ISRCTN12882379 https://doi.org/10.1186/ISRCTN12882379

Whitening efficacy of a food supplement

Submission date	Recruitment status	[_] Prospectively registered
21/05/2023	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
20/07/2023	Completed	[_] Results
Last Edited	**Condition category**	[_] Individual participant data
20/07/2023	Skin and Connective Tissue Diseases	[_] Record updated in last year

Plain English summary of protocol

Background and study aims
The active food supplement intervention is a phytocomplex extracted from licorice (Glycyrrhiza Glabra) which is traditionally known for its efficient brightening activity. The study aims to assess the skin whitening efficacy of the food supplement on a multi-ethnic panel after 28 and 56 days of oral intake.

Who can participate?
Male and female subjects (multiethnic panel) aged from 25 to 65 years old showing skin spots related to age, sun exposure or post-inflammatory hyperpigmentation.

What does the study involve?
Participants are asked to attend clinic visits at screening and after 28 and 56 days of food supplement intake and cosmetic product use. During the screening visit, the principal investigator will inform the participants about the trial procedure, risks, and benefits. Only participants giving their informed consent are enrolled in the study. The trial staff and the subjects then fix the date for the first visit. During the first visit, the subjects will answer all the questions on the medical questionnaires given by the principal investigator. The participants are then randomly allocated to use the active food supplement or the placebo products for 56 days.

According to a randomization list subjects will be divided into two study groups:
1. 30 subjects take the active food supplement
2. 30 subjects take the placebo food supplement

Each group includes:
10 Caucasian subjects (volunteers recruited in Italy)
15 Chinese subjects (volunteers recruited in China)
5 Asian ethnicity with phototype IV-V (volunteers recruited in Italy)

To standardize the volunteer’s cosmetic habits, a base face cream with SPF without any cosmetic activity is provided to the subjects for use during the whole study period instead of their usual day/night face cream. All the measurements/assessments are carried out using non-invasive procedures. The total duration of each visit is 30 minutes. The study duration is 56 days with one intermediate check at 28 days.

What are the possible benefits and risks of participating?
The potential benefits associated with the product use are amelioration of skin conditions such as brown spots (related to age, sun exposure or post-inflammatory hyperpigmentation). In particular, improvements in face skin radiance/brightness, spots, skin pigmentation and skin complexion are expected.
Risks associated with the procedures involved in this study are judged as minor. All precautions will be taken to ensure that the risk is the lowest possible. All the measurements carried out are minimally invasive and no side effects are expected from the measurement process. Due to the nature of the active ingredient volunteers blood pressure is monitored during the whole study period.

Where is the study run from?
1. Nutratech srl spin-off Università della Calabria (Italy)
2. Complife Beijing Testing Technology Co., Ltd (China)

When is the study starting and how long is it expected to run for?
February 2023 to August 2023

Who is funding the study?
ROELMI HPC Srl (Italy)

Who is the main contact?
Mrs Ileana De Ponti, ileana.deponti@complifegroup.com

Contact information

Type(s)
Principal investigator

Contact name
Mrs Ileana De Ponti

ORCID ID
https://orcid.org/0000-0003-0579-7904

Contact details
Master’s Degree in Chemist and Pharmaceutical Technologies
Via Guido Rossa 1
Garbagnate Milanese
Italy
20024
+39 3316841438
ileana.deponti@complifegroup.com

Type(s)
Scientific

Contact name
Mrs Ileana De Ponti

Contact details

Master’s Degree in Chemist and Pharmaceutical Technologies
Via Guido Rossa 1
Garbagnate Milanese
Italy
20024
+39 3316841438
ileana.deponti@complifegroup.com

Type(s)
Public

Contact name
Mrs Ileana De Ponti

Contact details
Master’s Degree in Chemist and Pharmaceutical Technologies
Via Guido Rossa 1
Garbagnate Milanese
Italy
20024
+39 3316841438
ileana.deponti@complifegroup.com

Additional identifiers

Protocol serial number
H.E.HU.HV.NWH00.060.41.00_NT0000092/23

Study information

Scientific Title
A clinical trial aimed to evaluate the whitening efficacy of a dietary supplement in healthy adults. Multi-ethnic panel. Double-blind controlled study versus placebo

Acronym
WhiteMulthiEthnic

Study objectives
Oral intake of a food supplement will show skin whitening efficacy, whitening brown spots (related to age, sun exposure or post-inflammatory hyperpigmentation). In particular, it will have an effect on face skin radiance/brightness, spots and skin pigmentation, skin evenness complexion and whitening efficacy.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 09/03/2023, Independent ethics committee for non-pharmacological clinical investigations (Via XX Settembre 30/4, Genova, 16121 , Italy; +39 (0)10 5454842; ssinf@messaggipec.it), ref: 2023/02

Primary study design
Interventional

Study design
Multicenter stratified randomized double-blind placebo-controlled study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Presence of skin spots related to age, sun exposure or post-inflammatory hyperpigmentation

Interventions
The study aims to assess the skin whitening efficacy of a food supplement on a multi-ethnic panel of 60 subjects after 28 and 56 days of intake. The aim of this study is to evaluate the efficacy of the product supplementation on whitening brown spots (related to age, sun exposure or post-inflammatory hyperpigmentation). In particular, face skin radiance/brightness, spots and skin pigmentation, skin evenness complexion and whitening efficacy are evaluated. Moreover, the measurement of the variation of the levels of accumulated advanced glycation end products (AGE) in the skin, product tolerability evaluation and volunteers' perceived efficacy by self-assessment questionnaire are evaluated.

The active food supplement intervention is a phytocomplex extracted from licorice (Glycyrrhiza Glabra) which is traditionally known for its efficient brightening activity (ROELMI HPC, Via Celeste Milani, 24/26, 21040 Origgio (VA), Italy); while the placebo food supplement intervention is: charcoal, maltodextrin and magnesium stearate. Both the active and the placebo products are used as follows: one capsule per day to be taken on an empty stomach with a glass of still water for 56 days.

To standardize the volunteer’s cosmetic habits, a base face cream with SPF without any cosmetic activity is provided for use during the whole study period instead of their usual day/night face cream.

Test subjects are randomized into two groups of 30 subjects as follows: one group takes the active food supplement and one group takes the placebo food supplement,
Each group includes:
- 10 Caucasian subjects (volunteers recruited in Italy)
- 15 Chinese subjects (volunteers recruited in China)
- 5 Asian ethnicity with phototype IV-V (volunteers recruited in Italy).

A restricted randomization list is created using PASS 2008 (PASS, LLC. Kaysville, UT, USA) statistical software running on Windows Server 2008 R2 Standard SP1 64-bit Edition (Microsoft, USA) by a biostatistician and stored in a safe place. The randomization sequence was stratified using “Efron’s biased coin” algorithm with a 1:1 allocation ratio. The allocation sequence was concealed from the in-site study director in sequentially numbered, opaque and sealed envelopes, reporting the unblinded treatment allocation (based on the subject entry number in the study). The A4 sheet reporting the unblinded treatment was folded to render the envelope impermeable to intense light. A masked allocation sequence was prepared for the staff delivering the intervention based on the subject entry number in the study.

Intervention Type

Supplement

Primary outcome(s)
The whitening efficacy of the tested treatment will be evaluated by:
1. Evaluation of spots and skin individual typology angle (ITA) measured using a spectrophotometer/colorimeter CM-700D (Konica-Minolta) at T0, T28, and T56 (days)
2. Evaluation of skin radiance/skin brightness measured using a spectrophotometer/colorimeter CM-700D (Konica-Minolta) at T0, T28, and T56
3. Clinical evaluation of skin evenness complexion and whitening efficacy on Visia pictures measured using an improvement clinical scale (from 1: no variation to 4: remarkable improvement) at T28 and T56

Key secondary outcome(s)
1. Measurement of the variation of the levels of accumulated advanced glycation end products (AGE) measured using an AGE Reader mu of DiagnOptics Technologies B.V at T0 and T56
2. An evaluation of face digital pictures measured using means of Visia®-CR (Canfield Scientific) at T0, T28, T56
3. Product acceptability and volunteers' perceived efficacy measured using a self-assessment questionnaire at T28 and T56

Completion date
31/08/2023

Eligibility

Key inclusion criteria
1. Healthy female and male subjects
2. Age between 25 and 65 (extremes included) years old
3. Multi-ethnic panel
4. Subjects showing skin spots related to age, sun exposure or post-inflammatory hyperpigmentation
5. Subjects who have not been recently involved in any other similar study (at least one month of wash-out)
6. Willingness to not use during the study period products other than the test product
7. Willingness to not vary the normal diet and daily routine (at the beginning of the study volunteers will list their usual routine: sports activities, sleeping habits, etc.)
8. Subject is under effective contraception (oral/not oral) therapy
9. Subjects who accept not to expose in an intensive way to UV rays during the whole study duration
10. Subjects registered with Nation Health Service (NHS)
11. Subjects certifying the truthfulness of the personal data disclosed to the investigator
12. Subjects able to understand the language used in the investigation center and the information given by the investigator
13. Subjects able to respect the instructions given by the investigator as well as able to respect the study constraints and specific requirements
14. The pharmacological therapy (except for the pharmacological therapy in the non-inclusion criteria) should be stable for at least one month without any changes expected or planned during the study
15. Subjects having signed their written Informed Consent form (ICF) for their participation in the study and a photograph authorization

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
25 Years

Upper age limit
65 Years

Sex
All

Total final enrolment
66

Key exclusion criteria
1. Subject does not meet the inclusion criteria
2. Subjects with acute or chronic diseases able to interfere with the outcome of the study or that are considered dangerous for the subject or incompatible with the study requirements
3. Subjects participating or planning to participate in other clinical trials
4. Subjects not able to be contacted in case of emergency
5. Subjects admitted to a health or social facility
6. Subjects planning a hospitalization during the study
7. Subjects who participated in a similar study without respecting an adequate washout period (at least one month of wash-out)
8. Subject with known or suspected sensitization to one or more test formulation ingredients
9. Having a diagnosed chronic disease (blood, cardio-vascular, psychiatric, neuro-degenerative, cancer, liver, gastric, skin, etc.) and/or under medical treatment; in particular subjects suffering from hypertension, renal insufficiency, liver cirrhosis and diabetes will be excluded from the trial
10. Consumption of food supplement(s) and/or use of topical skincare products with whitening activity currently or within the past 4 weeks before the study: moreover the assumption of foods containing liquorice is not recommended for the entire duration of the study
11. Adult protected by the law (under guardianship, or hospitalized in a public or private institution, for a reason other than the research, or incarcerated)
12. Subject is unable to communicate or cooperate with the Investigator due to language problems, poor mental development, or impaired cerebral function
13. Subjects accustomed to using tanning beds
14. Subjects taking medication with photosensitizing potential, drugs and/or dietary supplements able to induce skin coloring, corticoids, currently or during the month before the study
15. Subjects under pharmacological treatments that are considered incompatible with the study requirements by the investigator
16. Subjects having a skin disease or condition liable to interfere with the study data or considered by the Investigator hazardous for the subject or incompatible with the study requirements

17. Subjects that have shown allergies or sensitivity to cosmetic products, drugs, patches or medical devices
18. Subject breastfeeding, pregnant or not willing to take necessary precautions to avoid pregnancy during the study (for the women of childbearing potential)

Date of first enrolment
03/04/2023

Date of final enrolment
05/07/2023

Locations

Countries of recruitment
China

Italy

Study participating centre
Nutratech srl spin-off Università della Calabria
Via P. Bucci snc
Rende
Italy
87036

Study participating centre
Complife Beijing Testing Technology Co., Ltd
Beizhan North Street N.17, Room 902- Xicheng District
Beijing
China
100089

Sponsor information

Organisation
ROELMI HPC Srl

Funder(s)

Funder type
Industry

Funder Name
ROELMI HPC Srl

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be stored in a non-publically available repository on Complife/Nutratech servers. A backup copy of the raw data will be also in a cloud-based backup server. Tables containing the raw data (output of the measurements) will be also included in the study report and shared with the study sponsor in a pdf file that is electronically signed. The raw data will be stored for a minimum period of 10 years on Complife servers. In the raw data tables, subjects are identified by means of a code generated by the Complife volunteer's management software. The code is composed of a letter, four digits, and a letter. Access to the study's raw data is allowed only by the study director and the person designated by him to elaborate on the raw data. Elaboration of the raw data includes descriptive statistics (mean and standard error) and inferential analysis (data normality and statistical test).

IPD sharing plan summary

Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes