

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 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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Phone

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Email

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

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Phone

+92 51 5125162

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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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7th Avenue, G-7/4

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Phone

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

Riphah International University

Full name of responsible person

Amber Kiyani

Position

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Latest degree

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Other areas of specialty/work

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Fax**Email**

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Email

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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**Person responsible for updating data****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

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