Measuring the nutritional quality of duckweed protein in comparison with green pea protein in healthy volunteers

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON22743

Source
NTR

Brief title
Pro-2-study

Health condition

Postprandial metabolism of protein in healthy volunteers

Verteringskinetiek van eiwit bij gezonde mensen

Sponsors and support

Primary sponsor: Wageningen Food & Biobased Research
Source(s) of monetary or material Support: Wellcome trust

Intervention

Outcome measures

Primary outcome

Serum amino acids

Secondary outcome

Serum glucose, insulin (t=0 until t=180; each 15-30 minutes)

Gastro-intestinal complaints (during 4 days)

Study description

Background summary

The primary objective of this cross-over study is to assess the post-prandial serum amino-acid profile of duckweed protein in 15 healthy adult volunteers in comparison to a another plant-based high-protein crop: green pea. A secondary objective is to assess post-prandial plasma glucose and insulin responses after a single intake of duckweed protein in healthy adult volunteers in comparison with the reference pea protein, as well as the acute health parameters heart rate, blood pressure and aural temperature and the occurrence of gastro-intestinal complaints.

Study objective

• The amino acid profile of duckweed derived protein may be different from pea derived protein.

• The glucose and insulin responses of duckweed protein may be different compared to those of pea protein.

• A single intake of duckweed and pea protein will give no negative effects in acute health parameters.

• The number of gastro-intestinal complaints after a single intake of duckweed may be different compared to the number of gastro-intestinal complaints after a single intake of pea protein.

Study design

Eleven blood samples are taken each 15-30 minutes for a period of 3 hours.

Gastro-intestinal complaints during 4 days.

Intervention

Subjects come to the research facility in fasting state twice to consume a soup with duckweed or a soup with pea. Two blood samples will be drawn before consumption. After

consumption, blood samples will be taken 9 times (each 15-30 minutes) for a period of three hours to assess the free amino acids as well as glucose and insulin levels to get insight into the post-prandial metabolism of the two plant proteins.

Contacts

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Eligibility criteria

Inclusion criteria

• Healthy as assessed by a health and lifestyle questionnaire and normal blood clinical laboratory tests for haemoglobin, kidney and liver functioning

• Age between 18 and 50 y (boundaries included) at day 01 of the study

• Body mass index (BMI) between 19 and 25 kg/m2 (boundaries included)

• Appropriate veins for blood sampling (judged by a study nurse or medical doctor)

• Willing to abstain from blood donation one month before and during the study

• Willing to abstain from the use of protein supplements during the study period

• Signed informed consent

• Willing to comply with the study procedures

Exclusion criteria

• Any metabolic, gastrointestinal, inflammatory or chronic disease (such as diabetes, anaemia, hepatitis, cardiovascular disease)

• History of gastro-intestinal surgery

• History of liver dysfunction (cirrhosis, hepatitis) or liver surgery

• Kidney dysfunction (eGFR <60 ml/min)

• Any concomitant medication that may influence the study results, such as gastric acid inhibitors or laxatives (occasional use of paracetamol is allowed)

• Intensive sporting activities (>16 hours per week)

• Current smoker

• Alcohol intake (≥3 glasses of alcoholic beverages per day)

• Pregnant, lactating or wishing to become pregnant in the period of the study (self-reported)

• Use of hard drugs

• Known allergies towards the products used in the study

• Not willing to consume chicken broth

• Participation in another clinical trial at the same time

• Being an employee of the responsible and executing research facility

Study design

Design

Study type:	Observational non invasive
Intervention model:	Crossover
Allocation:	Randomized controlled trial

Masking:	Single blinded (masking used)
Control:	Active

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-11-2017
Enrollment:	15
Type:	Actual

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	15-06-2017
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL6194
NTR-old	NTR6516
Other	ABR / METC Wageningen number : 62305.081.17 / 17/13

Study results