



# Future foods: towards a planet friendly diet for a growing population

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## Background

Conventional animal-source foods supply protein and different essential macro- and micronutrients to human diets but with high environmental impacts. Replacing animal-source foods with future foods (of terrestrial and aquatic origin) is, therefore, gaining increasing attention.

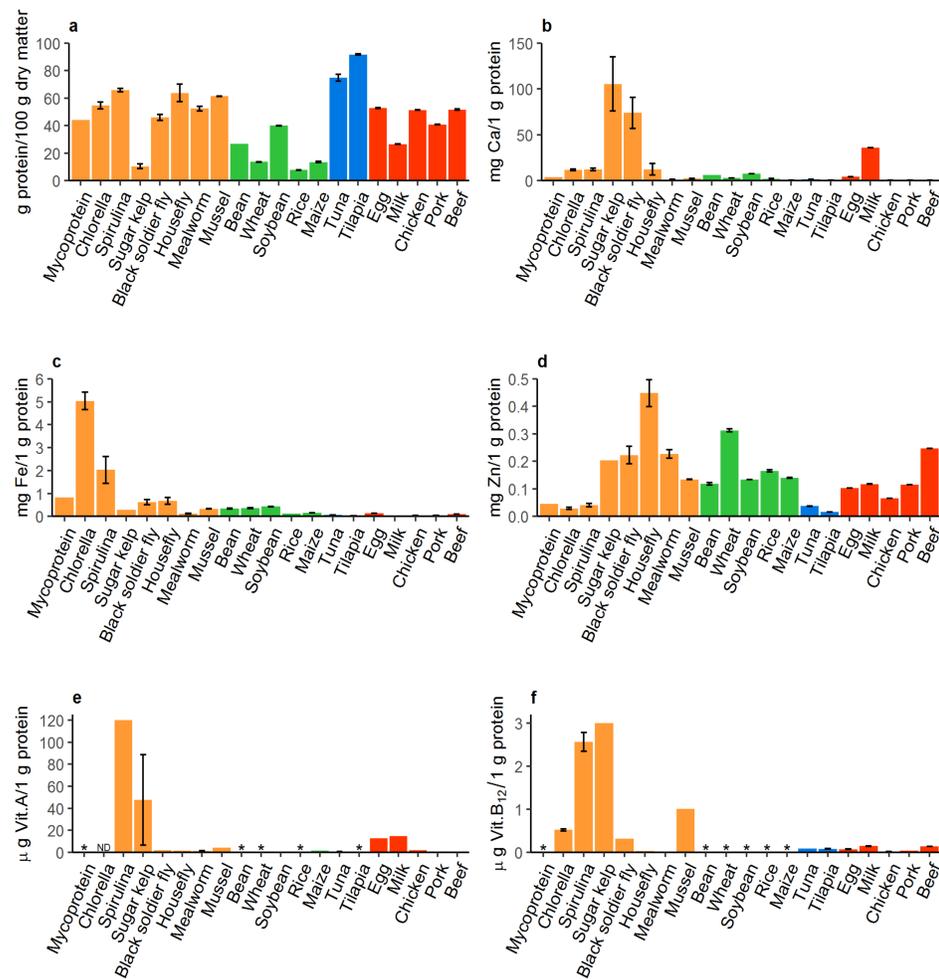
## Objective

Asses the nutritional profile and the environmental impact of nine future foods and compared these with main plant-source foods, seafood and conventional animal-source foods.

## Materials and methods

- Literature review to determine the nutritional profile and environmental impact of different foods (Fig. 1).
- Design and use of a single framework that allows the comparison of nutritional and environmental aspects between future, plant-source foods, seafood and animal-source foods.

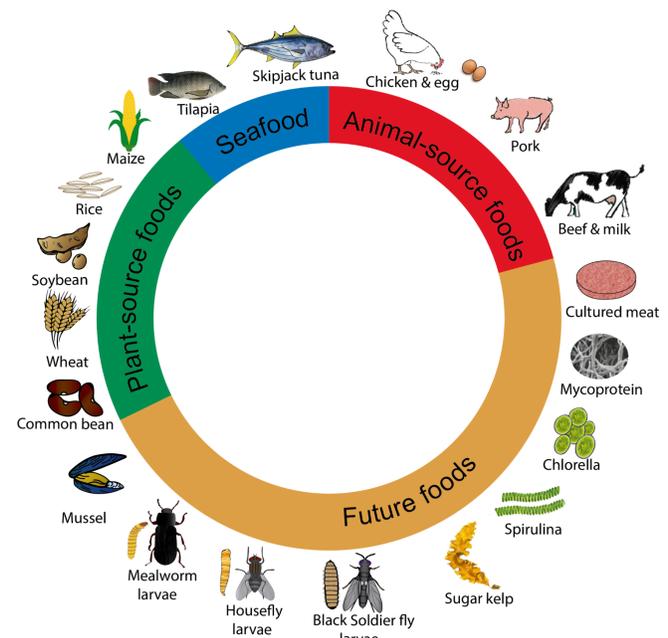
## Results



**Figure 2.** Nutritional content of future foods, plant-source foods, seafood and animal source foods. The mean and the standard error of the mean are shown for each case. \* indicate that a nutrient is absent. ND indicate that a nutrient has not been reported in the studies or databases reviewed.

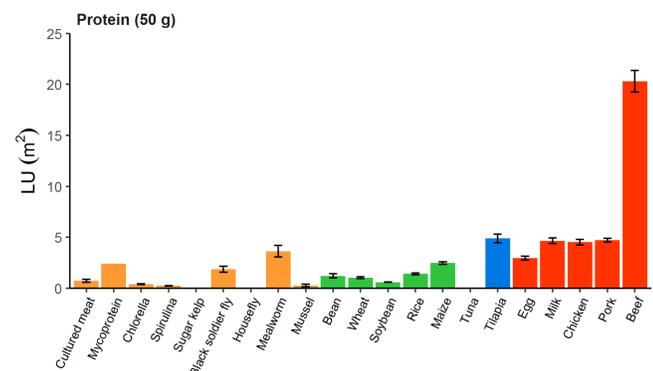
## Take home message

Essential nutrients are present in future foods and can be produced with lower environmental impacts than animal-source foods. Further research in terms of nutrient bioavailability, food safety hazards and production costs will determine their use as main food sources in global diets.

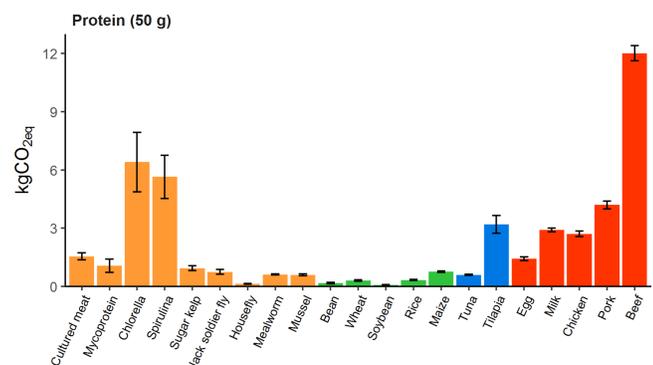


**Figure 1.** Future foods, conventional animal-source foods, plant based-foods and seafood included in this study.

- Some future foods or a combination of them contain all the essential nutrients present in animal-source foods, including those absent in plant-source foods (Fig.2).
- Future foods have a lower land-use than animal-source foods (Fig. 3).
- Future foods have lower or similar greenhouse gas emissions than the best performing animal-source foods (Fig.4).



**Figure 3.** Land-use to fulfill the human daily protein requirement (50 g) with each food. The mean and the standard error of the mean are shown for each case.



**Figure 4.** Greenhouse gas emissions to fulfill the human daily protein requirement (50 g) with each food. The mean and the standard error of the mean are shown for each case.