Title	Chemometric models for measurement of amylose content by artificial neural network and partial least squares regression analysis
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Abstract

Chemometric models for measuring amylose content are not used in a partial least squares (PLS) regression analysis, but are necessary to improve calibration that has employed samples based on newly bred Indica, Japonica and rice by an artificial neural network (ANN). A more accurate near-infrared transmittance (NIT) calibration is needed, especially for Japonica rice that has a narrow range of amylose content. The performance of chemometric models for measuring amylose in milled rice developed using ANN and PLS was examined, and the application of spectra preprocessing for improving amylose determination was reported. All the sample sets had a wide range of sample variation for amylose content (0 to 25.9%). The japonica sample had a relatively low amylose content and a narrow sample variation for the amylose content (12.3 to 21.0%). Using multiplicative scatter correction (MSC) and the derivatives for spectra preprocessing was found to reduce the optimum number of PLS components for amylose content prediction. This spectra preprocessing reduced the optimum number of PLS components for amylose content prediction in Model B.