

Title Evaluating techniques for rice grain quality using near infrared transmission spectroscopy

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Citation J. Near Infrared Spectrosc. 6, A111-A116 (1998)

Keywords Near infrared transmission spectroscopy; rice; amylase; protein; moisture; density; head rice ratio; whiteness; partial least squares regression

Abstract

The development of advanced evaluation techniques for rice quality has been a desire of the Japanese rice industry (breeding, distribution and processing). The objective of the present study is to develop novel techniques for evaluating rice grain quality. A reliable determination method for amylase in whole grain rice using near infrared transmission (NIT) is proposed, using Partial Least Squares (PLS) regression analysis. It was suggested from results based on two different validation methods that the PLS models have possibilities for determination of apparent amylase content using NIT spectroscopy. PLS modeling for constituents important in rice quality indicates that reasonably accurate models are attainable for moisture content and protein content in whole grain rice. However our PLS models were not sufficiently accurate for physical rice quality (head rice ratio, apparent density, whiteness) using NIT spectroscopy.