

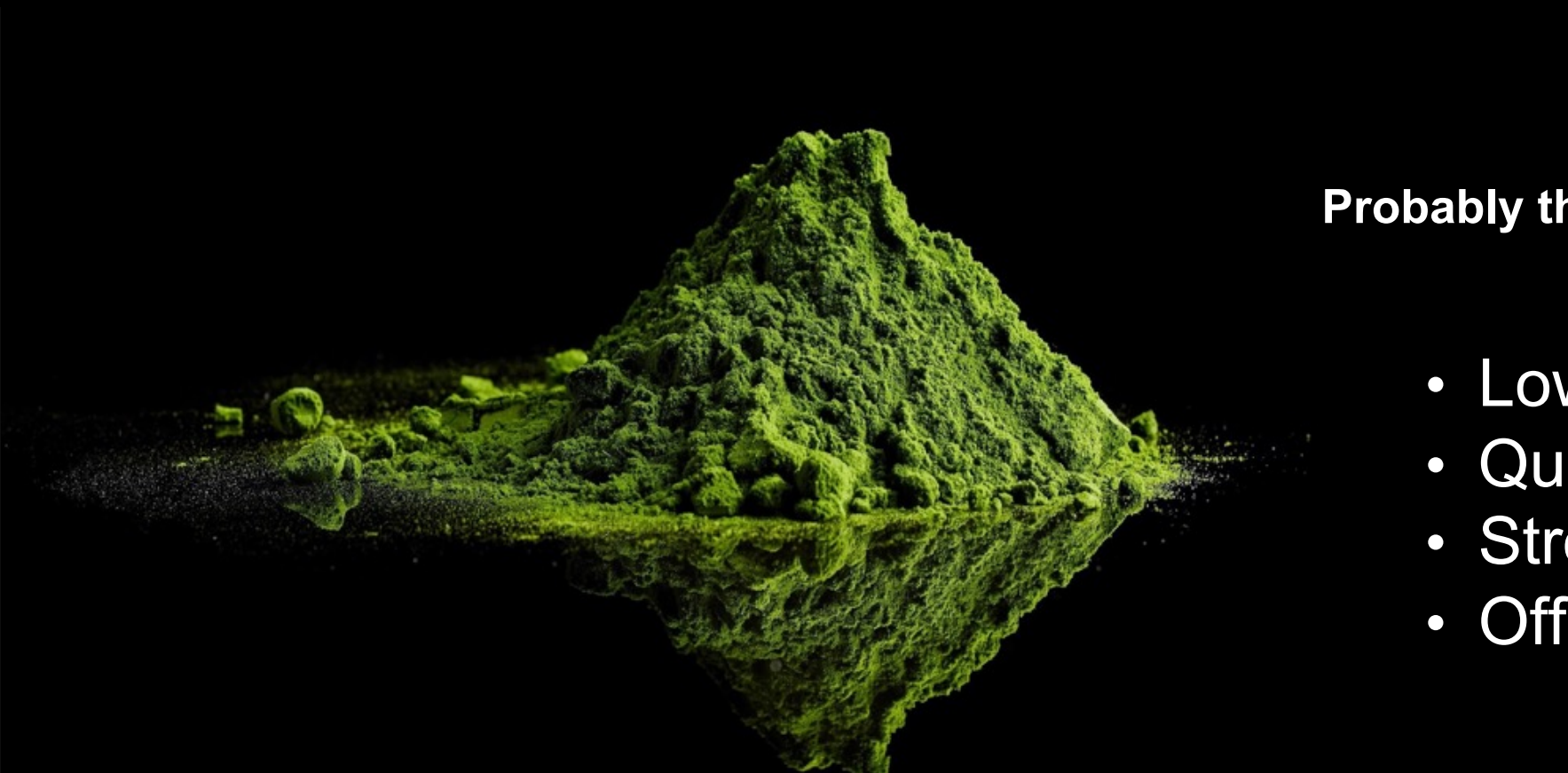
Heterotrophic cultivation of *Chlorella* algae as a food ingredient



A small plant with a big impact

CHLORELLA ALGAE

From niche to core food ingredient



Probably the most nutritious crop but...

- Low yield
- Quality variations
- Strong colors
- Off-flavour



YIELD:
0.1-1.0 gram/litre

HARVESTING:
Every 7 day



YIELD:
1 - 3 gram/litre

HARVESTING:
Semicontinuous 90%

Heterotrophic Cultivation

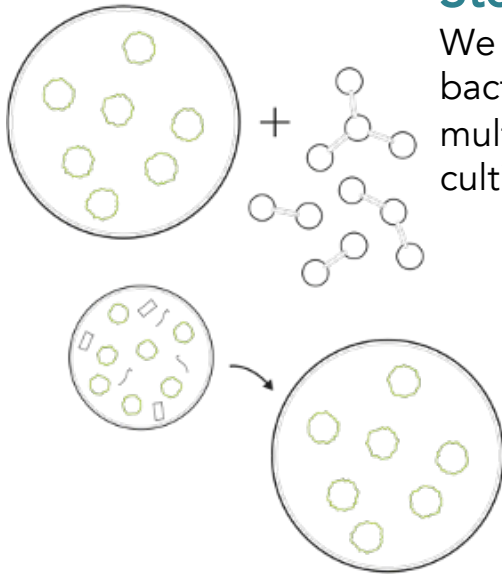
Our unique production method

YIELD:
120 gram/litre

HARVESTING:
Semicontinuous 90%

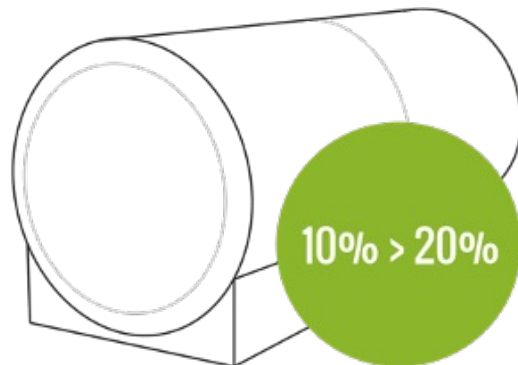
Step 1 & 2

We make the algae bacteria free, then we multiply the algae for cultivation.



Step 4

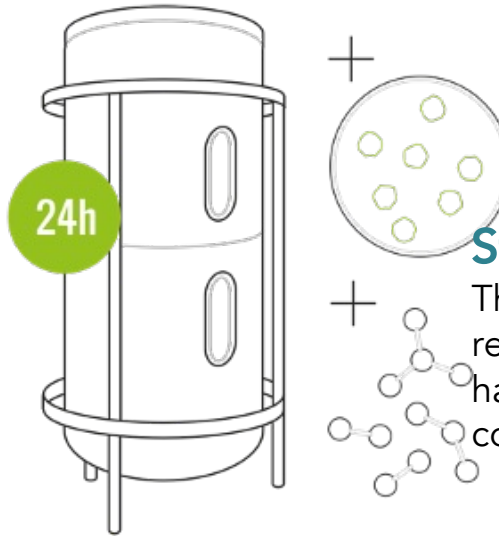
The liquid algae are cooled and the DW is doubled in amount by centrifugation.



24h

Step 3

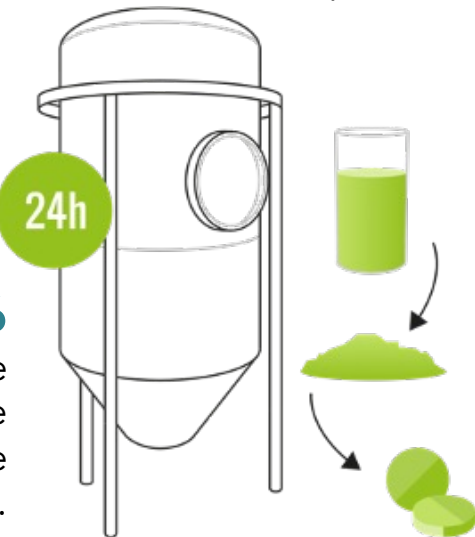
The algae multiply rapidly, resulting in a unique high harvest density and a consistent nutritional profile.



24h

Step 5 & 6

The fresh algae are made into powder, then we press tablets from the powder.





A leading European algae producer

Aliga Microalgae is a Danish-based algae-tech company specializing in cultivating, producing and commercialising high-quality algae ingredients for the food, feed, beverage and dietary supplement industries.

Reinventing farming

- Using less land-, water- and energy.
- Production with lower carbon footprint.

Redefining Processes

- High production efficiency and yield
- Stable quality batch after batch.

Meeting consumer trends

- Plant-based and clean label
- Healthier for humans and the planet



Your algae partner of choice

Reliable Supply

- European produced Chlorella with Dutch and Danish origin.
- Production capacity of 240 tons/annually, with expansion plans to 1200 tons/annually.

Sustainability, innovation & quality

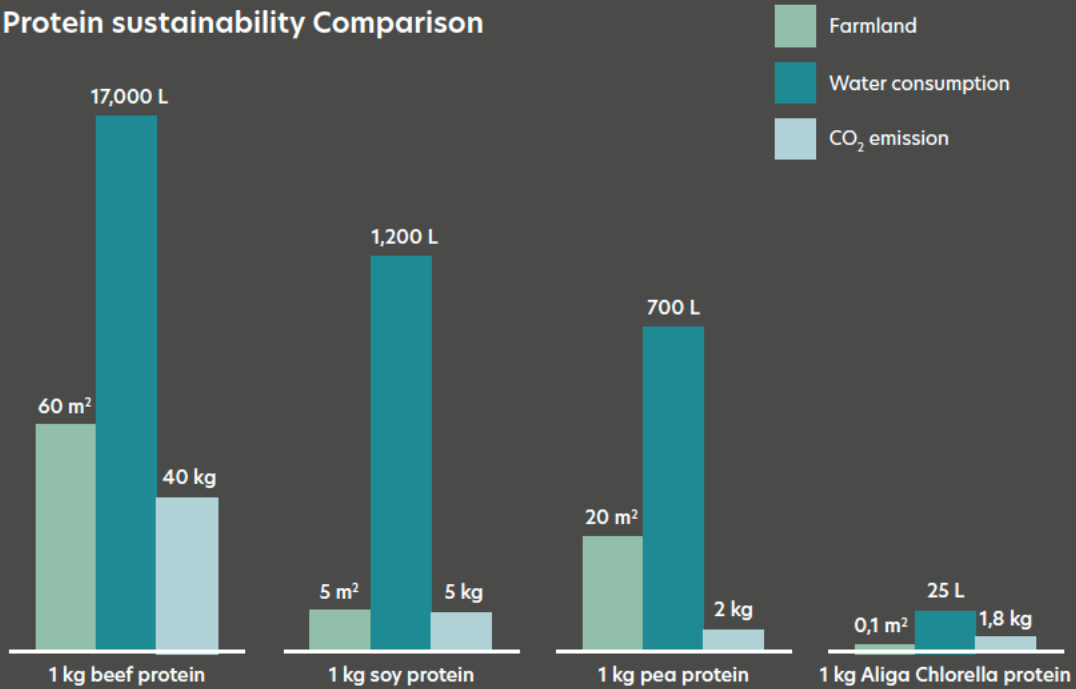
- Focus on heterotrophic grown Chlorella, one of the most sustainable crop that can be cultivated today.
- Unique production processes enable high productivity and yield compared to conventional farming.
- FSSC 22000, GMP+, Kosher and Halal certified production

Expertise and Know-how

- Fully operated in-house algae laboratories and R&D centre.
- Experience and market knowledge to advise manufactures and help them obtain the best results when using algae ingredients

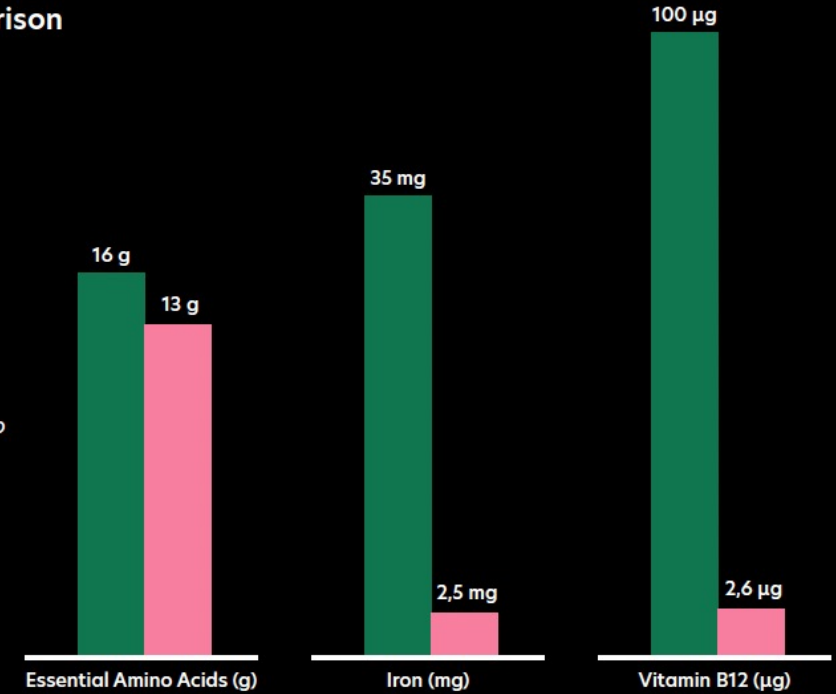
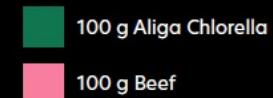
SUSTAINABLE & NUTRITIOUS

Protein sustainability Comparison



Nutritional comparison

Comparing nutritional aspect comparison, amino acids, iron, Vitamin B12.



FOOD INGREDIENTS

Dietary fibres (15-20%)

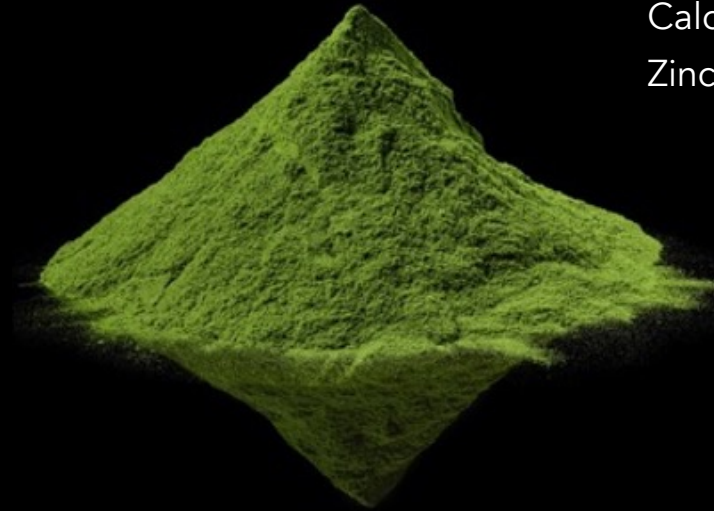


Naturally Protein Rich (35-40%):

Contains all essential amino acids

Variety of minerals:

Potassium, Magnesium,
Calcium, Phosphorus, Iron,
Zinc, Manganese



Various Vitamins:

A, B2, B6, B8, B12
D2, E, K2

Plant-based meat alternative

(High Moisture Extrusion)

The White Chlorella is a perfect ingredient to be combined with soy, or pea protein, when producing extruded plant-based meat alternative. Replacing part of the pea (up to 15%), or soy (up to 20%) with White Chlorella, is a healthy and sustainable way to enhance the texturization process and obtain a product with a superior structure and consistency! What's more? It reduces the pea or soy taste, and enables the claim "Rich in vitamin B12".



90% pea protein isolate +
10 % white Chlorella

95% pea protein isolate +
5 % white Chlorella

100% pea protein

Improve structure and fibre formation

Enhances texture

Provides a juicier mouthfeel

Less pea/soy taste, no algae taste

Enables "rich-in vitamin B12" claim

Application ratio 2,5 to 15% white Chlorella

Plant-based semi-soft Cheese

Aliga's white Chlorella was applied in a traditional Danish semi-soft plant based cheese formulation. By adding just 2% to the pea concentrate the product was according to a Danish study greatly improved:



Higher firmness

Higher stress at breaking

Higher elasticity

Lower facturability

A STUDY OF SEMI-HARD PLANT-BASED IMITATION CHEESE

Aarhus University, Dept. of Food Science, Aarhus, Denmark

KMC Amba, Brande, Denmark

Aarhus University, Dept. of Biological and Chemical Engineering, Aarhus, Denmark

Bakery: sweet and savoury applications

Our White Chlorella is an excellent addition to both savoury and sweet bakery applications. For instance, it is possible to substitute up to 10% flour in bread with the dried algae. Want to add algae to cookies? The White Chlorella acts as a partial substitute for flour and sugar. When baking cakes, we also partially replaced the cake mix with the powdered white algae. Once again, a tasty and healthier alternative with lower carbohydrates and higher protein, fibre and micronutrient content.



Pasta & noodles

Aliga's Chlorella can be used for the development of pasta and noodles to boost the nutritional values with algae, without affecting the colour. The pasta requires the same method of preparation and the White Chlorella can partially substitute the flour (from 2% and up to 10%). An additional advantage is that adding extra salt is no longer necessary thanks to the algae's natural flavour enhancing property.



Application ratio 2% to 10% (in substitution of flour)

Pleasant umami taste and flavour

Excellent consistency after cooking (10 mins)

Good texture (Firmness and chewiness)

Higher protein and fibre content

Enriched with several vitamins and minerals (e.g. B12, iron)

Lower carbohydrate

Pesto, dips and spreads

The Green Chlorella is perfectly suited for pesto dips and spreads. For example, pesto with Chlorella is very easy to prepare with concentration of 2 to 3%. It only requires a little extra binding agent to obtain a firmer product. The pesto has a slightly milder flavour than the 'average' pesto.



Bakery: Ideal in both sweet and savoury applications

Our Green Chlorella is an excellent addition to both savoury and sweet baked products. For instance, it is possible to substitute up to 4% flour in bread or wraps with the dried algae. Want to add algae to cake where green colour is desirable? The Green Chlorella can partially replace up to 3% of the cake mix.



THANK YOU

Open for questions

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