



HAL
open science

P17-056-23 Development of “LibrAAry,” a Readily Available Database for Amino-Acid Profiles From Various Protein Sources. A Pilot Application on Wheat

Gaëtan Roisné-Hamelin, Juliane Calvez, Claire C. Gaudichon, Dalila Azzout-Marniche

► To cite this version:

Gaëtan Roisné-Hamelin, Juliane Calvez, Claire C. Gaudichon, Dalila Azzout-Marniche. P17-056-23 Development of “LibrAAry,” a Readily Available Database for Amino-Acid Profiles From Various Protein Sources. A Pilot Application on Wheat. Nutrition 2023, Jul 2023, Boston, United States. Current Developments in Nutrition, 7 (1), pp.100951, 2023, 10.1016/j.nupar.2021.01.052 . hal-04312755

HAL Id: hal-04312755

<https://hal.science/hal-04312755>

Submitted on 28 Nov 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Development of “LibrAAry”, a readily available database for amino-acid profiles from various protein sources. A pilot application on wheat

protein sources. A pilot application on wheat

Gaëtan Roisné-Hamelin¹, Juliane Calvez¹, Claire Gaudichon¹, Dalila Azzout-Marniche¹.
¹Université Paris-Saclay, AgroParisTech, INRAE, UMR PNCA, 91120, Palaiseau, France



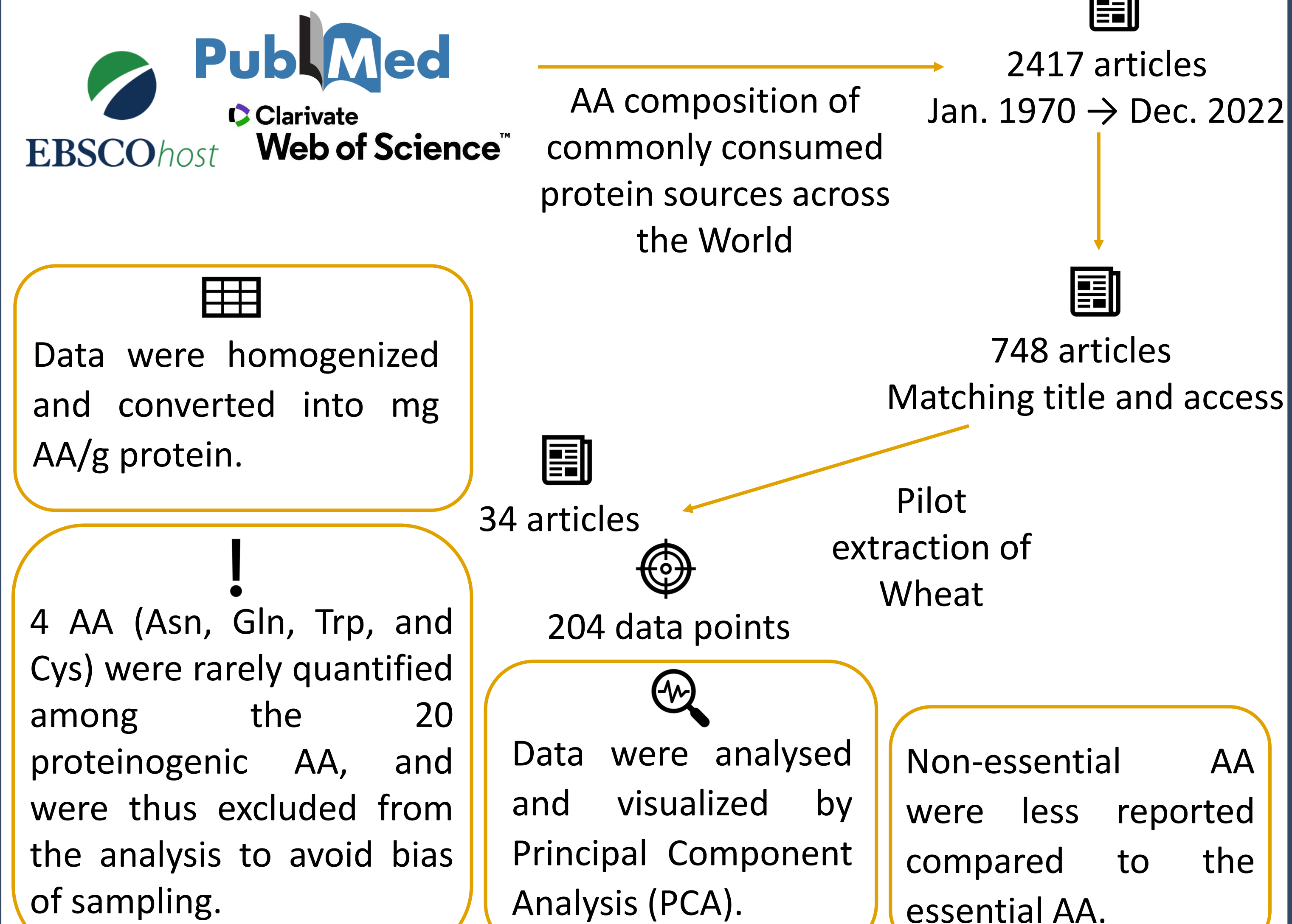
Objective

Knowing the amino acid (AA) profile and its variability from various protein sources is crucial, as it allows us to estimate the dietary intake of individuals, permits to design diets based on specific requirements, and to understand some factors influencing the protein quality.

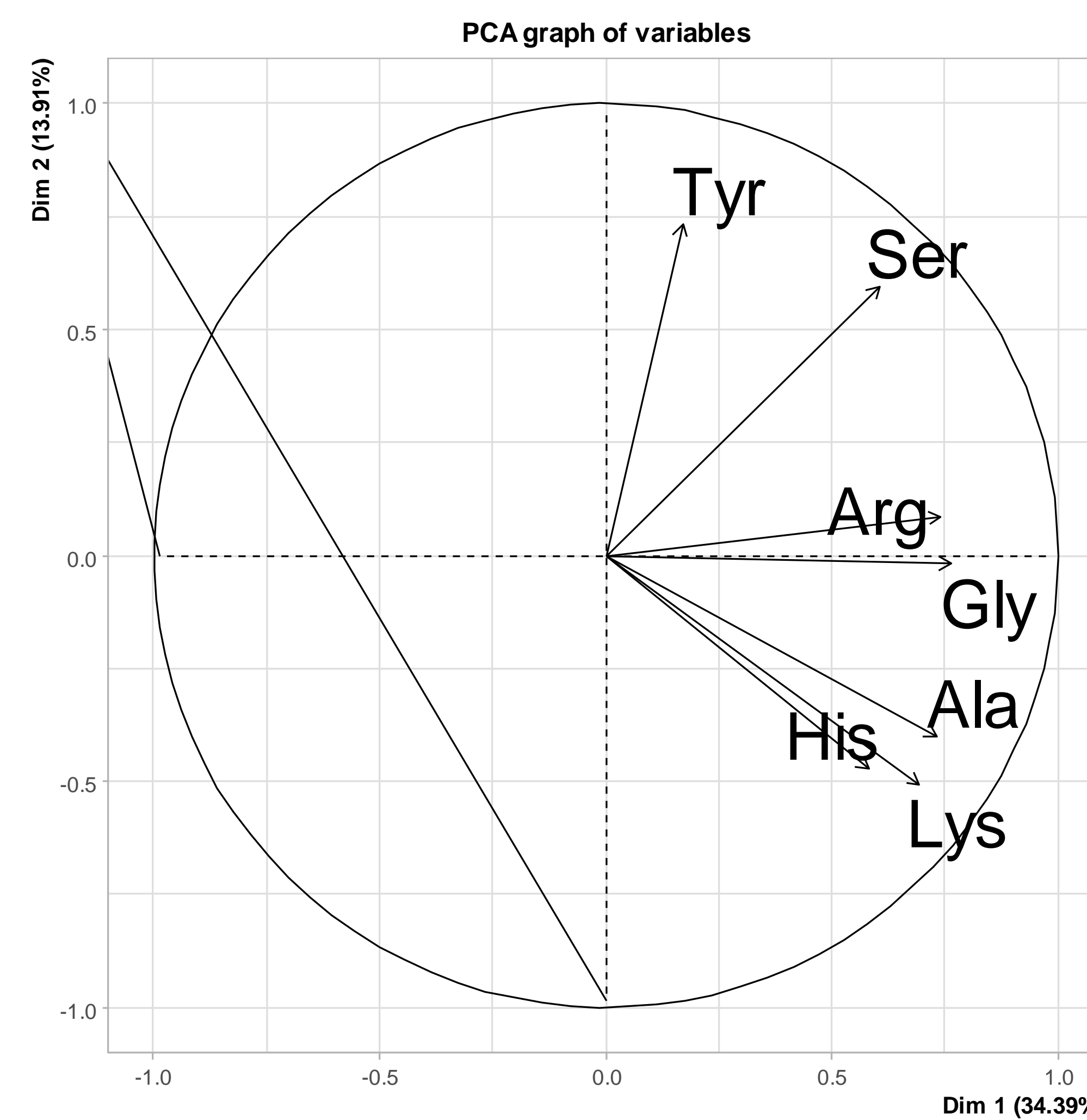
Since the currently available databases are becoming old (FAO from 1970 and USDA from 1989 for raw wheat), and don't include information on the various factors influencing the profile, therefore, there is a need to develop an AA database of proteins profiles, including more information.

Thus, the aim of this work was the creation of the AA database “LibrAAry” and the assessment of the relative variation based on the AA profile.

Methods

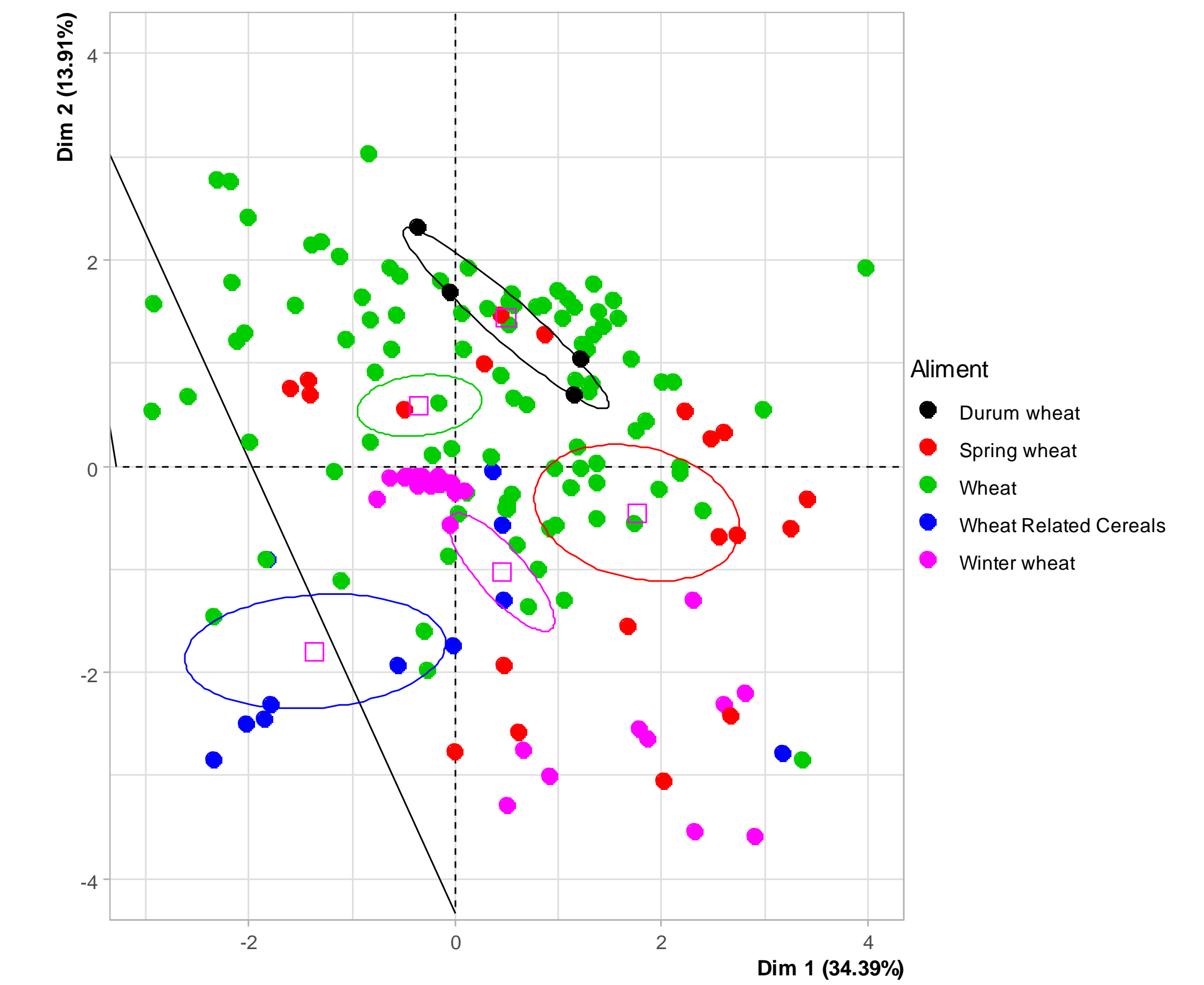
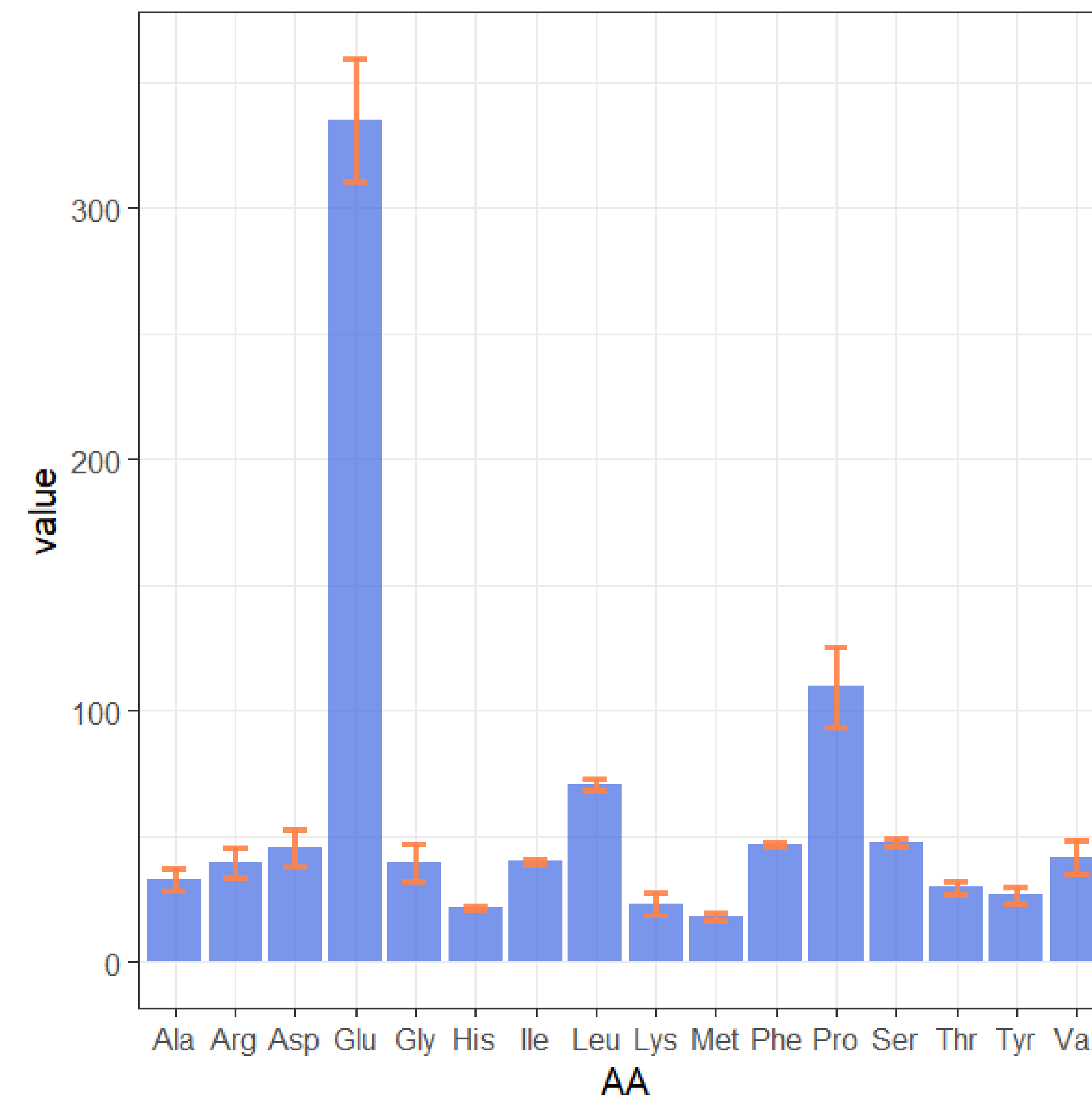


The database ‘LibrAAry’ led to draw the AA profile of different food items with related variability for each AA, from 204 observations for wheat.

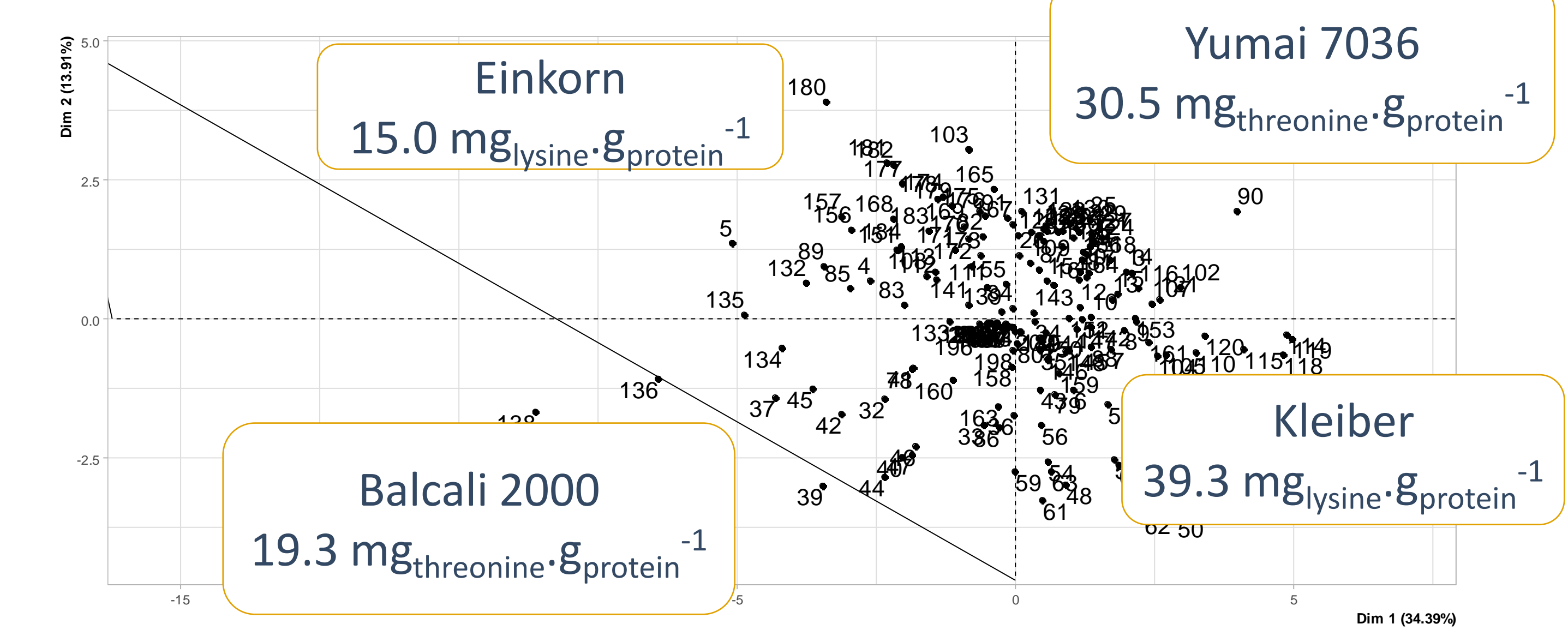


The PC1 and PC2 demonstrated 35 and 14% of the variability.

Results



PC1:PC2 shows a clear distribution of different wheat types. We can also separate each observation based on the quantification method used.



In addition, the database could also compare the low vs high content of specific AA among reported cultivars, such as Einkorn and Yumai 7036 for Lys, or Balcali 2000 and Kleiber cultivars for Thr.

Conclusion

The librAAry database can be used for understanding the AA profile of specific food items and diets, and for designing targeted AA intake-based diets taking into account a prespecified variability. Moreover, it can help to choose wheat varieties and cultivars.

Contacts

Gaëtan.Roisne-Hamelin@agroparistech.fr
 dalila.azzout-marniche@agroparistech.fr

