

UTOPIA _ Food of the future

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SPIRULINA PLATENSIS

A microscopic, filamentous cyanobacterium that belongs to the group of microalgae.

SPIRULINA PLATENSIS

UTOPIA - Food of the future

Spirulina microalgae



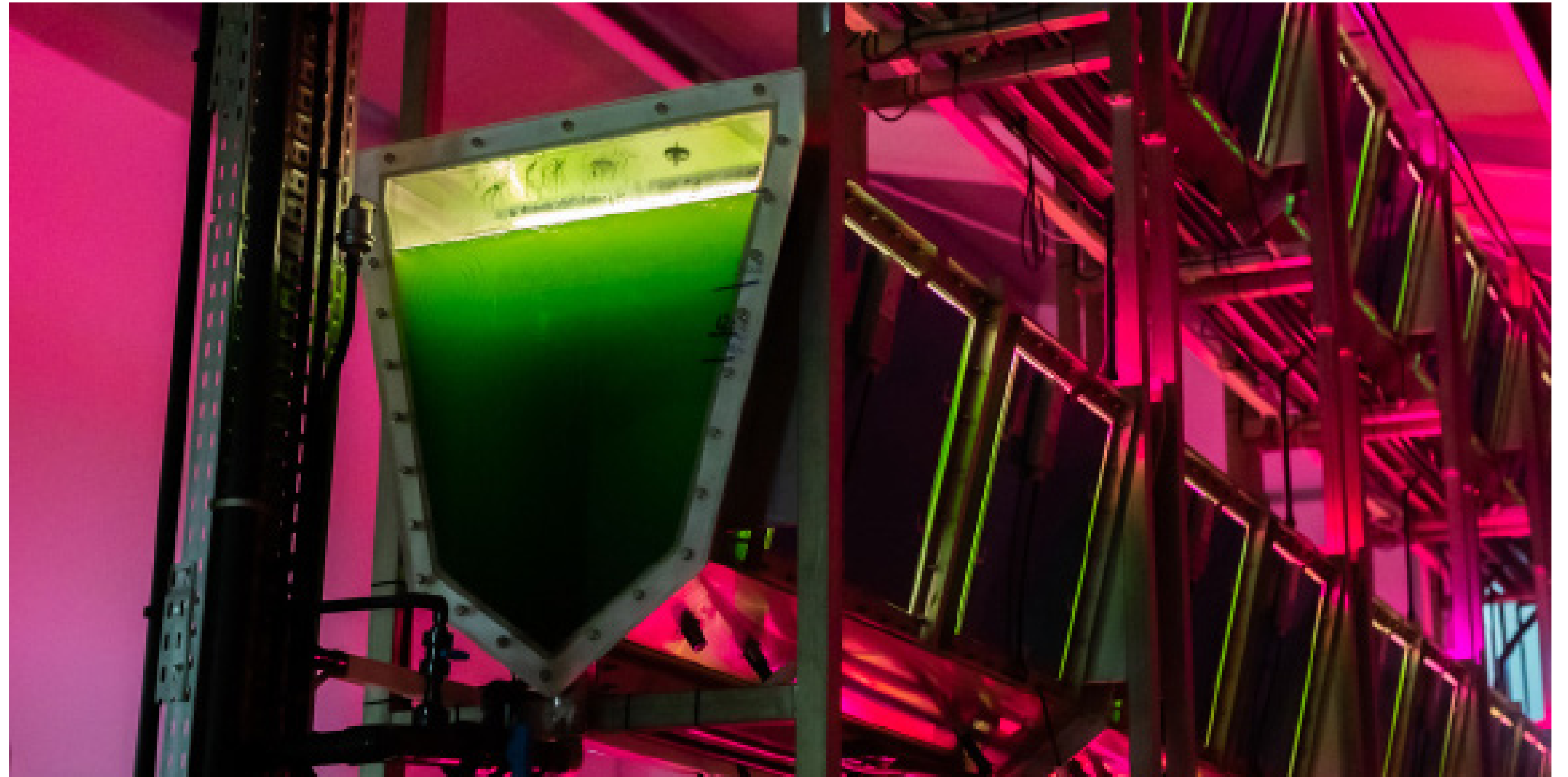
Spirulina platensis

Spirulina is named for its distinctive spiral structure. One of its most important photosynthetic pigments is phycocyanin, which has numerous positive effects on overall well-being and health. In its natural habitat, spirulina thrives in wetlands and alkaline lakes, where the survival of other microorganisms is often challenging or impossible.

SPIRULINA PLATENSIS

UTOPIA - Food of the future

Abstract



My goal is to create a cultivation device: an algae farm that is well integrated into urban environments and modern interior design culture.

SPIRULINA PLATENSIS

UTOPIA - Food of the future

Inspiration

My research revealed insights that emphasized the project's expansion potential and the need to broaden its scope.

“Anthropocene era — the time during which humans have had a substantial impact on the Earth’s environment — entails a radical reassessment of what we eat, and how.”

Rima Sabina Aouf - Ten experimental designs that tackle the food challenges of the Anthropocene era,
Dezeen, 2022

SPIRULINA PLATENSIS

UTOPIA - Food of the future

Abstract



In the second phase of research and design, the focus will shift to exploring the potential of algae as a food source.



SPIRULINA PLATENSIS

UTOPIA - Food of the future

Professional partner collaborating in the project

ALGA SYSTEM

DR. ANNA HOFFMANN

*Professional consultation and fresh algae culture
for the implementation of the project.*

PHOTOBIOREACTOR

A tool designed for cultivating microalgae (specifically spirulina) that can be integrated into urban or home environments.

PHOTOBIOREACTOR

Cultivating Spirulina microalgae

Design Research

1. EcoLogicStudio, **AirBubble**
Childrens playground
2. Hyunseok An, **The Coral**
Indoor algae farming system
3. EcoLogicStudio, **BioBombola**
educational grow-your-own edible algae set
4. Space10, **Algae Dome**
Algae-producing pavilion
5. Spirulina Society, **Growing Kit**



PHOTOBIOREACTOR

Cultivating Spirulina microalgae

First prototype

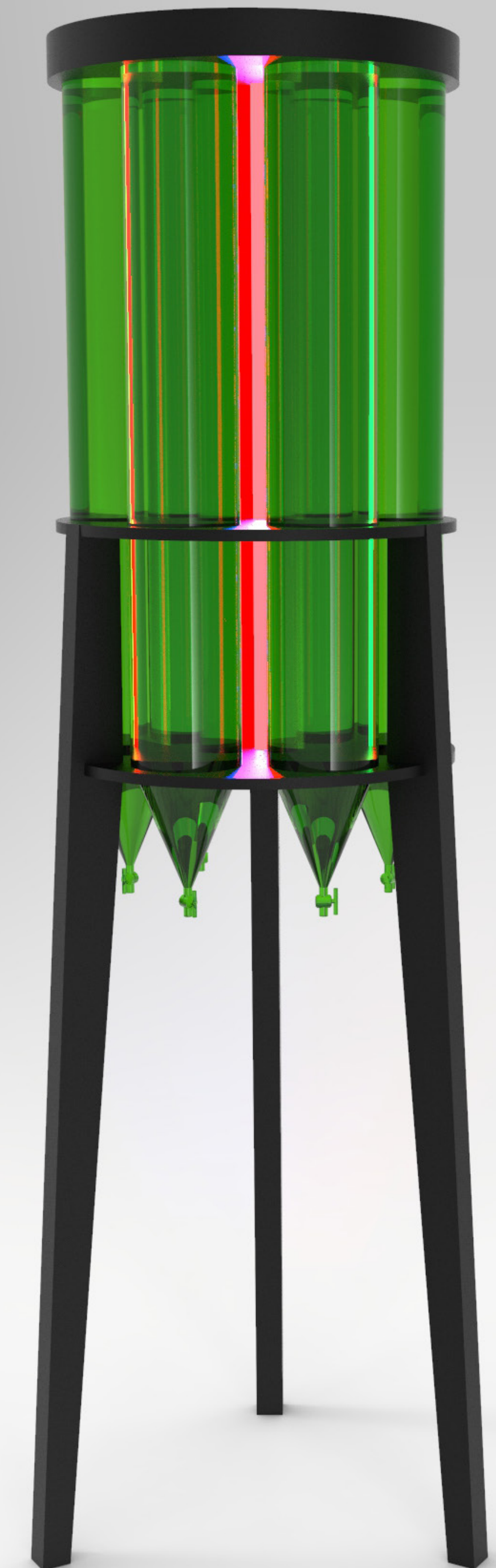
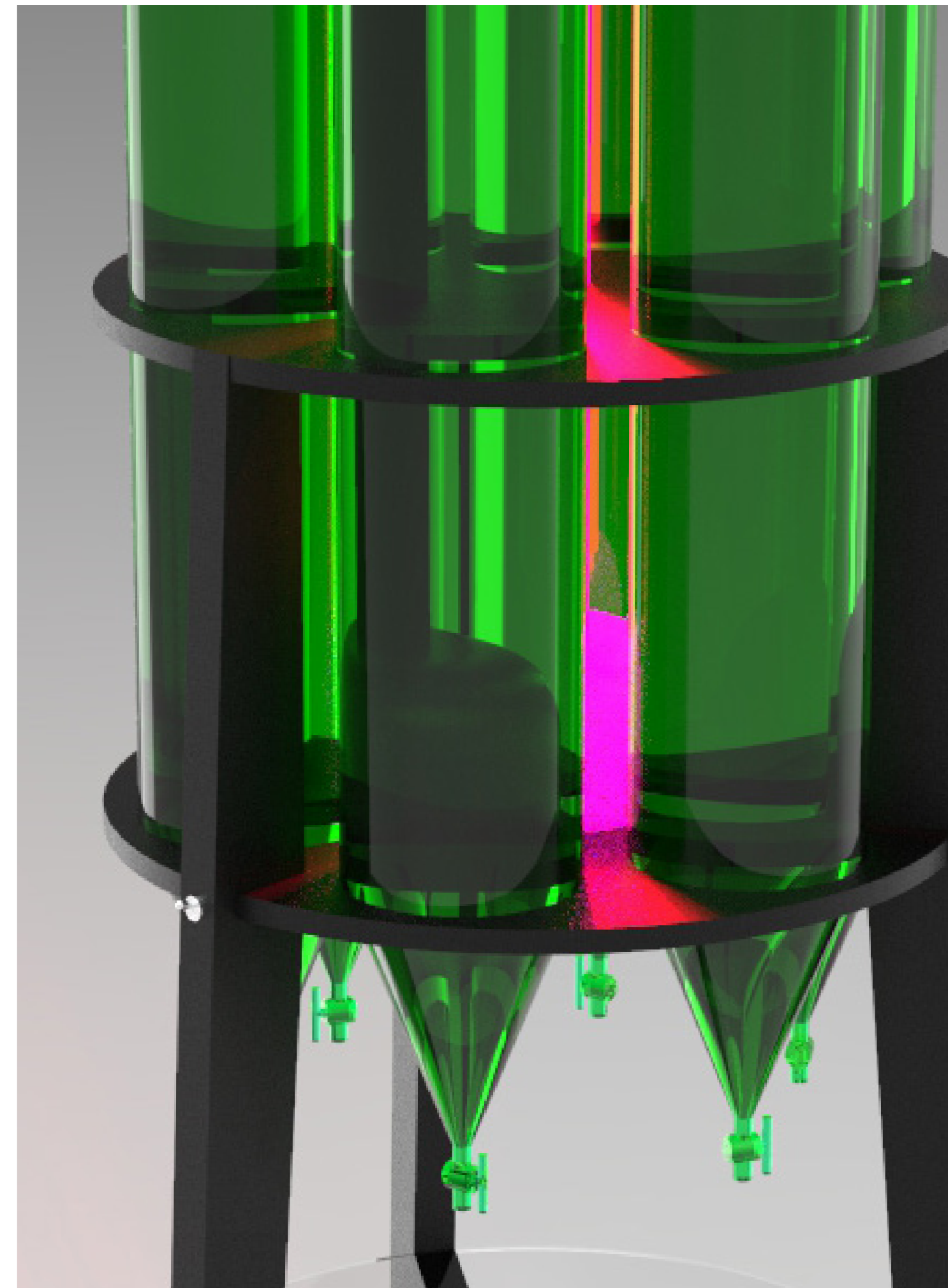


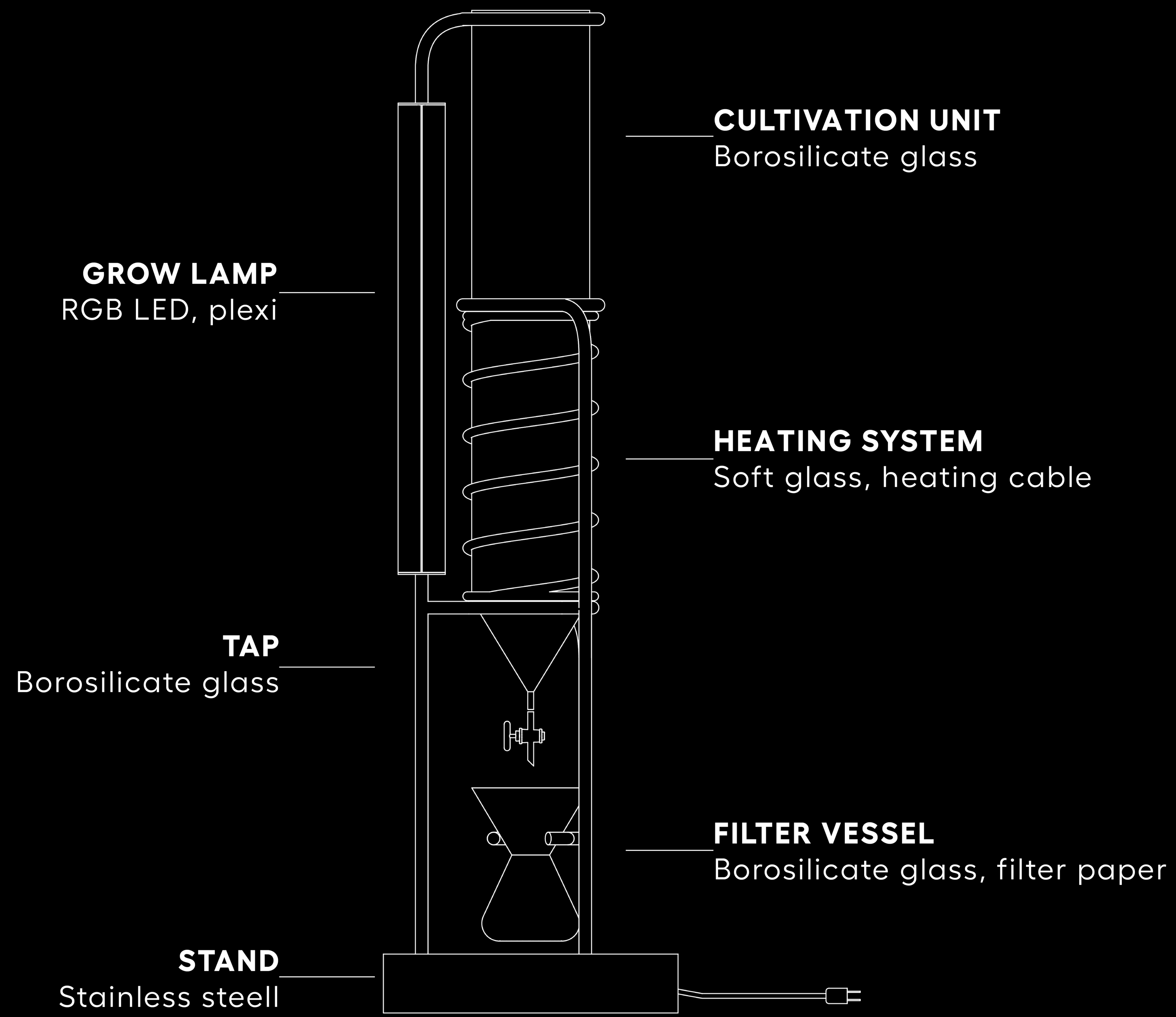
PHOTOBIOREACTOR

Cultivating Spirulina microalgae
Upscale

Consultations with experts have shown that significant increase in scale is needed to grow the right amount of algae.

In the first design, several small diameter tubes were placed, while in the final design, a single large tube was used to create the required volume.





CULTIVATION UNIT

Borosilicate glass

GROW LAMP

RGB LED, plexi

HEATING SYSTEM

Soft glass, heating cable

TAP

Borosilicate glass

FILTER VESSEL

Borosilicate glass, filter paper

STAND

Stainless steell

PHOTOBIOREACTOR

Cultivating Spirulina microalgae

Final prototype



PHOTOBIOREACTOR

Cultivating Spirulina microalgae

Professional partners collaborating in the frameworking process

CSONKAGLAS KFT.

LÁSZLÓ CSONKA

*The manufacturing of the
20x130 cm cultivation unit.*

DECORLIGHT KFT.

MIHÁLY HALLGAS , VENDEL HALLGAS

*Manufacturing of the filter vessel
and the glass spiral.*

FOOD EXPERIMENT

A series of experiments investigating the use of spirulina microalgae in food applications.

FOOD EXPERIMENT

*Consumption of Spirulina microalgae
Professional partners in the food experiment*

ONYX MŰHELY

ÁKOS HORVÁTH
creative chef

DÁNIEL GÓDOR
food engineer

FOOD EXPERIMENT

Consumption of Spirulina microalgae

Design research

1. Sophie's Bionutrients, **Microalgae-Based Milk Alternative**



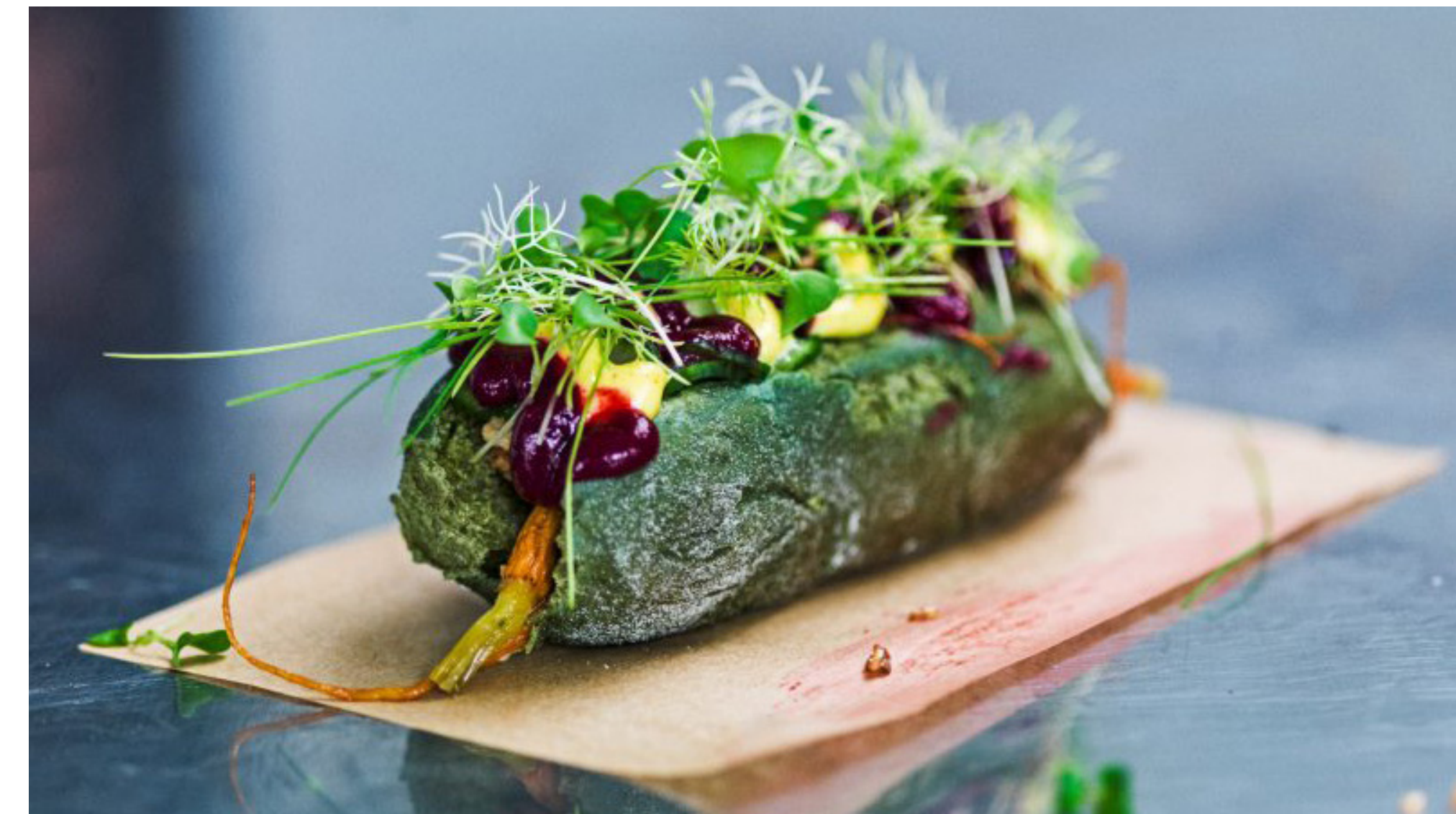
2. Space10, **Algae Dome**
Algae chips



3. Michael Burton and Michiko Nitta, **Algaculture**

4. Space10, **Dogless Hotdog**

5. Studio.malu, **Landless Food**



FOOD EXPERIMENT

Consumption of Spirulina microalgae

The composition of Spirulina

WHY IS SPIRULINA GOOD FOR US?

CULTIVATION

Resistant, undemanding bacteria

Doubles in volume every 16-36 hours

CONSUMPTION

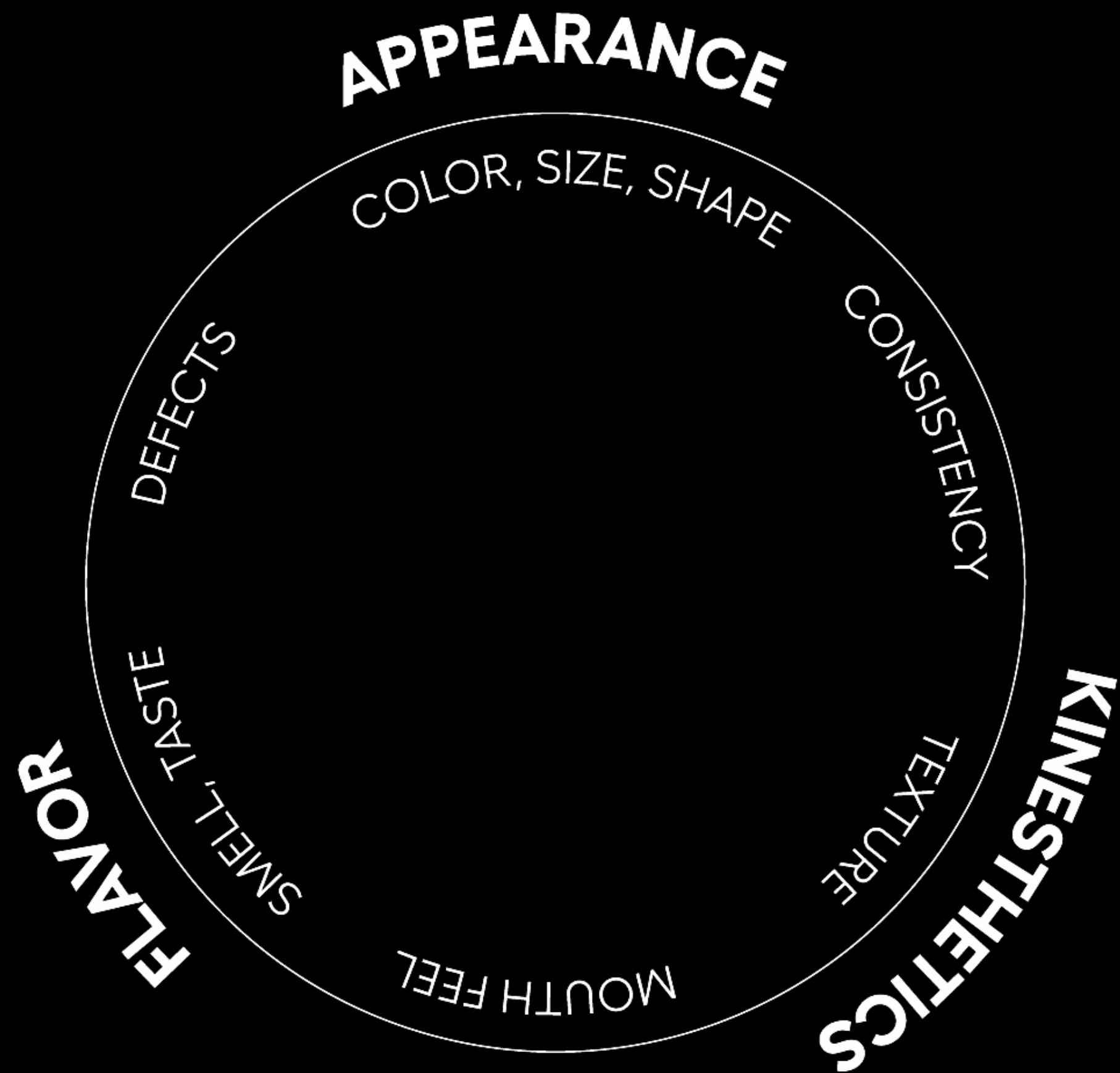
50-70% protein content

30% carbohydrate and fibre content

High vitamin and mineral content

FOOD EXPERIMENT

Consumption of Spirulina microalgae
Theoretical research



To define the elements of the experiment, I set up my own framework, for which it was essential to understand the sensory qualities that determine the nature of the food

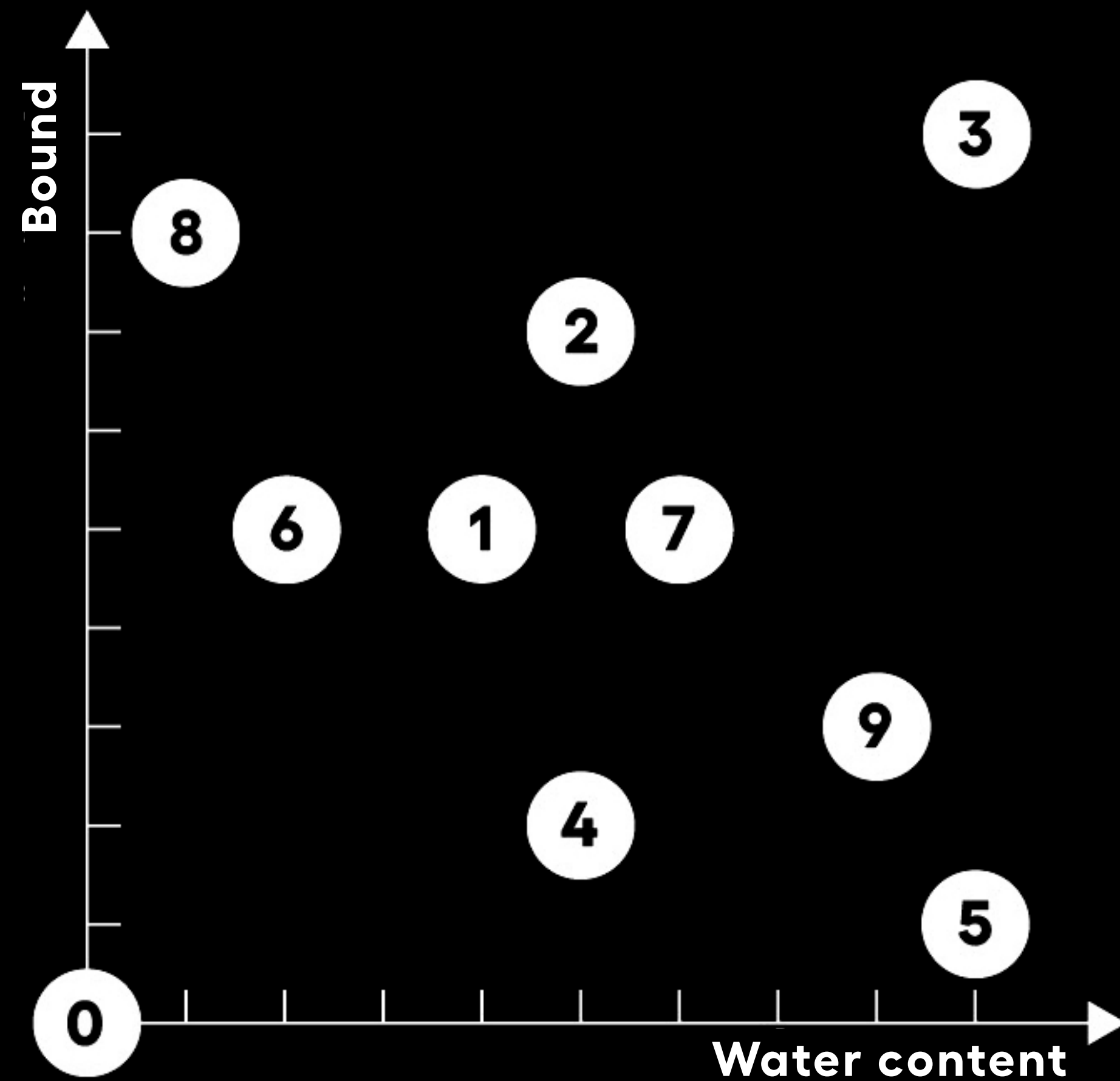
The experiment focused on three main sensory qualities, with texture as the primary parameter.

Amihud Kramer, 1968

A schematic representation of the sensory quality of food as a finite continuum.

FOOD EXPERIMENT

Consumption of *Spirulina* microalgae
Theoretical research



- 0 Powder
- 1 Pasta
- 2 Prád
- 3 Jelly
- 4 Mayo
- 5 Soup
- 6 Wafer
- 7 Pancake
- 8 Cookie
- 9 Pottage

FOOD EXPERIMENT

Consumption of Spirulina microalgae
Cookie



FOOD EXPERIMENT

*Consumption of Spirulina microalgae
Soup*



FOOD EXPERIMENT

Consumption of Spirulina microalgae

Pasta



FOOD EXPERIMENT

Consumption of Spirulina microalgae

Wafer



FOOD EXPERIMENT

*Consumption of Spirulina microalgae
Jelly*



FOOD EXPERIMENT

Consumption of Spirulina microalgae

Mayo



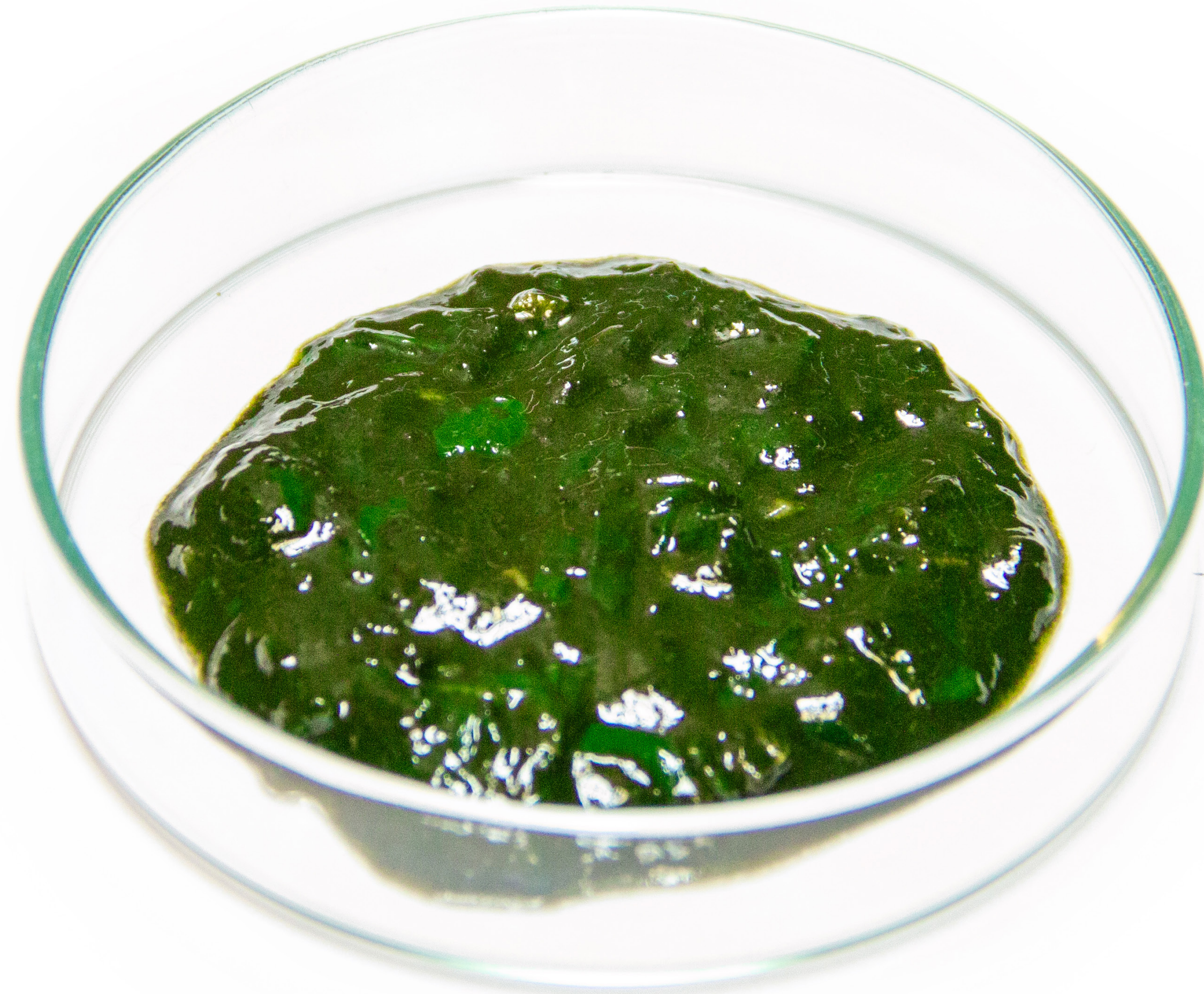
FOOD EXPERIMENT

*Consumption of Spirulina microalgae
Pancake*



FOOD EXPERIMENT

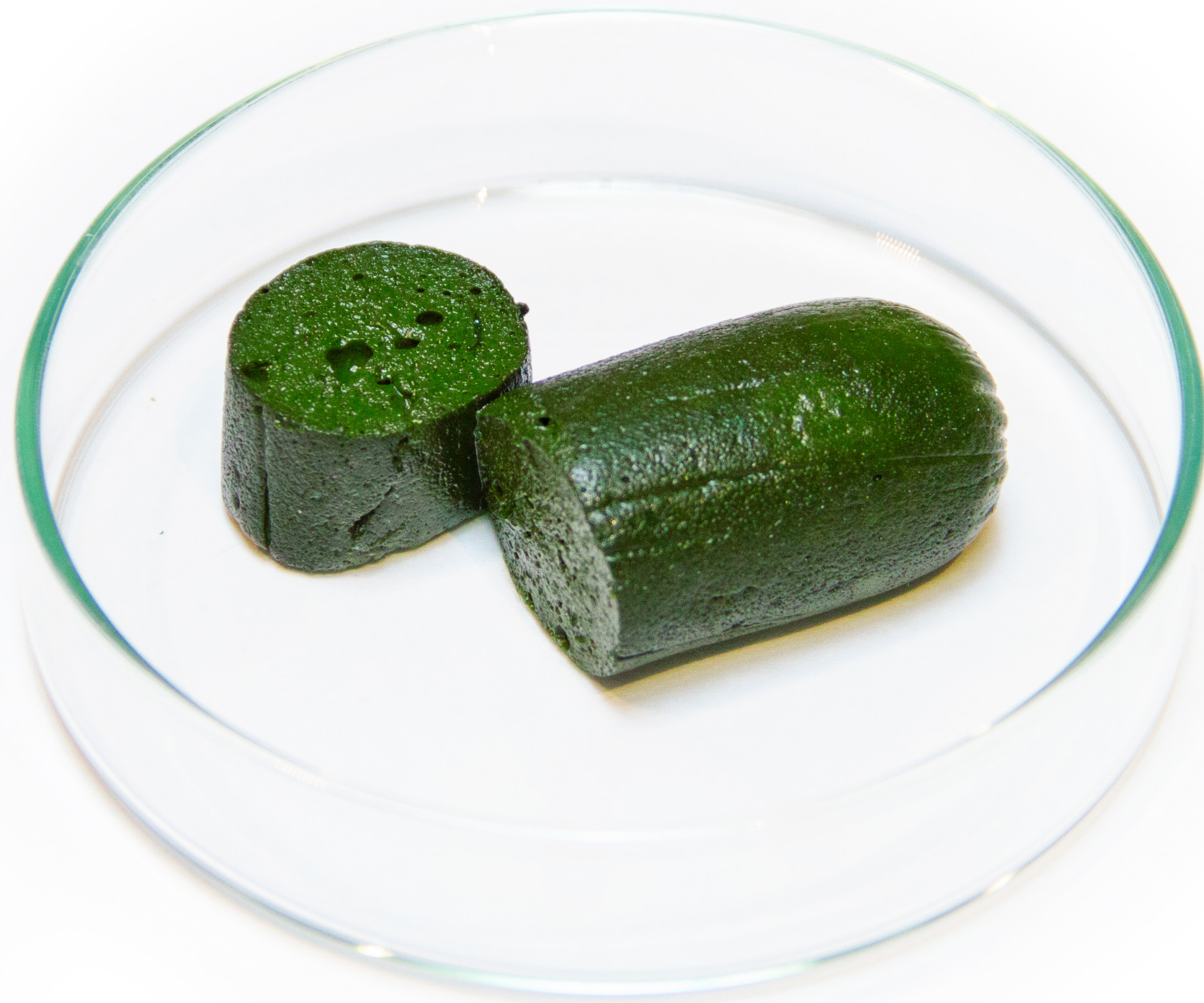
Consumption of Spirulina microalgae
Pottage



FOOD EXPERIMENT

Consumption of Spirulina microalgae

Prád



PRÁD

'SPURKA'
Project 1.2

Ingredients:

- 200 g spirulina
- 10 g activa
- 60 g grapeseed oil
- 0,5 g xanthan

Protein/100 g: 15 g