

INPLASY

Efficacy of Herbal Extracts and Virgin Seed Oils in the Treatment of Periodontal Disease- A Systematic Review and Metanalysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 September 2024 and was last updated on 23 September 2024.

INTRODUCTION

Review question / Objective The objective of this review was to appraise all data from randomized controlled trials to determine whether there is sufficient evidence that herbal mouth rinses and oil-pulling technique improves dental hygiene and oral health compared to other conventional and evidence-based interventions. Is there sufficient evidence that herbal mouth rinses and Oil Pulling technique improve oral health and dental hygiene?

1. Population (P): Adult patient with Gingivitis and Periodontitis.
2. Intervention (I): Patients receiving herbal oil or mouth rinses.
3. Comparison(C):Conventional oral hygiene routine and alternative evidence-based interventions.
4. Outcome (O):Effect on oral health and dental hygiene.

5. Study Design (S):Randomized Controlled Trials (RCTs) with no restriction on blinding,masking or split-mouth design.

Rationale The rationale was to investigate the efficacy of herbal extracts and virgin seed oil in the treatment of periodontal disease.

Condition being studied This systematic review and meta-analysis includes the patients with Periodontal disease (gingivitis and periodontitis).

METHODS

Search strategy Two reviewers independently screened the titles and abstracts for eligibility from the following databases–PubMed, Science Direct and Google Scholar for the articles published from 1st Jan 2007 to 31st Dec 2022,to identify relevant randomized controlled trials (RCTs) on adjuvant use of herbal extracts or virgin seed oil to SRP for treatment of periodontal disease (Gingivitis and

Periodontitis). Following a primary search from databases, search was also done amongst the references of included studies to screen for possible eligibility. The research strategy combined meSH and freetext terms to screen databases for relevant articles.

Participant or population Adult patient with Gingivitis and Periodontitis.

Intervention Patients receiving herbal oil or mouth rinses.

Comparator Conventional oral hygiene routine and alternative evidence-based interventions..

Study designs to be included Randomized Controlled Trials (RCTs) with no restriction on blinding,masking or split-mouth design.

Eligibility criteria The studies were excluded from the review if:

1. The reporting system excluded the unpublished randomized control trials.
2. Studies compared with an adjunctive use of LASER, photodynamic therapy,systemic medications or surgical therapy.
3. Studies that included patients on antibiotic therapy or active periodontal therapy before SRP.
4. Case-control studies, cohort studies, case-reports,conference abstracts, animal and experimental or in-vitro studies
5. Studies within complete data on primary outcome measures.

Information sources Two reviewers independently screened the titles and abstracts for eligibility from the following databases–PubMed, Science Direct and Google Scholar for the articles published from 1st Jan 2007 to 31st Dec 2022, to identify relevant randomized controlled trials (RCTs) on adjuvant use of herbal extracts or virgin seed oil to SRP for treatment of periodontal disease (Gingivitis and Periodontitis).

Main outcome(s) Effect on oral health and dental hygiene.The overall effect size for plaque outcome was $-0.97,95\%CI,-2.52,0.58$, $p=0.22$. curcumin, neem, Aloe vera, Acacia Arabica, Sesame indicum, etc., and coconut oil are equally effective as chlorhexidine mouthwash in treating plaque-induced gingivitis.

Data management Microsoft Excel form to: Verify the study eligibility derived from the inclusion/exclusion criteria. Extract data on study characteristics and outcomes for the included studies.

Carry out a methodological quality assessment and risk-of bias assessment.

Quality assessment / Risk of bias analysis Two authors independently appraised the risk of bias in this review. RevMan 5.0 software was used to assess the risk for each randomized controlled trial.In addition, the quality of included studies was assessed according to the levels of evidence.Disagreements were resolved through discussion.

Strategy of data synthesis Titles,abstracts and full texts were reviewed independently by two reviewers for eligibility.Any disagreement regarding inclusion was resolved by discussion or tripodging by the third reviewer. Data extracted from each RCT included: study characteristics (author name, year of publication, country of origin, number of patients, and study design); patient characteristics (age, sex); interventions and comparisons (details of herbal treatment and comparative treatment); treatment given (type of extract, formulation, dose and duration of treatment); risk of bias assessment (elements used); outcomes: primary (PI, BI and BOP), secondary (PD, CAL, microbiological, inflammatory, adverse events) at different follow-up intervals.

Subgroup analysis Subgroup analysis was done through a forest plot via RevMan 5.0.

Sensitivity analysis The quality and standard of this review were maintained through NIH checklist and risk of bias assessment of each RCTs was done via RevMan 5.0 as latest per latest guidelines of systematic and meta- analysis review.The majority of studies analyzed for effectiveness of herbal extracts and virgin seed oil have a low risk of bias making the results reliable. 100% of trials had a low risk of selection bias & allocation concealment bias,74.2 % trials had a low risk of performance bias , 100% detection bias and reporting bias. Only 62.5% had a other risk of bias.

Language restriction English.

Country(ies) involved India.

Keywords Herbal extracts; virgin seed oil; oil pulling; Periodontal disease.

Dissemination plans To shed some light on the medicinal properties of various herbs and virgin seed oil in the treatment of periodontal disease. The herbal extracts and virgin seed oils are cost-effective with fewer side effects, which might be a

great competitor to modern medicine in treating periodontal diseases.

Contributions of each author

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