**Use of Herbal Supplements in Periodontal Disease Management**

Where is your title?

DH 107 Communication Techniques

Ms. Estelle Smith

June 28, 2024

Maryam Ali

Sandeep Dhaliwal

Twinkle Kathiriya

Zinah Matti

Vishav Sidhu

Lovepreet Singh

Periodontal disease is a chronic inflammatory condition that affects the tissues supporting the teeth, such as the periodontal ligament, cementum, and bone. Effective management of this condition involves reducing inflammation. Conventional treatments, such as mechanical plaque removal through scaling and root planing, have shown to be effective. Additionally, herbal medicine has been identified as a promising alternative therapy for periodontal disease (Chatzopoulous GS, Karakostas P, Kavakloglou S, Assimopoulou A, Barmpalexis P and Tsalikis L 2022). According to the World Health Organization, most of the global population relies on nonconventional medicinal practices, primarily sourced from herbal remedies, as a fundamental aspect of their primary healthcare (Ghosh, Vandana, Thimmasetty, Miskin, Bhat and Sharma 2017). Certainly, herbal medicine has shown efficacy in prophylactic and therapeutic applications, effectively addressing health issues at their fundamental level and emphasizing the resolution of the underlying causes (Ghosh, et al. 2017). Management of periodontal disease is crucial for overall oral health and herbal products offer an approach that works in harmony with the body to effectively control the progression of periodontal disease. Therefore, the use of various herbs presents an alternative to allopathic medicines, as herbal medicines with their antibacterial, antiplaque, antioxidant and anti-inflammatory properties help in the treatment of periodontal disease (Chatzopoulous et al. 2022; Moro, Silveria Souto, Franco, Holzhausen and Pannuti 2017).

**Herbs used for Management of Periodontal disease.**

Herbal medicines used for periodontal disease are derived from Aloe vera, Green tea, Turmeric, Clove, Eucalyptus, Peppermint, Tea tree oil, Cinnamomum zaylancium, Propolis, Ocimum sanctum, Azadirachta indica (Rani, Singla, Narwal, Tanushree, Kumar and Rahman 2022; Eid Abdelmagyd, Ram Shetty and Musa Musleh AL-Ahmari 2019). Aloe vera has shown efficiency in managing gingivitis and controlling plaque formation (Kamath, Nadimpalli, Nayak, Rajendra and Natarajan 2022). Peppermint tablets, when diluted, can be used as a mouthwash to alleviate inflammation following periodontitis healing. Also, using pomegranate and chamomile mouthwashes effectively reduced gingival bleeding in patients with periodontal disease (Rani et al. 2022). Green tea catechins strips have been found to help in the prevention of periodontal disease and the promotion of periodontal health by reducing pocket probing depth and bleeding (Barzegar PEF, Ranjbar R, Yazdanian M, Tahmasebi E, Alam M, Abbasi K, Tebyahiyan H, and Bazegar KEF 2022; Eid Abdelmagyd, Ram Shetty and Musa Musleh AL-Ahmari 2019). Curcumin, commonly known as turmeric, is recognized for treating inflammation. It can be used as a mouthwash by making turmeric water and rinsing the mouth to alleviate pain and swelling (Rani et al. 2022). Garlic is used to combat bacteria buildup and has been utilized since ancient times to treat various diseases. (Rani et al. 2022). Therefore, herbs could serve as a preventative strategy or an additional care technique for periodontal disease.

**Herbal medicines have been preferred over Allopathic medication.**

Medicinal herbs have become increasingly popular, offering security for health. Even though steps can be taken to prevent and treat oral disease at an early stage, they continue to be widespread and result in the development of periodontitis particularly. This is attributed to the financial burden and potential adverse effects associated with the treatment **(**Amanpour, Akbari Javar, Sarhadinejad, Doustmohammadi, Moghadri and Sarhadynejad 2023). Herbal medicines, with their natural, safe and cost-effective properties, have emerged as a preferred choice over modern medicine. Furthermore, adverse reactions associated with allopathic medicines, such as hypersensitivity, staining of teeth and restorative materials, development of bacterial resistance, and altered taste sensation, emphasize the benefits of herbal remedies (Pasupuleti, Nagate, Alqahtani, Penmetsa, Gottumukkala and Ramesh 2023; Eid Abdelmagyd, Ram Shetty and Musa Muleh Al-Ahmari 2019). Effective biofilm reduction is essential and can be accomplished through scaling and root planning, with or without antibiotics, such as Metronidazole gel, minocycline ointment, and chlorhexidine chip. Natural herbs, such as aloe vera, offer similar benefits at a significantly lower cost and fewer undesirable side effects than allopathic medicines (Singh, Muzammil, Sathish, Babu, Vinod and Rao 2016). In addition, the use of Guduchi in a 6.25% gel formulation with scaling and root planning is recommended for treating periodontitis due to its anti-inflammatory and antimicrobial effect instead of allopathic medicine (Ghosh et al. 2017). Similarly, Cymbopogon citratus, known as lemongrass, is effective against the strains of Porphyromonas gingivalis, which are resistant to allopathic medication (Eid Abdelmagyd, Ram Shetty and Musa Muleh Al-Ahmari 2019). While Chlorhexidine is considered the gold standard in periodontal management, often used alongside scaling and root planning, it has been associated with adverse effects such as allergic dermatitis, tooth staining, and an unpleasant taste. In contrast, herbal products, available in the form of mouthwash, gels, and dentifrices, have garnered attention for their active ingredient’s efficacy in reducing plaque accumulation by penetrating the biofilm (Pasupuleti et al. 2023; Chatzopoulous et al. 2022). Given the considerable diversity of plant species available worldwide, there is a promising potential to discover new herbal products for medical and dental use through advanced technology and extensive research (Pasupuleti et al. 2023).

**Antibacterial, Antiplaque, Antioxidant, Anti-inflammatory properties of herbal products for treatment of periodontal disease**

Herbal formulations offer a wide range of benefits, encompassing anti-microbial, anti-inflammatory and anti-plaque properties, thereby contributing to the reduction in plaque and gingival indexes in periodontal diseases.(this statement should have been cited separately, since it is an actual emphatic statement) Periocare Gum massage powder contains active ingredients that decrease the production of nitrous oxide and tumour necrosis factor-alpha (TNF-alpha), which are linked to the development of periodontitis (Suchetha and Bharwani 2013). Using 10% E. officinalis sustained-release gel after scaling and root planning reduces the bleeding index and enhances the clinical attachment level due to its antimicrobial properties in chronic periodontitis. Studies showed that Oxitart, a medicinal herb, has an antioxidant effect that reduces procalcitonin, a key indicator of inflammation in chronic periodontitis patients, especially smokers (Sravya, Koduganti, Panthula, Surya, Gireddy, Dasari and Ambati 2019). Furthermore, while research suggests the anti-cariogenic effects of Liquorice, it also possesses anti-inflammatory properties that are associated with the reduction of prostaglandin formation by the macrophages, effectively aiding in the treatment and prevention of periodontal diseases (Sharma, Sogi, Saini, Chakraborty and Sudan 2022). Several plant extracts, such as Ficus religosa and Plantago major, have an alkaline nature, which helps prevent the growth of pathogenic bacteria and plaque colonizers by maintaining the acid-alkaline balance of the saliva (Pasupuleti et al. 2023). Triphala mouthwash, known for its antioxidant and antiseptic properties, minimizes the impact of free radicals on oral tissues and aids in the prevention of premalignant conditions by inhibiting polymorphonuclear leukocytes-type collagenase responsible for the degradation of periodontal tissues (Naiktari, Gaonkar, Gurav and Khiste 2014)

In summary, herbal supplements show significant benefits in addressing periodontal diseases and have demonstrated effectiveness in managing periodontal issues due to their properties (Rani et al. 2022). Furthermore, herbal medicines provide a natural, safe, and cost-effective approach as an alternative to traditional medication, potentially improving oral health and patient compliance (Eid Abdelmagyd, Ram Shetty, Musa Muleh Al-Ahmari 2019). Continued research and exploration in this field could lead to the development of more natural and holistic approaches to periodontal care (Chatzopoulous et al. 2022)

LITERATURE CITED

Amanpour S, Akbari Javar M, Sarhadinejad Z, Doustmohammadi M, Moghadri Z, Sarhadynejad Z. A systematic review of medicinal plants and herbal products effectiveness in oral health and dental cure with health promotion approach. J Educ Health Promot [Internet]. 2023 Sep 29 [Cited: 2024 Jun 21];12:306. Available from: <https://journals.lww.com/jehp/fulltext/2023/09290/a_systematic_review_of_medicinal_plants_and_herbal.306.aspx>

Barzegar PEF, Ranjbar R, Yazdanian M, Tahmasebi E, Alam M, Abbasi K, Tebyanhiyan H, Bazegar KEF. The current natural and chemical materials and innovative technologies in periodontal disease therapy and regeneration: A narrative review. Mater. Today Commun. [Internet]. 2022 Aug [cited 2024 Jun 26];32:104099. Available from: <https://doi.org/10.1016/j.mtcomm.2022.104099>

Chatzopoulous GS, Karakostas P, Kavakloglou S, Assimopoulou A, Barmpalexis P, Tsalikis L. Clinical effectiveness of herbal oral care products in periodontitis patients: A Systematic Review Int J Enviorn Res Public Health. [Internet]. 2022 Aug 15 [Cited: 2024 Jun 21];19(16). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9408146/pdf/ijerph-19-10061.pdf>

Eid Abdelmagyd HA, Ram Shetty DS, Musa Musleh AL-Ahmari DM. Herbal medicine as adjunct in periodontal therapies-A review of clinical trials in past decade. J Oral Biol Craniofac Res [Internet]. 2019 Jul [Cited 2024 Jun 21];9(3):212-7. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6525324/pdf/main.pdf>

Ghosh S, Vandana KL, Thimmasetty J, Miskin N, Bhat KG, Sharma N. Tinospora cordifolia in the treatment of chronic and aggressive periodontitis patients with and without dental fluorosis: A clinical, microbiological, and biomechanical study. Int J Dent Oral Health Sci [Internet]. 2017 Jan [cited 2024 Jun 24];7(1):16-23. Available from: <https://journals.lww.com/ijoh/fulltext/2017/07010/tinospora_cordifolia_in_the_treatment_of_chronic.6.aspx>

Kamath DG, Nadimpalli H, Nayak SU, Rajendran V, and Natarajan S. Comparison of antiplaque and anti‐gingivitis effects of aloe vera mouthwash with chlorhexidine in fixed orthodontic patients—A randomized controlled trial. Int. J. Dent. Hyg. [Internet]. 2022 Aug19 [cited 2024 Jun 26];21(1):211–8. Available from: <https://www.researchgate.net/publication/365304513_Comparison_of_the_Antimicrobial_Activity_of_Aloevera_Mouthwash_with_Chlorhexidine_Mouthwash_in_Fixed_Orthodontic_Patients>

Moro MG, Silveira Souto ML, Franco GC, Holzhausen M, Pannuti CM. Efficacy of local phytotherapy in the nonsurgical treatment of periodontal disease: A systematic review. Journal of periodontal research [Internet]. 2018 Jun [cited 2024 Jun 25];53(3):288-97. Available from: <https://content.ebscohost.com/cds/retrieve?content=AQICAHiylJ_bvOB56hI8UzTN6Ryruh7a0kiIBN_ANwtaWYjmxwHvne_y_JbNGZSZGhYfFYuNAAAA2zCB2AYJKoZIhvcNAQcGoIHKMIHHAgEAMIHBBgkqhkiG9w0BBwEwHgYJYIZIAWUDBAEuMBEEDDUfY66pAtduSTFqkQIBEICBkxbOaF2YO84D62B39krrgyKs3s66HM7qr5Zmt6Xg6pDzzmiWq2r7zN3ffFg9QATqfMmVI1da1eUOGEwlYbEulsOjduXLAXv1RcJ7xaUmUyWsEEO2eJ1MJktDtCGFA-TmyJ6QxPj32ku_7tQ5gbbTnIRY7L2T3MvWP8Xde12yirsnVEQlYrm_PEyyrBKY9CebZJi99w==>

Naiktari RS, Gaonkar P, Gaurav AN, Khiste SV. A randomized clinical trial to evaluate and compare the efficacy of triphala mouthwash with 0.2% chlorhexidine in hospitalized patients with periodontal diseases. J Periodontal Implant Sci [Internet]. 2014 Jun [cited 2024 Jun 28];44(3):134-40. Available from: <https://jpis.org/DOIx.php?id=10.5051/jpis.2014.44.3.134>

Pasupuleti M, Nagate R, Alqahtani S, Penmetsa G, Gottumukkala S, Ramesh K. Role of medicinal herbs in periodontal therapy: A systematic review. J Int Soc Prev Community Dent [Internet]. 2023 Jan [Cited 2024 Jun 20];13(1):9-16. Available from: <https://journals.lww.com/jpcd/fulltext/2023/01000/role_of_medicinal_herbs_in_periodontal_therapy__a.2.aspx>

Rani N, Singla RK, Narwal S, Tanushree, Kumar N, Rahman MM. Medicinal plants used as an alternative to treat gingivitis and periodontitis [Internet]. Evid Based Complement Alternat Med [Internet]; 2022 Sep 6 [cited 2024 Jun 26];1-14. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10630018/>

Sharma S, Sogi GM, Saini V, Chakraborty T, Sudan J. Effect of liquoric (root extract) mouth rinse on dental plaque and gingivitis – A randomized controlled clinical trial. J Indian Soc. Periodontol [Internet]. 2022 Jan [cited 2024 Jun 28];26(1):51-7. Available from: <https://journals.lww.com/jisp/fulltext/2022/26010/effect_of_liquorice__root_extract__mouth_rinse_on.11.aspx>

Singh HP, Muzammil, Sathish G, Babu KN, Vinod KS, Rao HP. Comparative study to evaluate the effectiveness of aloe vera and metronidazole in adjunct to scaling and root planning in periodontitis patients. J. int. oral health [Internet]. 2016 Mar [cited 2024 Jun 21];8(3);374-7. Available from: <https://www.researchgate.net/publication/301204855_Original_Research_Comparative_Study_to_Evaluate_the_Effectiveness_of_Aloe_vera_and_Metronidazole_in_Adjunct_to_Scaling_and_Root_Planing_in_Periodontitis_Patients>

Sravya MN, Koduganti RR, Panthula VR, Surya PJ, Gireddy H, Dasari R, Ambati M. Efficacy of an herbal antioxidant as an adjunct to nonsurgical periodontal therapy on procalcitonin levels in smokers with chronic periodontitis. J Indian Soc. Periodontol [Internet]. 2019 Sep 1 [cited 2024 Jun 28];23(5):430-5. Available from: <https://journals.lww.com/jisp/fulltext/2019/23050/efficacy_of_an_herbal_antioxidant_as_an_adjunct_to.9.aspx>

Suchetha A, Bharwani AG. Efficacy of a commercially available multi-herbal formulation in periodontal therapy. J Indian Soc. Periodontol [Internet]. 2013 Mar 1 [cited 2024 Jun 28];17(2):193-7. Available from: <https://journals.lww.com/jisp/fulltext/2013/17020/Efficacy_of_a_commercially_available_multi_herbal.10.aspx>

**DH107 Assignment 2, Part A (Academic Paper) Rubric**

|  |  |  |
| --- | --- | --- |
| **Content – 50 marks** | **Mark Earned** | **Maximum Mark** |
| * Includes an engaging essay title.   An **introduction** which includes:   * An engaging topic sentence. * A clear and concise thesis statement * 3 subtopics are included. * Background about the topic is provided. * Sources of information not in the public domain are cited | 9 | 10 |
| **3 topics (body paragraphs)**  Each topic paragraph includes:   * A topic sentence for the paragraph. * Information that relates directly to the thesis and the main idea(s) of each paragraph. * Relevant, accurate, and adequate substantial supporting evidence for each main idea * Sources of information not considered common knowledge are appropriately cited. * Transitions that connect ideas. | T1: 9 / 10  T2: 9/ 10  T3: 9/ 10 | 30 |
| A **conclusion** is included which:   * Brings closure to the entire paper. * Communicates why the paper was meaningful or useful. * Synthesizes main points (rather than just repeating them) * Includes no new information. * Demonstrates integrity (i.e., claims accurately reflect what is communicated in the body of the paper; does not exaggerate claims) * Sources of information not in the public domain are cited | 9 | 10 |
| **English Language Conventions and Mechanics – 20 marks** | **Mark Earned** | **Maximum Mark** |
| **In-text citations and LITERATURE CITED page:**   * CADH Vancouver referencing style adhered to -great literature cited page! | 4 | 5 |
| **English Language Conventions:**   * Grammar, punctuation, spelling, sentence structure, etc. * Professional vocabulary used. * Usually uses third person narrative as appropriate for academic papers | 9 | 10 |
| **Organization:**   * Title page, paragraph composition, organization, use of headings, etc. * Follows mechanics (as outlined in the instructions) * Reviewed so transition from one student’s writing to another is not apparent. | 4 | 5 |
| **Term Paper Group Score** | **62** | **70** |
| **Excellent! Overall Grade** | **89%** | |