Off-Line Detection of "Pannon Wheat" Milling Fractions by Near-Infrared Spectroscopic Methods

Authors : E. Izsó, M. Bartalné-Berceli, Sz. Gergely, A. Salgó

Abstract : The aims of this investigation is to elaborate near-infrared methods for testing and recognition of chemical components and quality in "Pannon wheat" allied (i.e. true to variety or variety identified) milling fractions as well as to develop spectroscopic methods following the milling processes and evaluate the stability of the milling technology by different types of milling products and according to sampling times, respectively. This wheat categories produced under industrial conditions where samples were collected versus sampling time and maximum or minimum yields. The changes of the main chemical components (such as starch, protein, lipid) and physical properties of fractions (particle size) were analysed by dispersive spectrophotometers using visible (VIS) and near-infrared (NIR) regions of the electromagnetic radiation. Close correlation were obtained between the data of spectroscopic measurement techniques processed by various chemometric methods (e.g. principal component analysis (PCA), cluster analysis (CA) and operation condition of milling technology. Its obvious that NIR methods are able to detect the deviation of the yield parameters and differences of the sampling times by a wide variety of fractions, respectively. NIR technology can be used in the sensitive monitoring of milling technology.

Keywords : near infrared spectroscopy, wheat categories, milling process, monitoring
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