Original Article

Evaluation of *Hypericum perforatum* mother tincture as an antigingivitis agent in comparison with Chlorhexidine: A randomised controlled trial

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Abstract

Background: Homoeopathic medicine *Hypericum perforatum (Hyper.)* has antimicrobial, wound healing and anti-inflammatory activity. It has been used as an analgesic postextraction, for nerve pain, burning mouth syndrome singly, or in combination with other Homoeopathy medications. **Objective:** Evaluation of the efficacy of *Hyper. Q* in reducing dental plaque and gingival inflammation. **Materials and Methods:** Three hundred and eighteen participants with chronic gingivitis (probing depth ≤ 3 mm) and bleeding gums were recruited and allocated randomly into three groups (n = 106 each): Group A (saline mouthwash), Group B (*Hyper*.) and Group C (Chlorhexidine [CHX]). Clinical parameters: Plaque index (PI), gingival index (GI), sulcus bleeding index (SBI) and oral hygiene index simplified (OHIS) were measured at baseline, first, third and sixth month. **Results:** All the three groups showed a statistically significant reduction in the PI, GI, SBI and OHIS ($P < 0.05$) at 3 months. Intergroup comparison showed significant reduction in PI, GI, SBI and OHIS ($P < 0.05$) in Group C compared to Groups A and B. Group B showed a statistically significant reduction in all clinical parameters when compared to Group A ($P < 0.05$) after 3 months. At 6 months, all the groups showed statistically significant reduction ($P < 0.05$) in all the clinical parameters; however, intergroup comparison did not show significant difference ($P > 0.05$). **Conclusion:** The present study demonstrated that the use of *Hyper*. Q as mouthwash significantly reduces plaque and gingival inflammation as compared to saline as mouthwash. However, CHX was found better than *Hyper.* Future research on use of *Hyper.* Q, dosage, substantiality and antimicrobial properties is warranted for its potential clinical use.

Keywords: Antiplaque agents, Chlorhexidine, Dental Plaque, Gingivitis, Homoeopathy, *Hypericum perforatum*, Mouthwash

Introduction

Plaque accumulation can cause gingival inflammation around the teeth. When the plaque remains undisturbed, especially in inaccessible areas such as interdental regions, it can cause gingivitis and as the disease progresses towards the supporting tissues, it results in periodontitis. This disease progression needs to be halted. Scaling and root planing as mechanical therapy and adjunctive use of chemical plaque control agents is an effective treatment protocol in reducing plaque accumulation.[1] Oral hygiene measures lead to dislodgement of plaque and maintenance of periodontal health. Oral hygiene education and reinforcement is an essential part of supportive therapy. Mechanical and chemical methods of plaque control are required regularly during dental visits to reduce gingival inflammation and maintain periodontal health.

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Antiplaque, antigingivitis, plaque reducing and antimicrobial agents have shown to alter the quality and quantity of plaque.[2] Chlorhexidine (CHX) has been used as antiplaque agent, and its antimicrobial and substantivity property helps to reduce microbial count for a long duration. However, unpleasant taste and tooth discoloration are common complaints seen in patients using CHX mouthwash. This greatly affects the patients' compliance and treatment outcomes. In addition

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to this, their long-term use can cause excess supragingival calculus formation, soft-tissue lesions and allergic responses.[3] These drawbacks lead us in the search of effective antiplaque chemical agents which are having lesser side effects and are economical.

According to the World Health Organisation, about more than 80% of the people in developing countries avail traditional medicine for primary health care.[4] This gives us scope to research on potential traditional medicine which can be used in the prevention and treatment of various oral diseases.

Phytotherapy has gained popularity in the dental practice as it is economical, effective and has good patients' compliance. Phytotherapy involves the use of plants as medicine, and it is widely used in the treatment of various diseases.[5] Studies have found that the use of both potentised form and mother tinctures of *Aloe vera*, *Punica granatum Linn, Curcuma zeodoaria*, *Calendula officinalis, Hyper.* and other herbal products as effective antiplaque agents.[5-7]

Hyper. has been used in dentistry in pain conditions. It belongs to the family *Clusiaceae*, a perennial herb found in Asia and Europe, popularly known as "St. John's wort" and in Hindi as *"Bassant*." It contains active compounds such as hypericins, hyperforins and flavonoids and is used as anti-infective, anti-inflammatory, anti-microbial agent, antidepressant, neuroprotective, anti-cancerous, anti-HIV, immunomodulatory agent, spasmolytic, tonic, diuretic and anaesthetic remedies.[8]

Mathie and Farrer studied the outcomes of Homoeopathic prescriptions in dental practice, and they concluded in their pilot study that Homoeopathic medications had strong positive outcomes in the treatment of pericoronitis, periodontal infections, abscess and toothache.[9] In a randomised controlled trial, 300 mg *Hyper.* extracts (hypericin 0.31% and hyperforin 3.0%) were prescribed thrice daily for 12 weeks to burning mouth syndrome patients. The study participants experienced reduced pain and were better able to cope with their symptoms.[10] Tanideh *et al*. studied therapeutic efficacy of the topical and systemic administration of *Hyper.* extracts on chemotherapy-induced oral mucositis in golden hamsters and found significant relief and healing.[11] Süntar *et al*. assessed antimicrobial activities of *Hyper.* against *Streptococcus mutans*, *Streptococcus sobrinus*, *Lactobacillus plantarum* and *Enterococcus faecalis* and suggested strong antimicrobial activity of *Hyper.*[12] These studies suggest the antimicrobial, anti-inflammatory and host modulatory activity of *Hyper.,* which makes it a potential medicine to use in periodontal infection.

A systematic review and meta-analysis on the use of *Hyper.* in dental pain suggests its potential use in dental pain conditions in combination with other Homoeopathic medications.[13] However, the effect of *Hyper.* alone as antigingivitis agent has not been evaluated by any clinical trials. Hence, this study aimed at the evaluation of the efficacy of *Hyper. Q* in reducing dental plaque and gingival inflammation.

Materials and Methods

Study design

A total of 318 participants from the department of periodontology with a chief complaint of bleeding gums for more than 1 month duration were recruited over a period of 1 year (December 2018–December 2019). This monocentric, single blind, triple-armed randomized controlled trial was approved by the Institutional Ethical Committee of Haldia Institute of Dental Sciences and Research, dated 7th February 2019 HIDSAR/ethics/2019/134a). The study was conducted in accordance with the Helsinki Declaration of 1975, as revised in 2013.[14] We had already started the study and so Clinical Trials Registry-India registration of the study was not done as the retrospective registration of the study cannot be done. Written informed consent was obtained from all the participants involved in this study by the treating periodontist. Participants aged between 18 and 55 years, diagnosed with gingivitis with probing depth (PD) ≤3 mm were included in the study. Participants having periodontitis, history of intake of any antimicrobial drug in the last 6 months, any systemic disease, smoking or tobacco chewing habits, history of allergy to herbal medication and pregnant women were excluded from the study. The history of systemic disease and allergy to herbal medication were reported as detailed by the participants themselves and accompanying attendants.

Intervention

The participants were randomly allocated into three groups (allocation ratio 1:1:1) as illustrated by the study flowchart in Figure 1.

1. Group A (negative control group)–Participants were instructed to rinse twice daily with 10 ml saline for 3 months.
2. Group B (verum group) – Participants were advised to use 2 ml of *Hyper.* Q (Dr. Willmar Schwabe Germany Home Pharmacy Pvt., Ltd [a GMP certified Manufacturer]) diluted with 8 ml of water (1:4) and rinse mouth twice daily.
3. Group C (positive control group) – Participants rinsed twice daily with 10 ml CHX 0.2% for 1 min (Rexidin; Warren, Indoco Remedies Ltd, India).

Each participant was advised to rinse with the mouthwash twice daily for 1 min, in the morning and at night time. No brushing, intake of food or water for half an hour post rinsing was instructed to the patients. Both the commercially available solution *Hyper.* Q with 1:4 water dilution and CHX were given to the patients in dark amber color bottle with no labels. Furthermore, the saline solution which was used as control was distributed in a similar bottle. The periodontist who performed the dental treatment handed the mouthwash to the patients after the completion of nonsurgical periodontal therapy (NSPT). The participants were completely unaware of the reagent present in the bottle.

Periodontal treatment

All the gingivitis patients received NSPT. The therapy

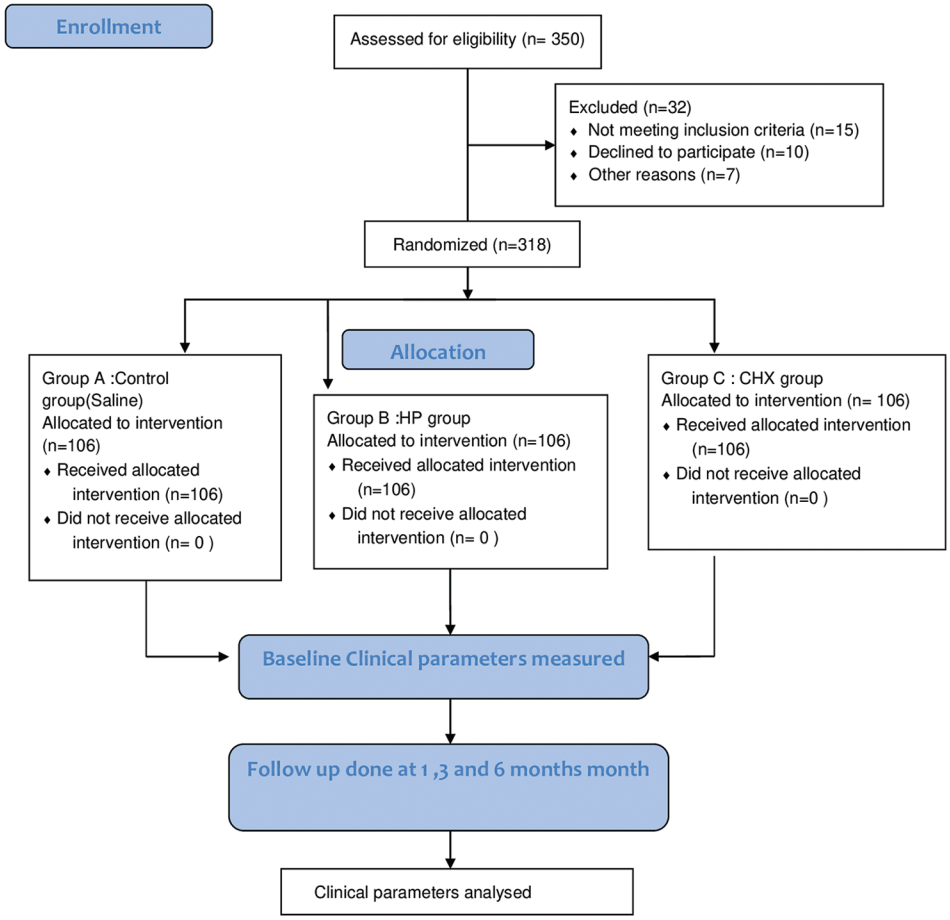

Figure 1: Participant flowchart

included oral hygiene education and instructions for the maintenance followed by supragingival scaling using ultrasonic scaler tips (woodpecker) and root planning using gracey curettes (Hu-friedy, Chicago, IL, USA). All the treatment procedures were completed in 48 hours, and they were instructed to use mouthwash for the next 3 months.

Clinical parameters measured

Clinical parameters measured were PI,[15] gingival index (GI),[16] sulcus bleeding index (SBI)[17] and oral hygiene index simplified (OHIS)[18] at the baseline, 1 month, 3rd month and 6th month by the same clinician.

The Turesky Gilmore modification of the Quigley Hein plaque index (PI) measured the levels of dental plaque harbouring the tooth surface in the fluid-filled oral cavity. GI was used to assess the severity of gingivitis, SBI was helpful in evaluating the bleeding tendency in gingivitis patients, and OHIS assessed the personal oral hygiene status of an individual.

Williams O probe was used for all the clinical measurements.

Outcome assessments

The primary outcomes were SBI and PI, and the secondary outcomes were GI and oral hygiene index-simplified.

Sample size determination

The sample size was calculated based on the primary outcome of the present study. Considering two-tailed unpaired *t*-test with effect size of 0.5, power of the study as 0.8 and the allocation ratio 1:1. The calculated sample size was 265 (88 participants in each group). Attrition rate of 20% was expected, so the final sample size calculated was 318 (106 participants in each group).

Randomisation

Sample was randomised using the computerised random number generator, Prism 4.0 software package was used (GraphPad, La Jolla, CA, USA). Allocation ratio was 1:1:1. This was done by the investigator, and the participants were enrolled in the study by clinician at the study site.

Blinding

This was a single-blind study where the patients were kept masked about the allocation of the type of mouthwash in all the treatment groups.

The mouthwashes were dispensed in amber colour-coded bottles by a Homoeopathic practitioner not involved in any dental treatment, assessment or interaction with the patients. The periodontist handed the mouthwash bottles to the patients

without revealing any details of the bottle content. The patients were suggested to open bottles after leaving the clinic and use twice daily for the next 6 months. In case the bottle got consumed, they were instructed to get the empty coded bottle to check the compliance of patients, and it was replaced by new coded bottle.

Statistical analysis

Kolmogorov–Smirnov test was used to assess the normal distribution of variables. Intergroup comparison of mean values was done using the one-way analysis of variance (ANOVA). Repeated-measure ANOVA was done for the intragroup comparison. Statistical analyses were performed with statistical software (SPSS for Windows, version 16.0, SPSS Inc., Chicago, IL, USA).

Research hypothesis

"There lies a significant reduction in the clinical parameters PI, GI, SBI and OHIS in gingivitis patients when HP mouthwash is used as an adjunct to NSPT in comparison to CHX and saline."

Null hypothesis

"There is no significant reduction in clinical parameters PI, GI, SBI and OHIS in gingivitis patients when *Hyper. Q* mouthwash is used as an adjunct to NSPT in comparison to CHX and saline."

Results

Each group consisted of 106 participants, Group A with a mean age 38 ± 0.62 years, Group B with mean age 37 ± 0.74 years and Group C with mean age 35 ± 0.67 [Table 1]. No dropouts were there during the study period after allotment of the participants in the three groups and repeated oral hygiene reinforcement was performed in all the three groups. The baseline values in all the outcome parameters was comparable.

In all the three Groups A, B and C, significant reduction in both primary outcomes SBI and PI. and secondary outcomes GI and OHIS at 1 month, 3 months and 6 months were seen ($P < 0.05$) [Table 2].

Comparison of plaque index

The intragroup comparison showed significant reduction on plaque scores at 3 and 6 months follow-up in all the three groups ($P < 0.05$). Intergroup comparison showed significant reduction at 3 months in Group C when compared to Groups A and B ($P < 0.05$).However, post 6 months follow, no significant difference was observed in any three groups in terms of plaque score ($P > 0.05$) [Table 2].

Table 1: Demographic parameters of different groups in the study

Variables	Group A	Group B	Group C
Age (years), mean±SD	38±0.62	37±0.74	35±0.67
Gender			
Male	52	57	61
Female	54	49	45

SD: Standard deviation

Comparison of gingival index

Comparison of GI in both in intragroup and intergroup was significant ($P < 0.05$). Group C had significant changes when compared to Groups A and B. However, post 6 months follow ups, no significant difference was observed in any three groups in terms of GI score ($P > 0.05$) [Table 2].

Comparison of sulcus bleeding index

At 1 month, no significant reduction in bleeding index was seen in any groups ($P > 0.05$). In 3 months, both intragroup and intergroup comparison showed significant changes ($P < 0.05$) [Table 2].

Comparison of oral hygiene index simplified

In all the groups at 3 and 6 months, the OHIS score reduction was statistically significant ($P < 0.05$). Intergroup comparison showed significant reduction in OHIS score in Group C in comparison to Groups A and B ($P < 0.05$) at 3 months' follow-up. However, intergroup comparison showed no significant changes at 6 months ($P > 0.05$) [Table 2].

Adverse events

Participants were instructed to report any unintended effects such as taste alteration, mucosal irritation no such incidence was reported from any group.

Discussion

According to the WHO, Homoeopathy is the second most useful health-care system in the world having potential to heal diseases with minimal side effects.[19] The use of Homoeopathic medications to improve periodontal health is inconclusive as few controlled dental Homoeopathic research studies have been conducted to date.[20,21] Long-term use of systematic antibiotics as adjunctive to periodontal therapy remains controversial. New treatment approaches that can modify host response towards microbial challenge give scope of Homoeopathic medication interventions. In Homoeopathy, the routes of administration are similar to periodontal therapeutic agents except for minimal dose concept.[22]

Dental plaque is a biofilm which harbours microorganisms causing periodontal tissue breakdown. Preventive measures target removal of biofilm by mechanical or chemical means. No method is considered superior and combination methods are preferred for oral hygiene maintenance. However, cost, unfavourable side effects, development of antibiotic resistance are major concern to patients' compliance. CHX is widely used as an antiplaque agent. Various studies have compared CHX with other commercially available antimicrobial rinses and herbal mouthwash.[23-25] However, longer duration administration can cause extrinsic staining of tooth, desquamation of the oral mucosa, enhanced supragingival calculus formation.[26] In such conditions, substitution of CHX with other rinses like herbal or homoeopathic medications should be considered.

The present study demonstrated that the use of *Hyper.* Q as mouthwash significantly reduces plaque and gingival

Table 2: Intragroup clinical parameter comparison

Clinical parameter	Mean±SD			*P*
	Group A (saline)	Group B (HP)	Group C (CHX)	
Plaque index (months)				
Baseline	2.32±0.16	2.41±0.11	2.34±0.14	NS
1	1.85±0.13	1.97±0.13	1.78±0.15	>0.05
3	1.67±0.14	1.55±0.15	1.15±0.12	<0.05
6	0.95±0.24	0.92±0.12	0.97±0.13	>0.05
*P**	<0.05	<0.05	<0.05	
Gingival index (months)				
Baseline	2.27±0.13	2.32±0.12	2.38±0.18	NS
1	1.86±0.16	1.67±0.15	1.77±0.14	>0.05
3	1.56±0.12	1.49±0.16	1.32±0.17	<0.05
6	0.87±0.11	0.85±0.10	0.84±0.12	>0.05
*P**	<0.05	<0.05	<0.05	
Sulcus bleeding index (months)				
Baseline	2.48±0.15	2.35±0.16	2.45±0.13	NS
1	2.35±0.14	2.17±0.13	2.27±0.15	>0.05
3	1.84±0.17	1.62±0.11	1.42±0.17	<0.05
6	0.92±0.13	0.89±0.12	0.86±0.16	>0.05
*P**	<0.05	<0.05	<0.05	
OHIS (months)				
Baseline	2.68±0.34	2.69±0.16	2.57±0.24	NS
1	2.42±0.25	2.39±0.10	2.38±0.27	>0.05
3	0.78±0.15	0.75±0.13	0.64±0.25	<0.05
6	0.66±0.13	0.62±0.11	0.59±0.23	>0.05
*P**	<0.05	<0.05	<0.05	

*Repeated-measure ANOVA analysis for intragroup comparison. OHIS: Oral hygiene index simplified, HP: *Hypericum perforatum*, CHX: Chlorhexidine, SD: Standard deviation, NS: Non-significant, *P*: Probability value, ANOVA: Analysis of variance

inflammation. As this is the first study to use *Hyper.* as antiplaque and antigingivitis agent direct comparison with other studies was not possible. However, Yusoff and Kamin used *Calendula* containing mouthwash and found it effective in reducing the Plaque scores.[27]

Another study demonstrated reduces inflammation and tissue injury following the administration of *Hyper.* in periodontitis induced adult male Sprague–Dawley rats.[28,29] Similar results were found in the present study, i.e., decreased bleeding score in Group B.

Damlar *et al*. used the extracts of *Hyper.* for healing of bone defects filled with xenografts in rabbits and found favourable results suggesting it regenerative potential.[29,30] Another study evaluated wound healing of two species of *Hyper.* on cultured NIH3T3 fibroblasts and found that *HP* has healing capacity.[30,31]

In the present study, the *Hyper.* Q mouthwash group showed significant reduction in PI, GI, SBI and OHIS score at 3rd and 6 months follow-up. This can be attributed to its antimicrobial property. Vollmer *et al*. used *Hyper. Q* as an adjunctive treatment of biofilm and showed significant photoactivation potential with ability to alter microbial diversity.[28,31] Our study is in accordance with this study suggesting the role of *Hyper.* as an antigingivitis agent.

Hyper. has antimicrobial effect against oral biofilm.[32] Studies have suggested immunomodulatory, antioxidant properties stimulating phagocytic activity of polymorphonuclear leukocytes, reduce oxidative stress and procytokine levels.[33]

Such effects suggest the therapeutic application of *Hyper.* Q in periodontal disease management and other oral diseases.

The use of Homoeopathy medications in periodontal treatment has been considered by various researchers. A recent study showed reduced PD, bleeding on probing and PI at 6 months follow-up and concluded that Homoeopathic medication as an adjunct to periodontal treatment has additional benefits.[34] In the present study, although *Hyper.* group did not show significant reduction in the clinical parameters when compared to CHX group at 3 months' follow up, but at 6 months' follow up, no significant difference was seen between the two groups. This suggests that CHX might have more potential short-term benefits (3 months) as antigingivitis agent when compared to *Hyper.,* but at 6 months, no intergroup difference was seen. Another randomised controlled trial on type II diabetic patients with *Berberis vulgaris* 6CH, *Mercurius* solubilis/*Belladonna/Hepar sulphur* 6CH and *Pyrogenium* 200CH as supplement along with periodontal treatment resulted insignificant glycaemic control and bleeding on probing, clinical attachment level and pocket PD.[35]

In a review on the use of Homoeopathy medications in dentistry, *Arsenicum album* and *Ferrum phosphoricum* were suggested in severe gingivitis. *Hyper.* was suggested in case of post-operative nerve pain.[36] Furthermore, they suggested the use of low potency medication for acute cases as they have shorter duration of action and higher potency medications for chronic cases.

A clinical study by Reddy *et al*. on the effect of *Plantago* extract toothpaste in gingivitis results in significant mean reduction in PI, GI and BOP at 6 months' follow-up.[37] Since the study participants did not undergo any additional dental treatment, this can be considered intervention by Homoeopathic medication as monotherapy. In the present study, *Hyper.* Q mouthwash was administered along with NSPT. Monotherapy along with the placebo in one arm can give us a better understanding of a medication efficacy; however, ethical issues need to be addressed also. Furthermore, mechanical therapy is the treatment protocol in patients with gingivitis and any other medications in any form can be used as an adjunct. The present study was designed keeping in view of this protocol, and we encourage patients to undergo dental treatment to remove the biofilm and use of mouthwash as an adjunct to mechanical therapy and also as supportive therapy.

The strength of the present study was the adequate sample size taken for the determination of the objectives of the study. The effectiveness of the Homoeopathic medication as an antigingivitis and antiplaque agent was assessed and also compared with the gold standard CHX mouthwash. Limitations of the present study are the study design, a crossover study having wash off period would eliminate the bias due to host response. A longer study period would help in evaluating the advantages and disadvantages of *Hyper.* as mouthwash. Antimicrobial activity, substantivity and plaque inhibition of *Hyper.* are other parameters which need to be explored. In the present study, *Hyper.* was used in mother tincture form in water in 1:4 for gingivitis and normal saline as negative control and CHX as positive control. Alcohol is present as a vehicle in the *Hyper.* mother tincture and its potential effect in control of gingivitis cannot be ascertained.

Conclusion

Hyper. Q reduced gingival inflammation significantly ($P < 0.05$). However, CHX was observed significantly better in terms of GI and PI compared to *Hyper.* in which GI and PI was seen at 3 months follow up. Further, longitudinal studies and use of *Hyper.* as monotherapy, its antimicrobial activity and its substantivity should be evaluated. Mostly, the Homoeopathic medications are used as adjunctive to interventional dental treatments including scaling and/or conventional medications. This protocol results in difficulty to evaluate the specific benefits of Homoeopathic medicine alone. Future periodontal research with Homoeopathic medications should focus on its use as monotherapy with regard to its antimicrobial, anti-inflammatory and immunomodulatory properties in acute and chronic dental conditions.

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Conflicts of interest

None declared.

References

1. Hujoel PP, Cunha-Cruz J, Loesche WJ, Robertson PB. Personal oral hygiene and chronic periodontitis: A systematic review. Periodontol 2000 2005;37:29-34.
2. Needleman I, Suvan J, Moles DR, Pimlott J. A systematic review of professional mechanical plaque removal for prevention of periodontal diseases. J Clin Periodontol 2005;32 Suppl 6:229-82.
3. Mathur S, Mathur T, Srivastava R, Khatri R. Chlorhexidine: The gold standard in chemical plaque control. Nat J Physiol Pharm Pharmacol 2011;1:45-50.
4. Angmo K, Adhikari BS, Rawat GS. Changing aspects of traditional healthcare system in western Ladakh, India. J Ethnopharmacol 2012;143:621-30.
5. Palombo EA. Traditional medicinal plant extracts and natural products with activity against oral bacteria: Potential application in the prevention and treatment of oral diseases. Evid Based Complement Alternat Med 2011;2011:680354.
6. Iauk L, Lo Bue AM, Milazzo I, Rapisarda A, Blandino G. Antibacterial activity of medicinal plant extracts against periodontopathic bacteria. Phytother Res 2003;17:599-604.
7. Vangipuram S, Jha A, Bhashyam M. Comparative efficacy of aloe vera mouthwash and chlorhexidine on periodontal health: A randomized controlled trial. J Clin Exp Dent 2016;8:e442-e447.
8. Greeson JM, Sanford B, Monti DA. St. John's Wort (*Hypericum perforatum*): A review of the current pharmacological, toxicological, and clinical literature. Psychopharmacology (Berl) 2001;153:402-14.
9. Mathie RT, Farrer S. Outcomes from homeopathic prescribing in dental practice: A prospective, research-targeted, pilot study. Homeopathy 2007;96:74-81.
10. Sardella A, Lodi G, Demarosi F, Tarozzi M, Canegallo L, Carrassi A. *Hypericum perforatum* extract in burning mouth syndrome: A randomized placebo-controlled study. J Oral Pathol Med 2008;37:395-401.
11. Tanideh N, Namazi F, Andisheh Tadbir A, Ebrahimi H, Koohi-Hosseinabadi O. Comparative assessment of the therapeutic effects of the topical and systemic forms of *Hypericum perforatum* extract on induced oral mucositis in golden hamsters. Int J Oral Maxillofac Surg 2014;43:1286-92.
12. Süntar I, Oyardı O, Akkol EK, Ozçelik B. Antimicrobial effect of the extracts from *Hypericum perforatum* against oral bacteria and biofilm formation. Pharm Biol 2016;54:1065-70.
13. Raak C, Büssing A, Gassmann G, Boehm K, Ostermann T. A systematic review and meta-analysis on the use of *Hypericum perforatum* (St. John's Wort) for pain conditions in dental practice. Homeopathy 2012;101:204-10.
14. World Medical Association. Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects. France: The World Medical Association; 2018. https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/. [Last accessed on 2020 Aug 28].
15. Turesky S, Gilmore ND, Glickman I. Reduced plaque formation by the chloromethyl analogue of victamine C. J Periodontol 1970;41:41-3.
16. Loe H, Silness J. Periodontal disease in pregnancy. I. Prevalence and severity. Acta Odontol Scand 1963;21:533-51.
17. Mühlemann HR, Son S. Gingival sulcus bleeding – A leading symptom in initial gingivitis. Helv Odontol Acta 1971;15:107-13.
18. Greene JC, Vermillion JR. The simplified oral hygiene index. J Am Dent Assoc 1964;68:7-13.
19. Tierney LM, McPhee SJ, Papadakis MA. Current Medical Diagnosis Treatment. 44th ed. USA: McGraw-Hill Companies Inc.; 2005. p. 1716.
20. Varley P. What do homeopathic dentists do? Homeopathy 2007;96:72-3.

21. Farrer S, Baitson ES, Gedah L, Norman C, Darby P, Mathie RT. Homeopathic prescribing for chronic and acute periodontal conditions in 3 dental practices in the UK. Homeopathy 2013;102:242-7.
22. Boyd H. Introduction to Homeopathic Medicine. 2nd ed., Ch. 1. Beaconsfield, UK: Keats Pub; 1989.
23. DePaola LG, Overholser CD, Meiller TF, Minah GE, Niehaus C. Chemotherapeutic inhibition of supragingival dental plaque and gingivitis development. J Clin Periodontol 1989;16:311-5.
24. Addy M. Evaluation of clinical trials of agents and procedures to prevent caries and periodontal disease: Choosing products and recommending procedures. Int Dent J 1995;45:185-96.
25. Gunsolley JC. A meta-analysis of six-month studies of antiplaque and antigingivitis agents. J Am Dent Assoc 2006;137:1649-57.
26. Addy M. Chlorhexidine compared with other locally delivered antimicrobials. A short review. J Clin Periodontol 1986;13:957-64.
27. Yusoff S, Kamin S. The effect of a mouthwash containing extract of *Calendula officinalis* on plaque and gingivitis. J Clin Periodontal 2006;33:118.
28. Paterniti I, Briguglio E, Mazzon E, Galuppo M, Oteri G, Cordasco G, *et al*. Effects of *Hypericum perforatum*, in a rodent model of periodontitis. BMC Complement Altern Med 2010;10:73.
29. Dikmen M, Oztürk Y, Sagratini G, Ricciutelli M, Vittori S, Maggi F. Evaluation of the wound healing potentials of two subspecies of *Hypericum perforatum* on cultured NIH3T3 fibroblasts. Phytother Res 2011;25:208-14.
30. Damlar I, Arpağ OF, Tatli U, Altan A. Effects of *Hypericum perforatum* on the healing of xenografts: A histomorphometric study in rabbits. Br J Oral Maxillofac Surg 2017;55:383-7.
31. Vollmer A, Al-Ahmad A, Argyropoulou A, Thurnheer T, Hellwig E, Attin T, *et al*. Antimicrobial photoinactivation using visible light plus water-filtered infrared-A (VIS+wIRA) and *Hypericum perforatum* modifies *in situ* oral biofilms. Sci Rep 2019;9:20325.
32. Khadem Nezhad S, Taghavi Zenouz A, Aghazadeh M, Samadi Kafil H. Strong antimicrobial activity of *Hypericum perforatum* L. against oral isolates of *Lactobacillus* spp. Cell Mol Biol (Noisy-le-grand) 2017;63:58-62.
33. Zhao J, Liu W, Wang JC. Recent advances regarding constituents and bioactivities of plants from the genus *Hypericum*. Chem Biodivers 2015;12:309-49.
34. Mourão L, Carillo R Jr., Linares SM, Canabarro A, Fischer RG. Homeopathy and periodontal treatment in type II diabetic patients: A 1-year randomized clinical trial. Braz Dent J 2019;30:139-45.
35. Mourão LC, Moutinho H, Canabarro A. Additional benefits of homeopathy in the treatment of chronic periodontitis: A randomized clinical trial. Complement Ther Clin Pract 2013;19:246-50.
36. Sinha N, Chakraborty HM, Singh RK, Chakraborty N, Sinha G. Review of the role of homeopathic applications in dentistry. Int J Oral Health Med Res 2015;2:77-80.
37. Reddy ES, Sharma PK, Raj PP. A clinical study on effect of *Plantago* in gingivitis by assessing bleeding and plaque index. Indian J Res Homoeopathy 2018;12:132-8.

एक मसूड़ाशोथ कारक के तौर पर क्लोरहेक्सिडाइन की तुलना में हाइपैरिकम परफोरेटम मूल अभिमिश्रण का मूल्यांकन

पृष्ठभूमि: हाइपैरिकम परफोरेटम (हाइपर) में सूक्ष्मजीव रोधी, घाव को भरने, तथा शोथरोधी सक्रियता होती है। इसे नसों में दर्द के लिए, निष्कर्ष पश्च दर्दनाशक के तौर पर, मुँह जलने के लक्षण में मोनोचिकित्सा के तौर पर या अन्य होम्योपैथिक दवाओं के संयोजन से इस्तेमाल किया जाता है। **उद्देश्य:** दाँत के मैल और मसूड़ों की सूजन को कम करने में हाइपैरिकम मूल अभिमिश्रण (एचपीएमटी) की प्रभावोत्पादकता का मूल्यांकन **प्रणालियाँ:** मसूड़ों की दीर्घकालिक सूजन और मसूड़ों से खून बहने के साथ 318 विशयों को नियुक्त किया गया था तथा निम्नलिखित प्रकार से बाँटा गया : समूह क (एन = 106 नमकीन कुल्ले), समूह ख (एन = 106, एचपीएमटी), समूह ग (एन = 106 क्लोरहेक्सिडाइन (सीएचएक्स))। **नैदानिक मापदंड:** मैल सूचकांक (पीआई), मसूडों का सूचकांक (जीआई), साँचे के रक्तस्राव का सूचकांक (एसबीआई), और सरलीकृत मौखिक स्वच्छता सूचकांक (ओएचआईएस) को आधार–रेखा, प्रथम,तृतीय और छठे महीने पर मापा गया। **परिणाम:** सभी तीन समूहों ने तीन महीने बाद पीआई,जीआई,एसबीआई, ओएचआईएस (पी < 0.05) में आंकड़ों की दृष्टि से उद्बोधक कमी को दर्शाया। इसके अतिरिक्त, अंर्तसमूह तुलना ने समूह क एवं ख की तुलना में समूह ग के पीआई,जीआई,एसबीआई, ओएचआईएस (पी < 0.05) में आई उद्बोधक कमी को दर्शाया था। जब समूह ख की समूह क (पी < 0.05) से 3 महीने की जांच के बाद तुलना की गई तो उसने सभी नैदानिक मापदंडों पर आंकड़ों की दृष्टि से उद्बोधक कमी को दर्शाया था। छह महीने पर, सभी समूहों ने सभी नैदानिक मापदंडों में आंकड़ों की दृष्टि से उद्बोधक कमी (पी < 5) को दर्शाया, हालांकि अंर्तसमूह तुलना ने कोई उद्बोधक भिन्नता (पी < 0.05) नहीं दर्शायी। **निष्कर्ष:** नमक से किए गए कुल्लों की तुलना में हाइपैरिकम कुल्ले मसूड़ों की सूजन को कम करने में ज्यादा प्रभावकारी थे। हाइपैरिकम की तुलना में क्लोरहेक्सिडाइन 3 महीने की जांच में मसूड़ों की सूजन को कम करने में ज्यादा बेहतर पाया गया था। हाइपैरिकम की खुराक, उसकी स्थिरता, सूक्ष्मजीवीरोधी लक्षणों पर किया जाने वाला भविष्यगामी अनुसंधान मसूड़ों की सूजन को कम करने में इसके संभावित इस्तेमाल का परिज्ञान प्रदान कर सकता है।

Évaluation de la teinture mère de Hypericum perforatum comme agent anti-gingivite par rapport à la chlorhexidine - Un essai contrôlé randomisé.

Contexte : Hypericum perforatum (Hyper.), a une activité antimicrobienne, cicatrisante et anti-inflammatoire. Il a été utilisé comme analgésique après extraction, pour les douleurs nerveuses, le syndrome de la bouche brûlante, en monothérapie ou en combinaison avec d'autres médicaments contre l'homéopathie. **Objectif :** Évaluation de l'efficacité de la teinture mère hyper. (HPMT) pour réduire la plaque dentaire et l'inflammation gingivale. Les méthodes : 318 sujets souffrant de gingivite chronique (profondeur de sondage (PD) ≤3 mm) et de gencives qui saignent ont été recrutés et affectés : Groupe A (n=106, bain de bouche salin), Groupe B (n=106, HPMT), Groupe C (n=106, Chlorhexidine (CHX)). Les paramètres cliniques : l'indice de plaque (IP), l'indice gingival (GI), l'indice de saignement du sillon (SBI) et l'indice d'hygiène bucco-dentaire simplifié (OHIS) ont été mesurés au départ, au premier, troisième et sixième mois. **Résultats :** Les trois groupes ont montré une réduction statistiquement significative des IP, GI, SBI, OHIS (p< 0,05) à 3 mois. De plus, la comparaison entre les groupes a montré une réduction significative des IP, GI, SBI, OHIS (p< 0,05) dans le groupe C par rapport aux groupes A et B. Le groupe B a montré une réduction statistiquement significative de tous les paramètres cliniques par rapport au groupe A (p< 0,05) après 3 mois de suivi. À 6 mois, tous les groupes ont montré une réduction statistiquement significative (p<0,05) de tous les paramètres cliniques, mais la comparaison entre les groupes n'a pas montré de différence significative (p>0,05). **Le Conclusion:** Le rince-bouche Hyper. s'est avéré efficace pour réduire l'inflammation gingivale par rapport à une solution saline comme rince-bouche. Cependant, la chlorhexidine s'est révélée plus efficace que le bain de bouche Hyper. pour réduire l'inflammation gingivale après trois mois de suivi. Les futures recherches sur le dosage de l'Hyper., sa substantialité, ses propriétés antimicrobiennes pourraient donner un aperçu de son utilisation potentielle dans la réduction de l'inflammation gingivale.

Evaluación de la tintura materna Hypericum perforatum como agente antigingivitis en comparación con la clorhexidina-un ensayo controlado aleatorizado

Antecedente : Hypericum perforatum (Hyper.), tiene actividad antimicrobiana, curativa de heridas y antiinflamatoria. Se ha utilizado como una post extracción analgésica, para el dolor nervioso, el síndrome de la boca ardiente como monoterapia o en combinación con otros medicamentos de Homeopatía. **Objetivo:** Evaluación de la eficacia de Hyper. tintura materna (HPMT) en la reducción de la placa dental y la inflamación gingival. **Métodos:** Se reclutaron 318 sujetos con gingivitis crónica (profundidad de sondeo (PD) ≤3 mm) y encías sangrantes, que se asignaron a: Grupo A (n=106 enjuague bucal salino), Grupo B (n=106, HPMA), Grupo C (n=106, clorhexidina (CHX)). Parámetros clínicos: El índice de placa (IP), el índice gingival (GI), el índice de sangrado del surco (OSI) y el índice de higiene oral simplificado (OHIS) se midieron al inicio del estudio, al primer, tercer y sexto mes. **Resultados:** Los tres grupos mostraron una reducción estadísticamente significativa en el IP, GI, OSI, OHIS ($p< 0.05$) a los 3 meses. Además, la comparación entre grupos mostró una reducción significativa en el PI, GI, OSI, OHIS ($p< 0.05$) en el grupo C en comparación con el grupo A y el grupo B. El grupo B mostró una reducción estadísticamente significativa de todos los parámetros clínicos en comparación con el grupo A ($p<0.05$) después de 3 meses de seguimiento. A los 6 meses, todos los grupos mostraron una reducción estadísticamente significativa ($p<0.05$) en todos los parámetros clínicos, sin embargo la comparación entre grupos no mostró ninguna diferencia significativa ($p>0.05$). **Conclusión:** Hyper. enjuague bucal fue eficaz en la reducción de la inflamación gingival en comparación con la solución salina como enjuague bucal. Sin embargo, clorhexidina era mejor que Hyper. en la reducción de la inflamación gingival a los 3 meses de seguimiento. Futura investigación sobre la dosis de Hyper., su sustancialidad, propiedades antimicrobianas pueden dar una idea de su uso potencial en la reducción de la inflamación gingival.

Bewertung von Hypericum perforatum Urtinktur, als antigingivitis-agent im Vergleich zu Chlorhexidin – Eine randomisierte kontrollierte Studie.

Hintergrund: Hypericum perforatum (Hyper.), hat antimikrobielle, wundheilende und entzündungshemmende Wirkung. Es wurde als Analgetikum nach Extraktion, bei Nervenschmerzen, Burning Mouth-Syndrom als Monotherapie oder in Kombination mit anderen Homöopathie-Medikamenten verwendet. **Zielsetzung:** Bewertung der Wirksamkeit von Hyper. urtinktur (HPMT) zur Verringerung von Zahnbelag und Zahnfleischentzündungen. **Methoden:** 318 Probanden mit chronischer Gingivitis (Sondierungstiefe (PD) ≤3 mm) und Zahnfleischbluten wurden rekrutiert und zugeordnet: Gruppe A (n=106 Kochsalzlösung), Gruppe B (n=106, HPMT), Gruppe C (n=106, Chlorhexidin (CHX)). Klinische Parameter: Plaque-Index (PI), Gingivalindex (GI), Sulcus-Blutungsindex (SBI) und Mundhygieneindex-Index (OHIS) wurden zu Studienbeginn, im ersten, dritten und sechsten Monat gemessen. **Ergebnisse:** Alle drei Gruppen zeigten eine statistisch signifikante Reduktion der PI, GI, SBI, OHIS ($p< 0,05$) nach 3 Monaten. Darüber hinaus zeigte der Intergruppenvergleich eine signifikante Reduktion von PI, GI, SBI, OHIS ($p< 0,05$) in Gruppe C im Vergleich zu Gruppe A und B. Gruppe B zeigte eine statistisch signifikante Reduktion aller klinischen Parameter im Vergleich zu Gruppe A ($p<0,05$) nach 3 Monaten Follow-up. Nach 6 Monaten zeigten alle Gruppen eine statistisch signifikante Reduktion ($p<0,05$) in allen klinischen Parametern, der Intergruppenvergleich zeigte jedoch keinen signifikanten Unterschied ($p>0,05$). **Schlussfolgerung:** Hyper. mundwasser war wirksam bei der Verringerung von Zahnfleischentzündungen im Vergleich zu Kochsalzlösung als Mundwasser. Chlorhexidin war jedoch besser als Hyper. bei der Verringerung der Zahnfleischentzündung nach 3 Monaten Follow-up. Zukünftige Forschung zur Dosierung von Hyper., seine Substantialität, antimikrobielle Eigenschaften können Einblick in seine mögliche Verwendung bei der Verringerung von Zahnfleischentzündungen geben.

与洗必泰－随机对照试验相比，贯叶连翘母酊作为抗原性ivitis剂的评价。

背景: 贯叶连翘（金丝桃。），具有抗菌、伤口愈合和抗炎活性。 它已被用作镇痛提取后，神经痛，烧嘴综合征作为单一疗法或与其他顺势疗法药物的组合。**目标:** 评价Hyper的功效。 母酊（HPMT）在减少牙菌斑和牙龈发炎。**方法:** 318名患有慢性牙龈炎（探测深度（PD）≤3mm）和牙龈出血的受试者被招募并分配给：A组（n=106盐水漱口水），B组（n=106，HPMT），C组（n=106，氯己定（CHX））。 临床参数：牙菌斑指数(PI)、牙龈指数(GI)、沟出血指数(SBI)和简化口腔卫生指数(OHIS)在基线、第一、第三和第六个月测量。**结果:** 所有三组均在3个月时显示PI，GI，SBI，OHIS的统计学显着减少（$p<0.05$）。 此外，组间比较显示PI、GI、SBI、OHIS显着减少($p<0.05$)组c组相比组A和B组B显示统计显着减少所有临床参数时相比组A($p<0.05$)后3个月随访。 6个月时，各组各临床参数均有统计学显着性降低（$p<0.05$），但组间比较无显着性差异（$p>0.05$）。**结论:** 漱口水是有效地减少牙龈发炎相比盐水漱口水。 然而，洗必泰优于Hyper。 在减少牙龈发炎3个月随访。 超剂量的未来研究。，它的实质，抗菌性能可能会给洞察其在减少牙龈炎症的潜在用途。