Large poaceae as sorghum, millet or sugarcane are widely cultivated in tropical areas, where their byproducts (stems / straw, etc.) are often used for animal feeding, but also have a potential as energy source or organic matter source in soils. It is important to characterize their chemical composition, degradability and nutritional value. Specific NIR calibrations exist for the most important species (e.g. whole crop maize). Byproducts and less common species have a potential of use in some contexts but we often lack robust calibrations to characterize them. This study was designed to evaluate the possibility of predicting less common samples from a database gathering various species.

Results and discussion

The statistical distance between the species showed a relatively homogenous cluster between sorghum, sugarcane, maize and millet. Miscanthus was closer from sugarcane than from maize and sorghum. Elephant grass, harvested at a less advanced stage, was closer from maize or millet than from sorghum or miscanthus.

Calibration on the multi-species databases (Table 1) showed SECV values close to usual value for the same constituents in plant databases. However the SEP values when validating with some of the datasets, especially sorghum or sugarcane. In the case of IVDMD the extrapolation success depended on the dataset used for validation, and on the parameter considered. Prediction of crude protein (CP) content (Figure 1) was generally good, even in extrapolation, with SEP varying between 0.5% and 1.5%.

Conclusion

On a practical point of view, the trial showed that there is some extrapolation capacity in the “large poaceae” dataset, allowing estimating the composition of samples from species not present in the calibration database (e.g. giant reed). Inclusion of a limited number of samples from an additional species in the database allows predicting samples from this species without requiring the development of a new specific database.