Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Evaluation of the efficacy of C-phycocyanin oral spray compared to placebo on healing of recurrent aphthous stomatitis

Protocol summary

Study aim
To evaluate and compare the efficacy of a C-phycocyanin-containing oral spray versus placebo in reducing pain intensity, the size of the erythematous halo, and the healing time of recurrent aphthous stomatitis lesions.

Design
A phase II, randomized, double-blind, placebo-controlled, parallel-group clinical trial with an internal pilot involving at least 30 patients. Randomization will be performed using permuted blocks with a fixed block size of two generated by Random Allocation Software 2

Settings and conduct
The study will be conducted at Tooba Clinic, on at least 30 patients with recurrent aphthous stomatitis. Participants will be randomly assigned to receive either C-phycocyanin oral spray or placebo and will be assessed over seven days. Participants and outcome assessors will remain blinded to group allocation.

Participants/Inclusion and exclusion criteria
Eligible participants will be aged 16–45 years, have specialist-confirmed recurrent aphthous stomatitis within 24 hours of lesion onset, and provide informed consent. Exclusion criteria include relevant systemic conditions, pregnancy, poor oral hygiene, specified medication use, concurrent aphthous ulcer treatment, and inability to complete follow-up.

Intervention groups
Intervention group: Fifteen participants will receive an oral spray containing 8% C-phycocyanin. The product will be administered three times daily for seven days. Control group: Fifteen participants will receive a placebo spray containing the same vehicle formulation but without C-phycocyanin. The placebo will be similar to the intervention product in appearance, color, odor, taste, volume, and packaging and will be administered at the same dose, frequency, and duration.

Main outcome variables
Change in the diameter of the inflammatory halo surrounding the aphthous lesion, measured in millimeters.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20260818070718N1**
Registration date: **2026-09-09, 1405/06/18**
Registration timing: **prospective**

Last update: **2026-09-20, 1405/06/29**
Update count: **1**

Registration date
2026-09-09, 1405/06/18

Registrant information

Name
Alireza Ghanbari

Name of organization / entity

Country
Iran (Islamic Republic of)

Phone
+98 11 3354 3861

Email address
alireza11.ghanbari2001@gmail.com

Recruitment status
recruiting

Funding source

Expected recruitment start date
2026-09-23, 1405/07/01

Expected recruitment end date
2027-01-21, 1405/11/01

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Evaluation of the efficacy of C-phycocyanin oral spray compared to placebo on healing of recurrent aphthous stomatitis

Public title
Effect of algae-containing spray on oral thrush

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Age of 16 to 45 Recurrent aphthous stomatitis confirmed by examination and diagnosis by an oral and maxillofacial specialist A maximum of 24 hours have passed since the aphthous lesion developed The individual must be able to understand and follow treatment instructions

Exclusion criteria:
Use of immunosuppressive drugs within the past month Systemic diseases affecting the development or progression of aphthous lesions Recurrent herpetiform aphthous lesions Poor oral hygiene Pregnancy Antibiotic use at the time of study entry Concurrent use of other treatments for aphthous lesions Known hypersensitivity to C-phycocyanin or product components and placebo

Age
From **16 years** old to **45 years** old

Gender
Both

Phase
2

Groups that have been masked

- Participant
- Care provider
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization will be performed at the individual level using permuted-block randomization with a fixed block size of two. The allocation sequence will be generated using Random Allocation Software 2, with a 1:1 allocation ratio between the intervention and control groups. Given the initial sample size of 30 participants, the sequence will consist of 15 blocks of two, with one participant assigned to the intervention group and one to the control group within each block. Stratified randomization will not be used in this study. The random allocation sequence will be generated by an independent individual who is not involved in participant enrollment, implementation of the intervention, or outcome assessment. To ensure allocation concealment, the intervention product and placebo will be prepared in identical containers labeled with sequential, non-identifying codes. Each participant will receive the container bearing the corresponding number according to their order of enrollment.

Blinding (investigator's opinion)
Double blinded

Blinding description
This study will be conducted in a double-blind manner. The participants, principal investigator, healthcare personnel involved in conducting the study, data collector, and outcome assessors will remain unaware of the assigned study product. The C-phycocyanin-containing spray and the placebo will be prepared in identical containers with equal volumes and labeled with sequential, non-identifying codes. The placebo will be made as similar as possible to the intervention product in terms of appearance, color, odor, and taste so that participants cannot identify their assigned group. The code key linking the study codes to the intervention and control groups will be held by an independent individual who has no role in participant enrollment, administration of the intervention, data collection, or outcome assessment. The dental student responsible for measuring the lesion diameter and the surrounding erythematous area and recording data on days 0, 3, 5, and 7 will also have no access to the allocation list.

Placebo
Used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Mazandaran University of Medical Sciences

Street address
Moallem Avenue

City
Sari

Province
Mazandaran

Postal code
4815733971

Approval date
2026-07-01, 1405/04/10

Ethics committee reference number
IR.MAZUMS.REC.1405.183

Health conditions studied

1

Description of health condition studied
Recurrent aphthous stomatitis

ICD-10 code

K12.0

ICD-10 code description

Recurrent oral aphthae

Primary outcomes

1

Description

Change in the diameter of the inflammatory halo surrounding the aphthous lesion, measured in millimeters.

Timepoint

At baseline, before the intervention, and on days 3, 5, and 7 after starting treatment.

Method of measurement

A metal caliper graduated in millimeters.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: An oral spray containing 8% C-phycocyanin will be applied to the lesion as two sprays, delivering approximately 20 mg of the active ingredient, three times daily for seven days. This spray will be developed at the Faculty of Pharmacy, Mazandaran University of Medical Sciences.

Category

Treatment - Drugs

2

Description

Control group: A placebo spray with a similar appearance and vehicle formulation but without C-phycocyanin will be administered at the same dose, frequency, and duration. This spray will be developed at the Faculty of Pharmacy, Mazandaran University of Medical Sciences.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

Tooba Dental Clinic

Full name of responsible person

Dr. Anahita Ghorbani

Street address

Tooba Dental Clinic, Khazar Boulevard, Sari, Mazandaran Province

City

Sari

Province

Mazandaran

Postal code

4815733971

Phone

+98 11 3324 0002

Email

research@mazums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Mazandaran University of Medical Sciences

Full name of responsible person

Dr. Ahmadali Enayati

Street address

Deputy for Research and Technology Building, Moalem Square, Sari, Mazandaran Province

City

Sari

Province

Mazandaran

Postal code

4815733971

Phone

+98 11 3324 0002

Email

research@mazums.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Mazandaran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Mazandaran University of Medical Sciences

Full name of responsible person

Alireza Ghanbari

Position

Student

Latest degree

Medical doctor

Other areas of specialty/work

Dentistry

Street address
Moallem Ave,
City
Sari
Province
Mazandaran
Postal code
۴۸۱۵۷۳۳۹۷۱
Phone
+98 11 3354 3861
Fax
Email
Alireza11.ghanbari2001@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Mazandaran University of Medical Sciences
Full name of responsible person
Dr. Anahita Ghorbani
Position
Assistant professor
Latest degree
Medical doctor
Other areas of specialty/work
Dentistry
Street address
Deputy for Research and Technology Building, Moalem Square, Sari, Mazandaran province
City
Sari
Province
Mazandaran
Postal code
۴۸۱۵۷۳۳۹۷۱
Phone
+98 11 3304 4030
Email
anahita1802@yahoo.com

Person responsible for updating data

Contact
Name of organization / entity
Mazandaran University of Medical Sciences
Full name of responsible person
Dr. Anahita Ghorbani
Position
Assistant professor
Latest degree
Medical doctor
Other areas of specialty/work
Dentistry
Street address
Deputy for Research and Technology Building, Moalem Square, Sari, Mazandaran province
City
Sari
Province
Mazandaran
Postal code
۴۸۱۵۷۳۳۹۷۱
Phone
+98 11 3304 4030
Email
anahita1802@yahoo.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available
Study Protocol
Undecided - It is not yet known if there will be a plan to make this available
Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available
Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available
Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Undecided - It is not yet known if there will be a plan to make this available
Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available