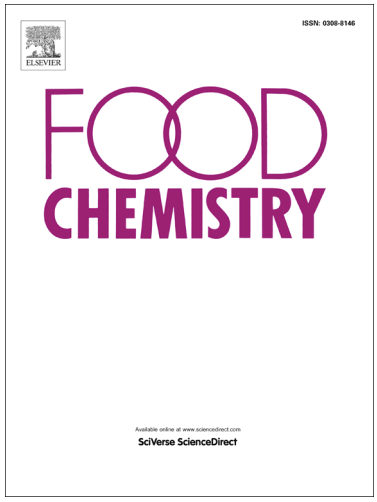

NIR spectroscopy for the quality control of *Moringa oleifera* (Lam.) leaf powders: prediction of minerals, protein and moisture contents

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NIR spectroscopy for the quality control of *Moringa oleifera* (Lam.) leaf powders: prediction of minerals, protein and moisture contents

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Abstract

A rapid methodology was developed to simultaneously predict water content and activity values (a_w) of *Moringa oleifera* leaf powders (MOLP) using near infrared (NIR) signatures and experimental sorption isotherms. NIR spectra of MOLP samples (n=181) were recorded. A Partial Least Square Regression model (PLS2) was obtained with low standard errors of prediction (SEP of 1.8% and 0.07 for water content and a_w respectively). Experimental sorption isotherms obtained at 20, 30 and 40°C showed similar profiles. This result is particularly important to use MOLP in food industry. In fact, a temperature variation of the drying process will not affect their available water content (self-life). Nutrient contents based on protein and selected minerals (Ca, Fe, K) were also predicted from PLS1 models. Protein contents were well predicted (SEP of 2.3%). This methodology allowed for an improvement in MOLP safety, quality control and traceability.