylose](#), [pasting properties](#), [maximum viscosity](#), [breakdown](#), [near-infrared transmittance](#), [partial least squares regression\(PLS\)](#), [rapid visco](#)



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