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Cranberry extracts for urinary tract infections

Submission date	Recruitment status	[_] Prospectively registered
02/09/2019	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
05/09/2019	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
06/11/2023	Urological and Genital Diseases	

Plain English summary of protocol

Background and study aims
Cranberries (Vaccinium macrocarpon) are a rich source of bioactive compounds, in particular proanthocyanidins (PAC), with potential impact on human health. Several studies suggest that PACs (type A) help to prevent or reduce up to 40%–50% urinary tract infections (UTIs), especially for women who have a history of recurrent infections. The hypothesized mechanism of action seems related to the capacity of PACs to reduce the adhesion of the bacteria E. coli (the most common pathogen causing UTIs) to cells lining the urinary tract and bladder.
The aim of the present project is to identify the components of cranberry (PAC and metabolites) present at urinary level and potentially responsible for UTI activity. The second part of the project will plan to identify, among the components/metabolites present at urinary level, those that may exert antimicrobial action on the microorganisms responsible for the UTIs, including Candida Albicans and E. Coli, in order to elucidate the mechanism of action.

Who can participate?
Women aged 18 - 40 years.

What does the study involve?
Participants will be randomised to take either one of two different cranberry based supplements or placebo twice a day for seven days. Urine samples will be taken for two days following the last capsule. After 30 days the participants will take a different capsule for seven days, and after another 30 days another different capsule for 30 days.

What are the possible benefits and risks of participating?
Cranberry polyphenols may be metabolised and exert a protection against urinary tract infections. There are no notable risks involved with participating.

Where is the study run from?
1. Department of Pharmaceutical Sciences, DiSFARM- Università degli Studi di Milano, Italy
2. Department of Food, Environmental and Nutritional Sciences, DeFENS-Università degli Studi di Milano, Italy
3. Department of Health Sciences, Università degli Studi di Milano, Italy

When is the study starting and how long is it expected to run for?
February to March 2019

Who is funding the study?
Indena SpA, Italy

Who is the main contact?
1. Prof. Giancarlo Aldini
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2. Dr Cristian Del Bo'
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Contact information

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Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Nil known

Study information

Scientific Title
Profiling Vaccinium macrocarpon components and metabolites in human urine and the urine ex-vivo effect on Candida albicans adhesion and biofilm-formation

Acronym
CRAME

Study objectives
The present pilot study aims to test the hypothesis that some bioactive compounds from standardized cranberry extracts are absorbed, metabolized and excreted in urine and can exert protection against urinary tract infections

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 18/12/2018, Ethics Committee of the University of Milan (Università degli Studi di Milano,
Via Festa del Perdono 7, 20122, Milano, Italy; +39 2 503 12667; comitato.etico@unimi.it), ref: 57/18

Study design
A controlled randomized intervention study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Other

Study type(s)
Prevention

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet.

Health condition(s) or problem(s) studied
Urinary tract infection

Interventions
Ten healthy women will be enrolled and randomized for the intervention. Subjects will be randomized, based on a computer randomization plan. Two different food supplements, based on standardized cranberry extracts, and a placebo will be tested:
1. Cranberry capsules (Anthocran, Vaccinium macrocarpon Aiton.)
2. Cranberry capsules (Antocran Phytosome, Vaccinium macrocarpon Aiton. containing sunflower lecithin)
3. Placebo capsules (containing microcrystalline cellulose, silicon dioxide, magnesium stearate)

Each subject will consume two capsules per day (one in the morning and on in the evening) of cranberry extracts or placebo. Each treatment will be 7-day long and separated by at least 30-day wash-out period. At the beginning (before capsule intake) and at the end of the intervention (7 days), urine will be collected at time 1, 2, 4, 6, 10,12, 14, 24, 48 hours from the intake of the last capsule.

Intervention Type
Supplement

Primary outcome measure
Detection at time 1, 2, 4, 6, 10,12, 14, 24, 48 hours (from the intake of the last capsule) of cranberry bioactive constituents in urine (type A proanthocyanidin) and metabolites including hydroxybenzoic acids and valerolactones evaluated by high-resolution mass spectrometry.

Secondary outcome measures
1. Detection of other potential cranberry polyphenol metabolites in urines evaluated by high-resolution mass spectrometry
2. Ex-vivo inhibition of Candida albicans adhesion and biofilm formation by using the urine collected from the subjects at different time points

Overall study start date
10/04/2018

Completion date
31/05/2019

Eligibility

Key inclusion criteria
1. Women
2. Age 18-40 years
3. BMI 18-25 kg/m2
4. Healthy

Participant type(s)
Healthy volunteer

Age group

Adult

Lower age limit
18 Years

Upper age limit
40 Years

Sex
Female

Target number of participants
10

Total final enrolment
13

Key exclusion criteria
1. Smokers
2. Allergy to cranberry
3. Gastrointestinal disorder
4. Liver and renal disease
5. Antibiotic treatment

Date of first enrolment
15/01/2019

Date of final enrolment
15/02/2019

Locations

Countries of recruitment
Italy

Study participating centre
Department of Pharmaceutical Sciences, DiSFARM- Università degli Studi di Milano
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Sponsor information

Organisation
Indena Spa

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Sponsor type
Industry

Website
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ROR
https://ror.org/052d5f872

Funder(s)

Funder type
Industry

Funder Name
Indena SpA

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer-reviewed journal

Intention to publish date
31/12/2019

Individual participant data (IPD) sharing plan
The current data sharing plans for this study are unknown and will be available at a later date

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/03/2020	20/05/2020	Yes	No
Results article	Biofilm Inhibition	13/07/2021	06/11/2023	Yes	No