Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of antimicrobial properties of coconut oil, moringa oleifera and chlorhexidine on oral bacterial populations

Protocol summary

Study aim

The aim of this investigation is to determine the efficacy of coconut oil and moringa oleifera as antimicrobials in the oral cavity in comparison to chlorhexidine.

Design

Randomized, parallel group, unblinded clinical trial.

Settings and conduct

The participants will be recruited at the dental clinics at Riphah International University over a period of 4 weeks. Each participant will be required to sign a consent form before proceeding with the trial.

Participants/Inclusion and exclusion criteria

Individuals who maintain good oral health will be enrolled in the study. Those with periodontal disease, systemic illnesses or medications that affect periodontal health will be excluded. People with recent history of oral prophylaxis or antibiotic use will also be excluded.

Intervention groups

The participants will be divided into 3 different groups, coconut oil (C), moringa oleifera (M) and chlorhexidine (Control). Each participant will be given a unique number. All 3 groups; with 30 participants each, will be sampled for plaque and gingival crevicular fluid from the lingual surface of lower incisors. The collected sample will be placed will be transported to the laboratory for detailed microbiologic analysis. Each group will be given a specially formulated mouthwash according to their allocation. These participants will be instructed to rinse will 15 mL mouthwash twice daily for 14 days. Reminder text messages will be sent twice daily to ensure compliance. Each participant will be sampled again following completion of 2 weeks. The pre-mouthwash microbial results will be compared with the post-mouthwash samples.

Main outcome variables

The difference of the pre-mouthwash and post-mouthwash oral microbial species will be compared.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20210212050332N1**
Registration date: **2021-02-16, 1399/11/28**
Registration timing: **prospective**

Last update: **2021-02-16, 1399/11/28**
Update count: **0**

Registration date

2021-02-16, 1399/11/28

Registrant information

Name

Amber Kiyani

Name of organization / entity

Riphah International University

Country

Pakistan

Phone

+92 51 2891835

Email address

akiyani@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-06-22, 1400/04/01

Expected recruitment end date

2021-07-23, 1400/05/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Comparison of antimicrobial properties of coconut oil, moringa oleifera and chlorhexidine on oral bacterial populations

Public title
Effect on coconut oil, moringaoleifera and chlorhexidine on oral health.

Purpose
Prevention

Inclusion/Exclusion criteria
Inclusion criteria:
Good oral hygiene. Good brushing habits.
Exclusion criteria:
Periodontal disease. Systemic disease affecting periodontal health. Recent history of oral prophylaxis. Recent history of antibiotic use.

Age
From **18 years** old to **40 years** old

Gender
Both

Phase
1

Groups that have been masked
No information

Sample size
Target sample size: **90**

Randomization (investigator's opinion)
Not randomized

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Institutional Review Committee, Riphah International University
Street address
Riphah International University, Islamic International Dental College, 7th Avenue, G-7/4
City
Islamabad
Postal code
44000

Approval date
2017-10-06, 1396/07/14

Ethics committee reference number
IIDC/IRC/2017/10/006

Health conditions studied

1

Description of health condition studied
Caries

ICD-10 code
K02.9

ICD-10 code description
Dental caries, unspecified

2

Description of health condition studied
Periodontitis

ICD-10 code
K05.6

ICD-10 code description
Periodontal disease, unspecified

Primary outcomes

1

Description
Oral microbial populations

Timepoint
2 weeks

Method of measurement
Culture, PCR, biochemical methods

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: (Coconut oil). 30 individuals in this group will be sampled from the sub gingival area of the lingual surfaces of lower central incisors. The plaque and gingival crevicular fluid collected will be sent for detailed microbiologic analysis (PCR, biochemical testing, bacterial culture). All individuals will be given an emulsion of non-hydrogenated coconut oil as a mouthwash. The participant will be requested to rinse with 15 mL emulsion twice daily. On day 14, the participant will be undergo microbiologic analysis again from the same site.

Category
Treatment - Drugs

2

Description
Intervention group: (Moringa Oleifera). 30 individuals in this group will be sampled from the sub gingival area of the lingual surfaces of lower central incisors. The plaque and gingival crevicular fluid collected will be sent for detailed microbiologic analysis (PCR, biochemical testing,

bacterial culture). All individuals will be given a mouthwash made with moringa oleifera extract. The participant will be requested to rinse with 15 mL solution twice daily. On day 14, the participant will be undergo microbiologic analysis again from the same site.

Category
Treatment - Drugs

3

Description
Control group: (Chlorhexidine gluconate). Chlorhexidine gluconate is a gold standard antibacterial for the oral cavity. This is why it will be used in the control group to compare the efficacy of gold standard against the coconut oil and moringa oleifera mouthwashes. 30 individuals in this group will be sampled from the sub gingival area of the lingual surfaces of lower central incisors. The plaque and gingival crevicular fluid collected will be sent for detailed microbiologic analysis (PCR, biochemical testing, bacterial culture). All individuals will be given a 0.2% chlorhexidine. The participant will be requested to rinse with 15 mL solution twice daily. On day 14, the participant will be undergo microbiologic analysis again from the same site.

Category
Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center
Riphah International University
Full name of responsible person
Amber Kiyani
Street address
7th Avenue, G-7/4
City
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akiyani@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Riphah International University (RARE)
Full name of responsible person
Dr. Rahila Yasmin
Street address
Al-Mizan IIMCT Complex، 274 Peshawar Rd, Rawalpindi, Punjab
City
Islamabad
Postal code
44000
Phone
+92 51 5125162
Email
raheela.yasmin@riphah.edu.pk

Grant name
RARE Seed Grant
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Riphah International University (RARE)
Proportion provided by this source
50
Public or private sector
Private
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
Riphah International University
Full name of responsible person
Amber Kiyani
Position
Assistant Professor
Latest degree
Specialist
Other areas of specialty/work
Dentistry
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Person responsible for scientific inquiries

Contact

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is 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
Title and more details about the data/document
All collected deidentified IPD will be submitted.
When the data will become available and for how long
The data will be made available following completion of the project for a 4 week period.
To whom data/document is available
Data sharing will be open to all.
Under which criteria data/document could be used
The primary investigator will decide on who to release data to.
From where data/document is obtainable
Email requests will be accommodated.
What processes are involved for a request to access data/document
An email request needs to be sent to the principal investigator.
Comments