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Updating the Italian food composition database (BDA) for a more accurate nutritional assessment of plant-based diets

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INTRODUCTION & AIM

Plant-based diets are growing in popularity worldwide driven by health and environmental concerns. This shift has led to a greater demand for animal-based food substitutes, emphasizing the need for an updated food composition database (FCDB) for vegetables and plant-based foods (1).

The main objectives of this work are to update the Food Composition Database for Epidemiological Studies in Italy (BDA, https://bda.ieo.it), specifically focusing on the *Vegetables and Plant-based Foods Group*, and to use this updated tool to assess the nutritional adequacy of plant-based diets followed by a sample of adults accessing the European Institute of Oncology (IEO) in Milan. In this work, we present some preliminary results of the BDA update.

METHOD

The BDA is a compiled database, designed for epidemiological use, using data from pre-existing sources (https://bda.ieo.it; 2). Priority is given to Italian published data (CREA-AN 2019), followed by foreign food composition databases (FCDB) and scientific articles. When no data is available, a recipe approach is used, based on the nutritional values and ingredient lists from food labels. The BDA compilation process has been reviewed and certified by EuroFIR (https://www.eurofir.org/), confirming its adherence to standards that ensure the quality and validity of food composition data (3). Figure 1 shows the simplified BDA compilation process.

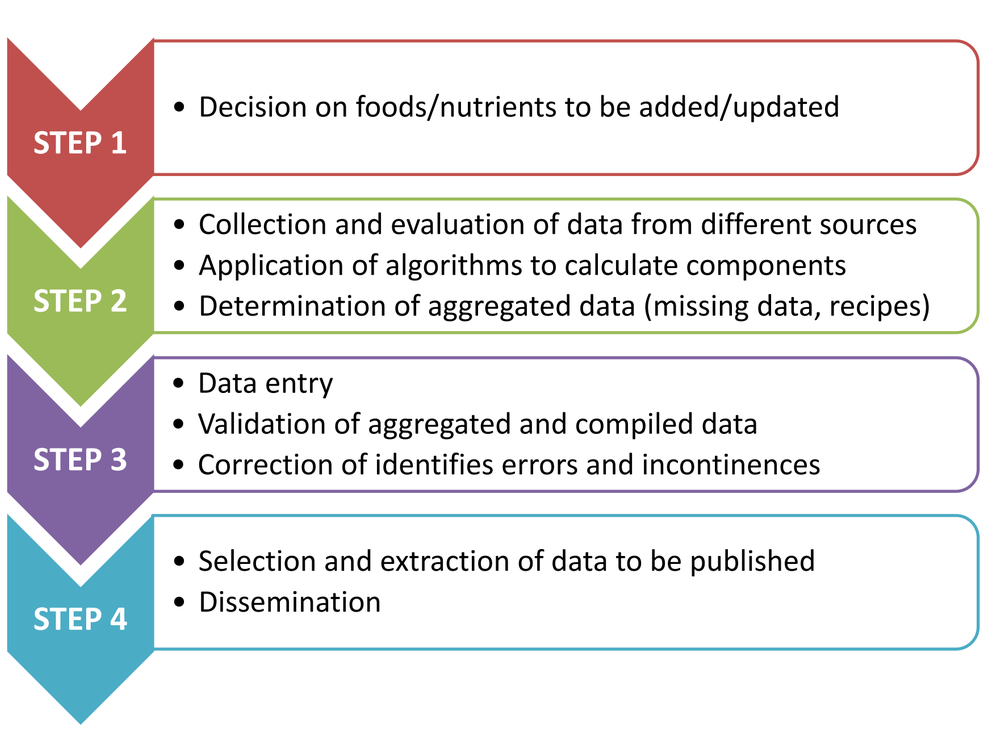

Figure 1. Simplified flow chart describing the BDA compilation process

To address changing food consumption habits, commonly consumed foods are included by consulting the EFSA European Food Consumption Database and ISTAT data on food consumption In Italy, evaluating BDA users' requests, and considering product availability on the Italian market.

RESULTS & DISCUSSION

The compilation process aims to update the composition data of pre-existing food items included in our dataset (n.175), and to add new items to make BDA more representative of the Italian diet. The *Vegetables and Plant-based Foods Group* comprises 6 sub-groups and 23 food categories as reported in Table 1. For each item, data on 89 components are evaluated: edible part, energy (kcal, kJ), water content, 17 macronutrients, 13 minerals, 15 vitamins, 21 fatty acids, 18 amino acids and alcohol.

TUBERS, POTATOES, STARCH	
1001	Tubers, potatoes, potato starch, etc.
VEGETABLES, MUSHROOMS	
2000	Mixed vegetables
2001	Sprouts/shoots, asparagus
2003	Root vegetables
2004	Cruciferous vegetables
2005	Allium vegetables
2006	Vegetable juices
2007	Mushrooms, truffles
2008	Leafy vegetables (including salads)
2009	Fruit and flower vegetables
2010	Pickles
2011	Sea weeds
LEGUMES	
3000	Mixed vegetables and legumes
3001	Legumes
3002	Legume flours
SUBSTITUTES FOR ANIMAL PRODUCTS	
5000	Dairy substitutes
5001	Meat substitutes
5002	Fish substitutes
AROMATIC HERBS, SPICES	
24001	Herbs and other spices
MISCELLANEOUS	
24012	Sauces, based on mayonnaise
28001	Sauces, tomato based
28002	Soups
28003	Sauces (ketchup, "pesto", etc.)

Table 1. Food categories within Vegetables and Plant-based Foods Group

The update is in progress. Here, we present the nutrient profiles of key components in plant-based cold cuts (Figure 2) and beverages (Figure 3).

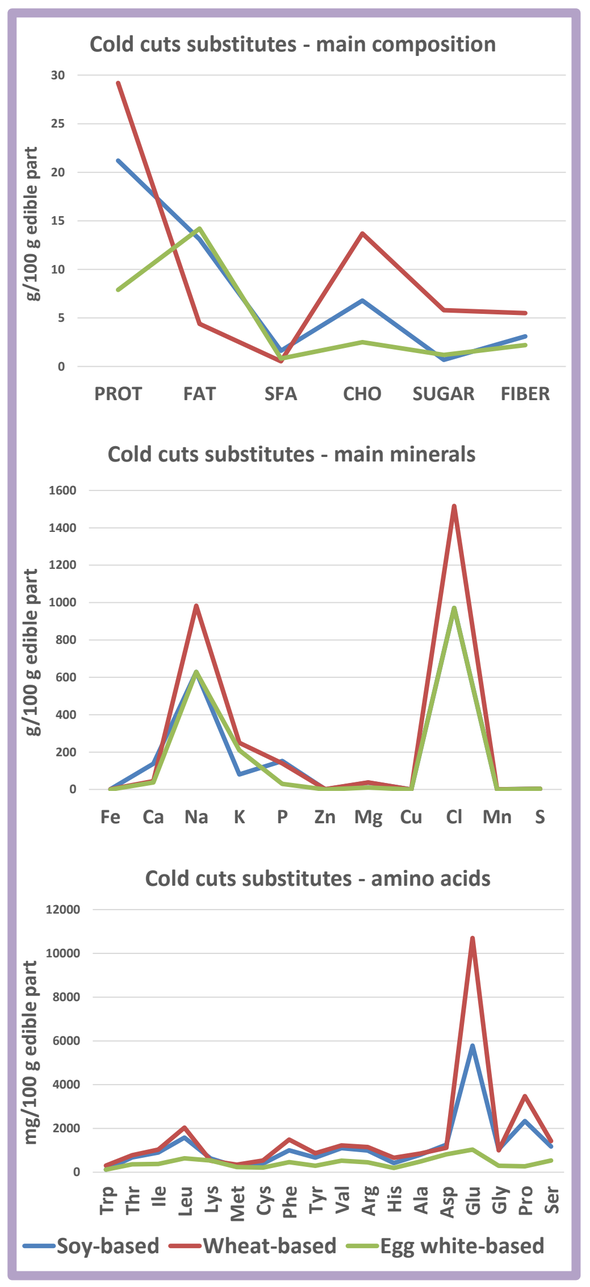

Figure 2. Cold cuts substitutes, nutrient composition

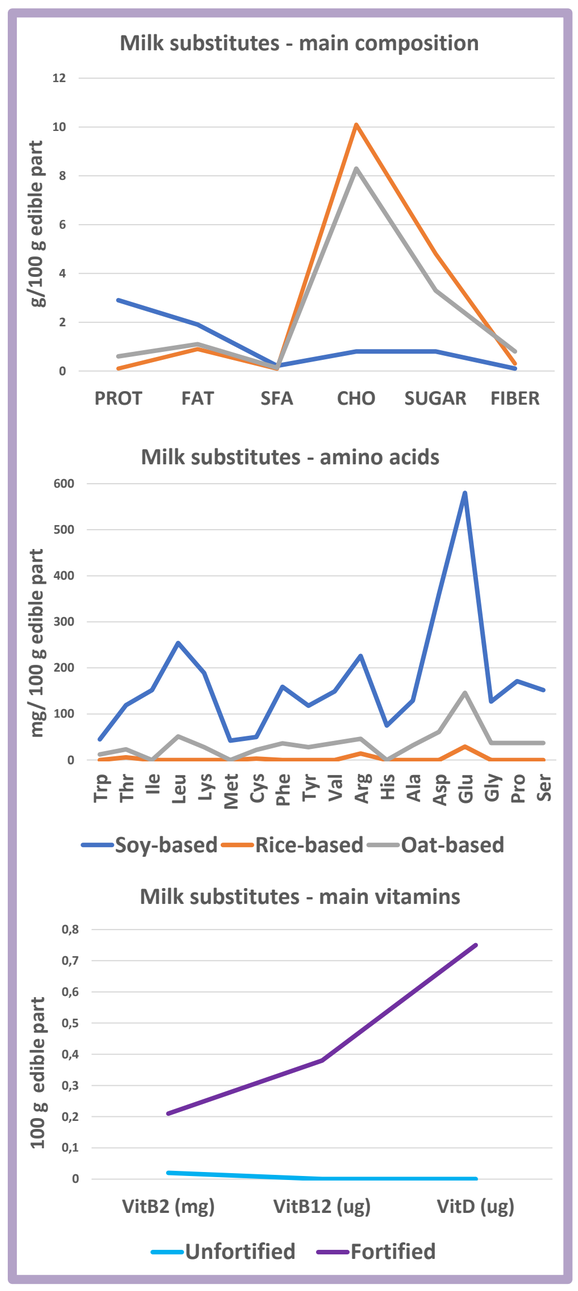

Figure 3. Milk substitutes, nutrient composition

Plant-based alternatives vary in composition based on their main ingredient. Replacing specific food groups with these alternatives may not necessarily result in an equivalent to or improved diet (4, 5).

CONCLUSION

The BDA project aims to provide a comprehensive FCDB in terms of items and components. The upcoming update, set for online release in 2025, will be a valuable resource for epidemiological studies on plant-based diets.

FUTURE WORK / REFERENCES

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