BULLETIN OF STOMATOLOGY AND MAXILLOFACIAL SURGERY
Volume 21, Issue 2

DOI:10.58240/1829006X-2025.2-205

REVIEW ARTICLE

ROLE OF HERBAL SUPPLEMENTS IN MANAGING THE SYMPTOMS ASSOCIATED WITH ORAL POTENTIALLY MALGINATE DISORDERS AND ORAL CANCER: SCOPING REVIEW OF THE RECENT ADVANCES

Amita Aditya[1], Manasi Yewale[2], Vaishnavi Sawant[3], Radhika Nair[3]
[1]Professor, Department of Oral Medicine & Radiology, Dr. DY Patil Dental College & Hospital, Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune. dr.amitaaditya@gmail.com
[2]Assistant Professor, Department of Periodontology, Bharati Vidyapeeth (Deemed to be University) Dental College & Hospital; Pune
[3]Post graduate student, Department of Oral Medicine & Radiology; Dr. DY Patil Dental College & Hospital, Pune
Corresponding Author: Dr. Amita Aditya Department of Oral Medicine & Radiology
Dr. D.Y. Patil Dental College & Hospital, Sant Tukaram Nagar, Pimpri, Pune Maharashtra 411018
Contact: 9764003901 Email: dr.amitaaditya@gmail.com

Received: *Feb. 6, 2025;* ***Accepted:*** *Feb. 26, 2024;* ***Published:*** *Mar. 20, 2025*

ABSTRACT

Oral premalignant conditions and oral cancers collectively pose a major health challenge worldwide. Various treatment modalities including antioxidants, corticosteroids and immunomodulators have been used for management of oral Premalignant conditions, in particular the ones which are symptomatic such as Oral Submucous Fibrosis and Erosive Lichenplanus. Surgery, radiation, and chemotherapy-alone or in combination are still the mainstay treatment for Oral cancer. In recent times many herbal supplements have been tried in management of these lesions with an array of reported effectiveness and there remains a conundrum regarding their actual role. The researchers behind this scoping review set out to find out how well herbal supplements worked in treating oral cancer and other possible malignant illnesses.

Keywords: oral cancer, oral premalignant disorder, alternative therapy, herbal

INTRODUCTION

Herbal supplements are botanical products widely utilised for the therapy of various ailments, particularly in the Indian subcontinent. Recent research has focused on the scientific data on their therapeutic benefits.[1] Extensive study is currently being conducted on the therapeutic properties of these plants. There is optimism that these medicinal herbs may assist with several ailments, including diabetes, allergies, and cancer. A diet high in fruits and vegetables is thought to lower the risk of developing cancer.[2–3] Some authors have also studied their unique properties such as simulation of osteoblasts and inhibition of osteoclasts.[4]

The pathophysiology of oral premalignant conditions and oral cancers indicates that specific plant derivatives may elicit nutritional and antioxidant responses.[5–6] Recent studies have focused on herbal supplements such as Curcumin, Aloe Vera, Anthocyanins, Asparagus, Green Tea, Vitamin C, and Lycopene, examining their potential in reducing symptoms linked to specific oral premalignant illnesses.[7–9] The purpose of this scoping review is to assess how herbal supplements may be used to treat mouth cancer and other potentially cancerous disorders.

MATERIALS AND METHODS

Protocol and Registration

We found studies evaluating the effectiveness of herbal supplements in treating oral cancer and premalignant diseases by using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) criteria.

Focused Question

The main emphasis was on the function of herbal supplements as a method of treatment for oral premalignant diseases and oral cancer.

Eligibility Criteria

The study included original research articles that

detailed randomised controlled trials evaluating the effectiveness of herbal supplements in the management of cancer and oral precancer. Only articles with complete text available at no cost were included. No in-vitro or animal research, reviews or recommendations, technical reports, case reports, conference presentations, non-original publications, retrospective or longitudinal investigations, or reviews or suggestions exist. Publications in languages other than English were also excluded.

Literature Search strategy

We searched for novel randomised controlled clinical trials published from 2017 to 2022 in electronic databases such as Scopus and PubMed (Medline). Titles, abstracts, and keywords were searched via a combination of MeSH terms. They incorporated "Curcumin" OR "Aloe Vera" OR "Anthocyanins" OR "Asparagus" OR "Green Tea" OR "Vitamin C" OR "Lycopene" OR "Cannabinoids" OR "Soya Bean Derivative" OR "Cranberries" AND "Oral Premalignant Disorders" OR "Oral Pre-Cancer" OR "Oral Cancer." The writers meticulously examined the selected research titles and abstracts. Finally, the complete text of each piece was examined for inclusion.

Data extraction

The two writers independently retrieved the following facts from the source: author names, year and location of the study, aims, study design, subject count, mean age of subjects, herbal supplement, distribution mechanism, oral premalignant disease and cancer kind, therapy type, and primary results. A pre-established data gathering form facilitated their entry. Prior to the inclusion of the study in the review, any discrepancies were deliberated and ultimately reconciled by consensus.

***Risk of bias in individual* studies**

We examined the full-text papers for evidence of bias, sound design, and accurate reporting utilising an assessment method for cross-sectional studies (AXIS). The tool's twenty questions provided three response options: yes, no, and don't know, with each affirmative answer yielding a one-point gain. Every individual study was assigned a score ranging from 0 to 20. The studies were categorised into three groups based on ratings: Good (>15), satisfactory (10–15), and poor (<10).[10]

RESULTS

Study selection

We employed the PRISMA criterion to identify the appropriate studies. Refer to Figure 1. The initial search produced approximately 264 documents; 50 were later discarded due to excessive similarity. Subsequently, additional research were generated by meticulously examining the titles and abstracts of 214 articles. The removal of 205 papers resulted from a comprehensive review of their whole contents. This study comprises the whole texts of nine original investigations.

Study Characteristics

The first table summarises the main features of the first research publications. There were 9 Randomized control clinical trials . Among them 6 are parallel group prospective designs.[11,13,16–19] Three studies do not have their randomizations or study designs mentioned.[12,14,15] The total number of subjects involved in these studies ranged from 25 to 120[15,18] with the number of males being more than females.[11-19] Their ages varied from 27.8 to 65 years on average.[12,16]

Clinical Parameters estimated

The clinical parameters that were recorded were Intensity of burning sensation by Visual Analog scale[12–15,18], Interincisal Mouth Opening with Digital Vernier Calliper[12–15,18], Tongue protrusion with scale[14,18] ,Cheek flexibility[19], Oral Health status with Oral Assessment Guide[16], REU score.[11] Pain assessment by Numerical rating scale[19], Their levels were shown to be associated with how well herbal medicines worked as a therapy.[11-19]

Type of Oral Premalignant Disorders and Oral Cancer

The oral premalignant disorders included in various studies are Oral Submucous Fibrosis[12–15,18,19], Oral Lichen Planus[11]. Our evaluations also included individuals with oral mucositis receiving treatment for head and neck cancer.[16–18]

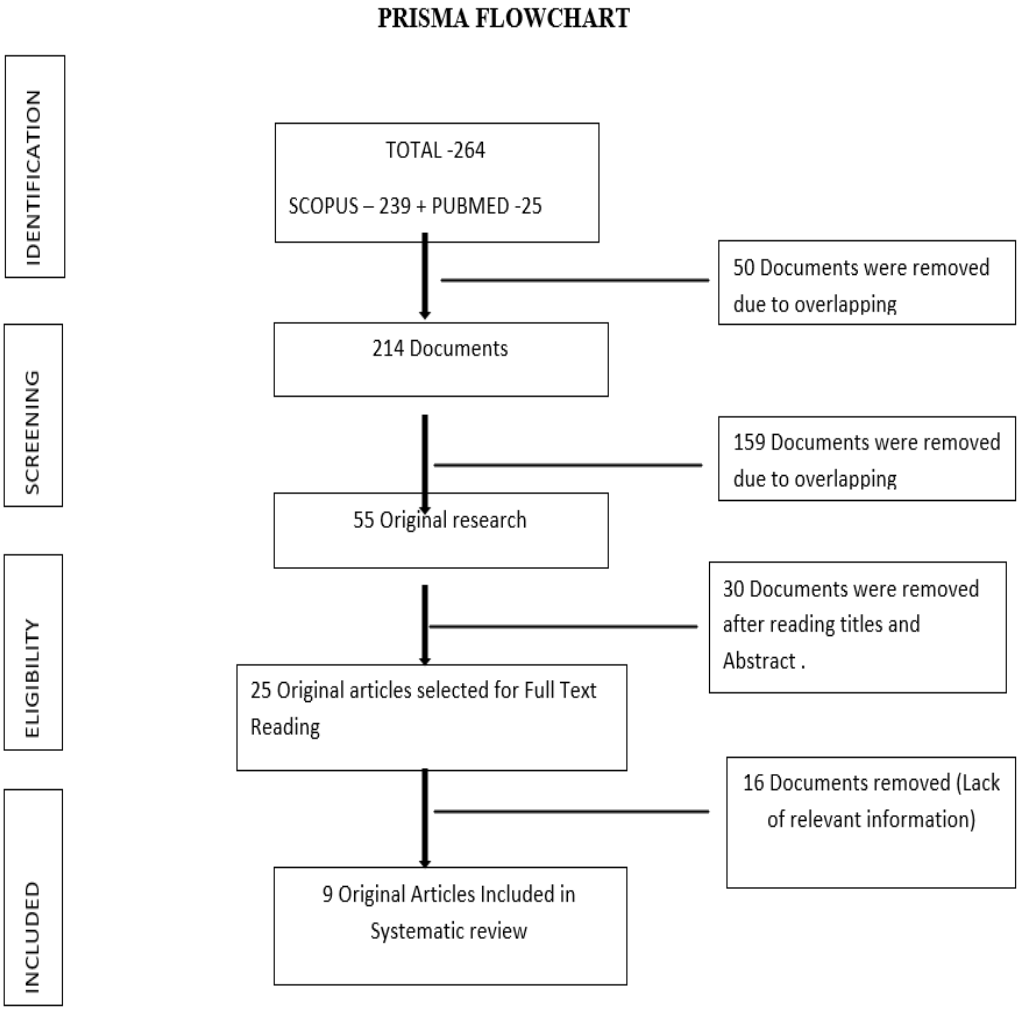
Herbal Supplements

The most common Herbal supplement used as therapeutics was Curcumin[11–15,17–19] followed by Aloe vera.[13,15] There has been little research on green tea's potential as a therapy for oral cancer.[16]

The preferred route of administration for curcumin was Gel[11–13,15] and commercially available Curcumin Capsules.[17–19]

There was a novel formulation of Bio enhanced Curcumin capsule named BCM-95®[17] for treatment of Cancer therapy induced oral mucositis. Very few studies have evaluated curcumin lozenges

(TurmNova®) as a chemoprotective agent.[14] Curcumin Gel with steroidal intralesional injection and triamcinolone acetonide rinse are two popular combination therapy.[11,12,14,15,19]



Main Outcomes

Herbal supplements, including curcumin and aloe vera, were frequently assessed for their efficacy. They demonstrated a robust correlation with clinical indicators such as the intensity of burning sensation, the inter-dental spacing, the protrusion of the tongue, and the condition of oral health over around nine trials.[11–15,17–19] Table 1 summarizes the details of the articles viewed.

Table 1. Salient Features of Therapeutic effects of Herbal Supplements on Oral Premalignant Disorders

Author Year	Aims and objectives	Herbal Supplement	Route and Dosage of Administration	Oral Cancer condition	Results and Conclusion
Mahin Bakhshi et al 2020[11]	To assess the effect of combined use of 1% nanomicelle curcumin gel and 0.1% triamcinolone acetonide mouth rinse in comparison with 0.1% triamcinolone alone for	Curcumin	1% nanomicelle curcumin gel	Oral Lichen Planus	1. use of 1% nanomicelle curcumin gel plus 0.1% triamcinolone mouth rinse was significantly more effective 2. decreased severity of clinical symptoms,

	treatment of Oral Lichen Planus				enhanced the rate of improvement 3. lower dosage is an advantage
Ashish B Lanjekar et al 2020[12]	To ascertain the efficacy of topical curcumin gel with triamcinolone and hyaluronidase mucoadhesive semisolid gel individually or in combination in the treatment of OSMF.	Curcumin	Mucoadhesive semisolid gel of curcumin	**Oral Submucous Fibrosis**	1.therapeutic effect in patients diagnosed with OSMF 2. fibrinolytic and anti-inflammatory action which helps to reduce burning sensation , improvement of colour of mucosa
Ashwini Nerkar et al 2021[13]	To compare the efficacy of Curcumin gel with Aloe Vera gel when both the gel are supplemented along with oral physiotherapy in the management of OSMF	Curcumin Aloe vera	Gel (Curenext oral gel) Aloe Vera gel (aloe gel 100%)	**Oral Submucous Fibrosis**	1.Burning sensation score improved in Aloe Vera group 2. difference in the potency of Aloe Vera and Curcumin anti-inflammatory properties
Rahul Srivastava 2021[14]	To compare the efficacy of TurmNova® lozenges and its active ingredient "curcumin" as a low-cost, safe, and non-invasive chemo preventive agent with intralesional corticosteroids (with hyaluronidase) in the management of OSMF	Curcumin	Curcumin lozenges (TurmNova®)	**Oral Submucous Fibrosis**	1. Innovative delivery system of lozenge results in a higher level of plasma curcumin level with 100 mg dose and prevents its biotransformation and its inactivation by the liver enzymes. 2. inhibiting the AKT/MTOR pathway with curcumin may also be useful as an oral chemo-preventive agent
Ankita Bohra 2021[15]	a comparative analysis of the combination of Ayurvedic therapy and combined efficacy of Steroidal intralesional injections along with antioxidant supplements.	Kali Haldi (Curcuma caesia roxib) Aloe Vera	Gel	**Oral Submucous Fibrosis**	1. Kali Haldi and Aloe vera act synergistically against oxidative free radical species in OSMF patients.
Yen-Chi Liao RN 2021[16]	To evaluate the effectiveness of green tea mouthwash for improving the oral health status in oral cancer patients undergoing cancer treatment.	Green tea	5% green tea mouthwash (100 ml)	Cancer therapy induced oral mucositis	1. Improved the oral health status from T4 to T6 in patients with oral cancer who were undergoing cancer treatment. 2. simple, natural, effective, and safe

					intervention on pharmacological treatment option for protecting the oral mucosa.
Tej Prakash Soni 2021[17]	To evaluate the efficacy of Bio-enhanced turmeric formulation in reducing the severity of oral mucositis in patients receiving adjuvant concurrent chemoradiotherapy for oral cavity cancer.	Curcumin	Capsules BCM-95®	Cancer therapy induced oral mucositis	1.incidence of grade 3 oral mucositis, dysphagia, and oral pain was significantly lower in patients receiving BTF 2. Better patient treatment compliance and fewer interruptions
Seyed Javad Kia 2021[18]	to investigate the effective- ness of capsules containing curcumin nanomicelles in patients undergoing chemotherapy with or without head and neck radiotherapy who have also developed oral mucositis.	Curcumin	Nanomicelle Curcumin capsules (80 mg)	Cancer therapy induced oral mucositis	1.Capsules of curcumin nanomicelles are more effective in chemotherapy induced OM rather than head and neck radiotherapy related OM .
Sagar Adhikari et al 2022[19]	To assess the efficacy of curcumin in combination with intralesional dexamethasone with hyaluronidase in the treatment of OSF	Curcumin	Curcumin extract (Capsule Adcumin®) Randomized, double-blind, 12-weeks parallel-design clinical trial	**Oral Submucous Fibrosis**	1. combination with intralesional dexamethasone with hyaluronidase is efficacious in the treatment of OSF in terms of improvement in interincisal mouth opening, cheek flexibility and tongue protrusion

DISCUSSION

Recent research shows an increase in the utilization of herbal supplements as treatments for oral cancer symptoms alongside premalignant conditions. The recent scoping study revealed the most commonly used herbal supplements in the past several years:

Curcumin

Turmeric under its botanical name "Curcuma longa" serves as a natural remedy throughout Ayurveda, Unani, and Siddha medicine for multiple medical conditions. Various studies demonstrate that curcumin exhibits cellular protective qualities such as reducing inflammation while possessing both antioxidant functionalities and anticancer properties. Two trials looked at topical curcumin gel and mouthwash with 0.1% triamcinolone acetonide for the treatment of oral lichen planus (OLP) and oral submucous fibrosis.[10,12]

Oral lichen planus (OLP) treatment alternatives were assessed using a 0.1% triamcinolone acetonide mouthwash and 1% nanomicelle curcumin gel. The nanocurcumin treatment achieved superior results than placebo therapy as revealed through the REU scoring at each follow-up check point. A small number of patients had entirely healed lesions, according to trial data, but these results were far more prevalent in the nanocurcumin group than in the placebo group.[10] The treatment regimen that Ashish B. Lanjekar chose as optimal included 1% Curcumin Mucoadhesive Gel and 1% Hyaluronidase Mucoadhesive Gel lead by 0.1% Triamcinol The dual

application of 1% Curcumin Mucoadhesive Gel with 1% Hyaluronidase Mucoadhesive Gel and 0.1% Triamcinolone Acetonide Buccal Paste produced substantial improvements in mucosal colour change (0.68 ± 0.47, p = 0.000) and delivered the most effective mean outcome (4.05 mm).[12]

The effectiveness of a mixture of two intralesional corticosteroids (two millilitres of dexamethasone at 4 mg/mL plus 1500 international units of hyaluronidase) and curcumin lozenges (TurmNova®) in treating cancer was assessed in individuals suffering from oral submucous fibrosis.[14] After three months of follow-up, the group that received curcumin in conjunction with corticosteroids showed substantial improvements in tongue protrusion (mean ± S.D of 3.00 ± 0.14), as well as considerable improvements in mouth opening (p < 0.001). Participants in the intervention got a once-daily dosage of curcumin via capsuled Adcumin® four times throughout the course of six weeks, whereas those who received a placebo were given a comparable schedule of translucent Placebo capsules within the same time frame. The results of the study were consistent with those of a previous study that used the same treatment approach. Each experimental group received intralesional treatment with Hyaluronidase (Hynidase®) and a solution containing 4 mg/ml dexamethasone. The average interincisal mouth opening in the Curcumin Group increased by 8.71±1.26 mm while the Placebo Group maintained stable values between their first visit and 12-week follow-up.[19]

The above studies indicate that Curcumin, especially in combination therapy; may prove to have excellent results in alleviating the symptoms associated with Oral Pre malignant Disorders.

Rarely has curcumin been studied for its ability to alleviate oral mucositis in chemo patients, whether they are undergoing radiation to the head and neck or not. The efficacy of an original bio-enhanced turmeric capsule formulation (BCM-95®) was assessed using metrics such the degree of dysphagia, mouth pain, and oral mucositis. After 6 weeks of therapy, grade 2 mucositis was found in 75% of arm A (1 g daily) and 80% of arm B (1.5 g daily) participants. Both Group A and Group B reported reduced discomfort and less acute pain at the end of the sixth week of therapy.[17] Another study looked at the efficacy of oral mucositis caused by head and neck cancer using Nanomicelle Curcumin capsules (80 mg) as a medication delivery strategy. Twenty-five people took part in the trial by taking two 80 milligrams nanomicelle curcumin capsules with their meals every day. The study group's OM was considerably better than the control group's from the first week (P = 0.010) to the fourth week (P = 0.022) and the seventh week (P < 0.001). The control group's incremental gradient was greater than that of the study group. At weeks four (P = 0.009) and seven (P = 0.012), patients receiving head and neck radiation therapy in addition to chemotherapy had significantly less severe oral mucositis than those in the control group.[18] More studies are needed to establish if curcumin is effective in cancer therapy lesions.

Aloe Vera

Recent medical data shows that aloe vera provides therapy for relieving the symptoms associated with oral submucous fibrosis. The plant contains beta carotene and iron together with zinc selenium and the antioxidant vitamins A C and E. New research examined how oral physiotherapy measures up with topical gels containing curcumin and Aloe Vera for treating OSMF. Compared to Group A, which used curcumin, patient evaluations of burning sensations rose more significantly in Group B, which used aloe vera. An applied p-value must remain under 0.05 for valid results.[13] Research compared how Aloe Vera gel treated alone can perform versus Curcumin gel treatment when combined with oral physiotherapy for OSMF management. Patient administration of a Kali Haldi 2 milligram mixture with Aloe vera gel 2 milligrams was required thrice daily during three months of treatment. A considerable improvement in average burning sensation VAS scores reduction from 47.6 + 1.02 at baseline to 75.9 was observed. The non-steroid group showed no statistically relevant differences in either cheek elasticity measurements or mouth opening improvement against steroid group tests. This research locates pure Aloe Vera gel as an effective remediation method for managing OSMF specifically. Their applications in symptoms related to various oral premalignant illnesses and post-treatment require extensive evaluation

Green Tea

Green tea remains popular worldwide because of its polyphenol antioxidants and specifically the antioxidants catechin and epigallocatechin-3-gallate.[20] According to clinical studies by Cabrera et al. (2006)[21], Min et al. (2014)[22], and Musial et al.

(2020)[23], polyphenols have potent physiological roles that include antibacterial, anti-inflammatory, and anticancer protection as well as antioxidant protection. In order to ascertain if green tea mouthwash would help patients with oral cancer after surgery and getting chemotherapy or radiation treatment, the researchers carried out a prospective, single-blind, randomised, controlled experiment in Chia-Yi, Taiwan. T_0 assessment showed no significant statistical differences in how control and intervention groups matched regarding their age, gender, cancer site, tumour stage, tumour type and treatment approach. The intervention group's oral health status score was 9.3 ± 3.5 (p=.008) lower than the control group's at the 6-month follow-up time point. At time point 5, the intervention group's oral health status score was 2.97 points lower than the control group's (SE: 0.68, p<.001). The oral health status score at T6 was 2.93 points (SE: 0.68, p<.001) higher than the control group at T_0.[16]

A major hurdle in the routine usage of herbal supplements is the lack of scientific evidence despite their widely known and used curative properties traditionally, especially in the Indian subcontinents. According to our review, the above herbal supplements, by the virtue of their anti-inflammatory and other medicinal effects; have been studied broadly but still there is still scope for more randomized controlled trials to assess their efficacy.

CONCLUSION

This scoping review indicated that herbal supplements like curcumin, Aloe vera and green tea have been found to be fairly effective in managing Oral Premalignant disorders and symptoms associated with oral cancer as per studies done recently. However, their role has largely been studied as adjunct therapy and there is lack of well-planned

clinical trials to study this.

Limitations: The scoping review design of this research meant that it could only provide a high-level summary of the available data rather than a thorough evaluation. We had taken the time frame to be five years only so as to focus on the recently reported herbal supplements rather than revisiting the ones already discussed and established in literature such as lycopene.

Declarations

Conflicts of interest and financial disclosures

The author declares that he has no conflict percent and there was no external source of funding for the research in question.

Ethical approval

The study was approved by the University ethics committee and was conducted in accordance with the Declaration of the World Medical Association.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Source of funding

The work was not funded.

REFERENCES

1. Dehghani Nazhvani A, Sarafraz N, Askari F, Heidari F, Razmkhah M. Anti-Cancer Effects of Traditional Medicinal Herbs on Oral Squamous Cell Carcinoma. Asian Pac J Cancer Prev. 2020;21(2):479-84
2. Buch ZM, Joshi J, Amonkar A, Vaidya AB. Interventional role of Haridra (Curcuma longa Linn) in cancer. Clin Cancer Invest J. 2012;1:45
3. Mehta V, Mathur A, Tripathy S, Sa R, Sharma T. Effectiveness of herbal oral care products in reducing dental plaque and gingivitis: an overview of systematic reviews. Can J Dent Hyg. 2024 ;58(2):120-34.
4. Boyapati R, Gaddam B, Brahmam Lanke R, Chinnadurai Mudaliyar M. Role of Bone Knitting Herbs in the Management of Periodontitis. Bulletin of Stomatology and Maxillofacial Surgery. 2024;20(2):56-63.
5. Gutheil WG, Reed G, Ray A, Anant S, Dhar A. Crocetin: an agent derived from saffron for prevention and therapy for cancer. Curr Pharm Biotechnol. 2012;13:173–9
6. Mehta V, Shetiya SH, Kakodkar P, Janakiram C, Rizwan SA. Efficacy of herbal dentifrice on the prevention of plaque and gingivitis as compared to conventional dentifrice: A systematic review and meta-analysis. J Indian Soc Periodontol. 2018;22(5):379–89.
7. Buch ZM, Joshi J, Amonkar A, Vaidya AB. Interventional role of Haridra (Curcuma longa Linn) in cancer. Clin Cancer Invest J. 2012;1:45

8. Patil S, Al-Zarea BK, Maheshwari S, Sahu R. Comparative evaluation of natural antioxidants spirulina and aloe vera for the treatment of oral submucous fibrosis. J Oral Biol Craniofac Res. 2015;5(1):11-5.
9. Vyas T, Nagi R, Bhatia A, Bains SK. Therapeutic effects of green tea as an antioxidant on oral health- A review. J Family Med Prim Care. 2021;10(11):3998-4001.
10. Moskalewicz A, Oremus M. No clear choice between Newcastle-Ottawa Scale and Appraisal Tool for Cross-Sectional Studies to assess methodological quality in cross-sectional studies of health-related quality of life and breast cancer. J Clin Epidemiol. 2020;120:94-103.
11. Bakhshi M, Gholami S, Mahboubi A, Jaafari MR, Namdari M. Combination Therapy with 1% Nanocurcumin Gel and 0.1% Triamcinolone Acetonide Mouth Rinse for Oral Lichen Planus: A Randomized Double-Blind Placebo Controlled Clinical Trial. Dermatol Res Pract. 2020;2020:4298193.
12. Lanjekar AB, Bhowate RR, Bakhle S, Narayane A, Pawar V, Gandagule R. Comparison of efficacy of topical curcumin gel with triamcinolone-hyaluronidase gel individually and in combination in the treatment of oral submucous fibrosis. J Contemp Dent Pract. 2020;21(1):83-90.
13. Rajbhoj AN, Kulkarni TM, Shete A, Shete M, Gore R, Sapkal R. A comparative study to evaluate efficacy of curcumin and aloe vera gel along with oral physiotherapy in the management of oral submucous fibrosis: a randomized clinical trial. Asian Pac J Cancer Prev. 2021;22(S1):107.
14. Srivastava R, Kundu A, Pradhan D, Jyoti B, Chokotiya H, Parashar P. A comparative study to evaluate the efficacy of curcumin lozenges (TurmNova®) and intralesional corticosteroids with hyaluronidase in management of oral submucous fibrosis. J. Contemp. Dent. Pract 2021;22(7):751-5.
15. Bohra A, Maheswari TU, Harsh A, Garg A. Black turmeric and Aloe Vera in the management of oral submucous fibrosis: A prospective clinical study. Asian Pacific Journal of Cancer Prevention: APJCP 2021;22(12):3941.
16. Liao YC, Hsu LF, Hsieh LY, Luo YY. Effectiveness of green tea mouthwash for improving oral health status in oral cancer patients: A single-blind randomized controlled trial. International Journal of Nursing Studies. 2021;121:103985
17. Soni TP, Gupta AK, Sharma LM, Singhal H, Sharma S, Gothwal RS. A Randomized, Placebo-Controlled Study to Evaluate the Effect of Bio-Enhanced Turmeric Formulation on Radiation-Induced Oral Mucositis. Orl. 2022;84(2):103-13.
18. Kia SJ, Basirat M, Saedi HS, Arab SA. Effects of nanomicelle curcumin capsules on prevention and treatment of oral mucosits in patients under chemotherapy with or without head and neck radiotherapy: A randomized clinical trial. BMC Complementary Medicine and Therapies. 2021;21(1):1-1.
19. Adhikari S, Rimal J, Maharjan IK, Shrestha A. Efficacy of Curcumin in Combination with Intralesional Dexamethasone with Hyaluronidase in the Treatment of Oral Submucous Fibrosis: A Randomized Controlled Trial. Asian Pac J Cancer Prev. 2022;23(9):3125–32.
20. Mathur A, Gopalakrishnan D, Mehta V, Rizwan SA, Shetiya SH, Bagwe S. Efficacy of green tea-based mouthwashes on dental plaque and gingival inflammation: A systematic review and meta-analysis. Indian J Dent Res. 2018;29(2):225–232.
21. Cabrera C, Artacho R, Giménez R. Beneficial effects of green tea--a review. J Am Coll Nutr. 2006;25(2):79-99.
22. Min B, McClung A, Chen MH. Effects of hydrothermal processes on antioxidants in brown, purple and red bran whole grain rice (Oryza sativa L.). Food Chem. 2014;159:106-15.
23. Musial C, Kuban-Jankowska A, Gorska-Ponikowska M. Beneficial Properties of Green Tea Catechins. Int J Mol Sci. 2020;21(5):1744.