

What are proteins from microalgae?



Sustainable production¹



No pesticides / no herbicides



Controlled, indoor production in bioreactors



Use natural CO₂ and waste heat from geothermal power plant

*for 1 kg of wet edible microalgae



Reduced use of land*: 0,0378m² (<1% compared to beef²)

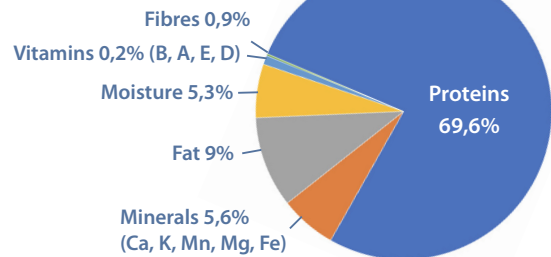


Reduced use of fresh water*: 8,36m³ (<1% compared to beef²)

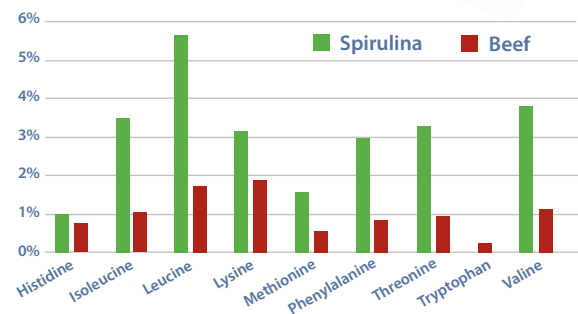


Reduced greenhouse gas emissions*: -0,008 kgCO₂eq CO₂-eq GHG emissions (<1% compared to beef²)

Nutritional value



Content of essential amino acids compared to beef² (g/100g)



Regulation Approved in food and feed

How does it taste? Carrot-like, grassy, sweet, not fishy, neutral

Applications tested in the NextGenProteins project



Ready meals



Bakery products



Meat alternative



Food supplements



Poultry feed



Fish feed

2-5% in food

6% in poultry feed

10% in fish feed

Possible Nutrition claims^{3, 4, 6, 7, 8, 9}

1. High phosphorus
2. High iron
3. High manganese
4. High vitamin K
5. Source of B2
6. Source of B3
7. High B12

Possible Health claims^{3, 5, 6, 7, 8}

Magnesium contributes to (1) reduction of tiredness and fatigue, (2) electrolyte balance, (3) energy-yielding metabolism, (4) functioning of nervous system, (5) muscle function, (6) protein synthesis, (7) psychological function, (8) maintenance of bones, (9) maintenance of teeth and (10) has a role in cell division.

Vitamin K contributes to (1) normal blood clotting and (2) maintenance of bones.

Vitamin B12 contributes to (1) energy-yielding metabolism, (2) functioning of nervous system, (3) homocysteine metabolism, (4) physiological function, (5) red blood cell formation, (6) functioning of immune system, (7) reduction of tiredness and fatigue and (8) has a role in cell division.

Iron contributes to (1) cognitive function, (2) energy-yielding metabolism, (3) formation of red blood cells and haemoglobin, (4) function of immune system, (5) reduction of tiredness and fatigue and (6) has a role in cell division.

¹ Tzachor, A., Smidt-Jensen, A., Ramel, A., & Geirsdóttir, M. (2022). Environmental impacts of large-scale Spirulina (*Arthrospira platensis*) production in Hellisheidi geothermal park Iceland: life cycle assessment. *Marine Biotechnology*, 1-11.

² Disclaimers: Beef has been used as a comparison because of high protein content and high consumption around the world. NextGenProteins does not aim to discredit any protein source, but rather to inform about new sources.

³ https://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public/?event=register.home

⁴ https://food.ec.europa.eu/safety/labelling-and-nutrition/nutrition-and-health-claims/nutrition-claims_en

⁵ Regulation (EU) No 432/2012 – List of permitted Health Claims.

⁶ Regulation No 1924/2006 on nutrition and health claims made on foods.

⁷ Regulation (EC) No 1169/2011 on the provision of food information to consumers

⁸ Council Directive 1990, 90/496/EEC on nutrition labelling for foodstuffs.

⁹ Regulation (EC) No 1925/2006 on the addition of vitamins and minerals and on certain other substances to foods

