

# Determining the Amylose and Protein Content of Rough Rice by a Portable Near-Infrared Spectroscopy

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## Summary

Measuring the chemical compositions of rough rice by wet chemical methods can be used for evaluating rice quality, but they are time-consuming, costly, and polluting. A portable near-infrared spectroscopy system which includes a fiber optic probe, a diode array spectrophotometer, ranging from 950 nm to 1650 nm, together with a portable computer were developed to calibrate protein and amylose content of whole-kernel rough rice at 25°C and 13% moisture content for a quick evaluation of rice quality. With standard normal variate pretreatment of each original absorbance spectrum and then analyses by partial least-squares regression, the calibration curve of amylose content by employing 9 principal-component PLSR model had r-squared of validation and SEP 0.88, 0.52 %, respectively. For protein content by employing 12 principal-component PLSR model, r-squared of validation and SEP were 0.88 and 0.28 %, respectively.

Key words: Portable Near-Infrared Spectroscopy, Rough rice, Protein and amylose contents.