PLS "NIR - crude fiber" model for forages from hill permanent grassland

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The main objective of this study was to obtain a NIR calibration model for prediction the crude fiber content of forages harvested in June 2009 from hill permanent grassland (Grădinari, Caraş-Severin District). The experimental field was organized in ten experimental trials fertilized organic, mineral, and organo-mineral. The soil was Calcic Luvisol and the annual average temperature around 10.4oC. The floristic composition of forages from this period was determined gravimetrically. From Poaceae were present Festuca rupicola and Calamagrostis epigejos. Fabaceae family was represented by Trifolium repens and Lathyrus pratensis. From other botanical family: Rosa canina, Filipendula vulgaris, Galium verum and Inula britanica.
Like main input data for calibration model was used the results for this qualitative parameter by chemical method and the reflectance values from NIR spectra for all analysed samples. Partial last square (PLS) regression was used to obtain the "NIR - Total Fiber" model, implemented in Panorama program (version 3, LabCognition, 2009). The statistical parameters (R2=0.7355; RMSEC=3.2764) and the differences between references and predicted values situated in range 0.0631 and 13.1948% suggest a medium quality of calibration model, but it is promising to use it to predict the crude fiber contents of forages from grassland in this period of year using higher number of samples for calibration.