



# Herbal Wisdom of *Ayurveda*: Remedies for Optimal Oral Health

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## Abstract

This review explores the rich heritage of *Ayurveda*, a holistic medicinal system that has evolved over thousands of years, and its integration into modern dental care practices. From the ancient tradition of oil pulling to the use of herbal chewing sticks and traditional herbs like neem, clove, turmeric, liquorice, *Aloe vera*, peppermint, sage, and tea tree oil, *Ayurveda* offers a diverse array of potential solutions for oral health issues. Scientific findings, dietary guidelines, and holistic oral care practices are meticulously examined, emphasizing the potential benefits of these natural remedies in avoiding and managing conditions, such as tooth decay, gum disease and gingivitis. The review underscores the need for ongoing scientific research to validate the efficacy of these herbal remedies while highlighting the promising results observed thus far. Embracing a comprehensive approach that combines herbal wisdom, dietary guidelines, and holistic oral care practices may contribute to achieving and maintaining optimal oral health.

**Keywords:** *Ayurvedic* Medicinal System, Dietary Guidelines, Herbal Approach

## 1. Introduction

India's holistic, traditional *Ayurvedic* medicinal system developed over a 3,000–5,000-year period. It has been used as supplemental medicine in the Indian subcontinent since the prehistoric age and is in practice in many different countries<sup>1</sup>. Globally, mouth disorders persist as a significant health concern<sup>2</sup>. Bacterial infections are the root cause of most oral diseases, and it is widely known that medicinal herbs have strong antibacterial properties against a wide range of pathogens, including the germs that cause dental caries<sup>3</sup>. *Ayurveda* practitioners play a crucial role in providing oral hygiene guidance to the public<sup>4</sup>. In ancient times, dentistry thrived within the realm of *Ayurveda*<sup>5</sup>. In contemporary times, the inclusion of natural remedies has become essential in dental care due to their reduced toxicity, easy accessibility, and cost efficiency. Integrating natural medicines into dental practices provides notable benefits as additional therapeutic choices in the field<sup>6</sup>. Presently, there is a growing interest in employing diverse *Ayurvedic* remedies for

enhancing dentistry. By adopting safeguarding, life-centric, and balanced lifestyle methods that address physical, mental, social, and spiritual aspects of health, herbal medicine seeks to improve your overall health. The advancement of *Ayurveda* as a discipline has closely followed the development of humanity<sup>7</sup>.

## 2. Traditional Herbal Approaches to Oral Health

Different cultures have traditionally employed various herbs to sustain oral health. It is crucial to acknowledge that although certain herbs show potential benefits, ongoing scientific research is necessary to establish their efficacy, and individual responses may differ. Here are some herbs frequently linked with oral health:

### 2.1 Neem (*Azadirachta indica*)

For generations, the neem tree (*Azadirachta indica*) was considered an essential component of traditional Indian medicine. Every part of this tree, including twigs for toothbrushes, bark for gum healing, oil for soap,

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and leaves for medicine, is utilized. Neem is renowned for its remarkable capacity to both prevent and treat gum diseases and various dental issues. It demonstrates inhibitory effects on the growth of bacteria, their adhesion to tooth surfaces, and the production of insoluble glucan, thereby influencing the formation of plaque in laboratory conditions<sup>8</sup>.

## 2.2 Clove (*Syzygium aromaticum*)

The components of clove (*Syzygium aromaticum*) include  $\beta$ -caryophyllene, eugenics eugenol acetate, and volatile oil. Clove has curative, soothing antiseptic, and protective properties.

That is commonly utilized for alleviating toothaches, treating periodontitis, acting as an anaesthetic, and addressing bleeding gums. Clove gel presents an alternative to benzocaine in dental applications, particularly in situations where cost and availability pose constraints on accessing pharmaceutical topical anaesthetics. The substance is available in tinctures, a lozenge and a mouth rinse, among other kinds<sup>9</sup>.

## 2.3 Turmeric (*Curcuma longa*)

Turmeric, commonly employed for diverse medical purposes, is finding application in dentistry. Its anti-inflammatory characteristics contribute to pain relief, address gingivitis, and combat periodontitis. Turmeric's distinctive yellow staining property facilitates plaque detection, and according to research, using a mouthwash containing turmeric can help prevent and reduce plaque and gingivitis in addition to mechanical plaque control<sup>10</sup>.

## 2.4 Liquorice (*Glycyrrhiza glabra*)

Tooth decay is an infectious microbial condition that can spread and lead to the local dissolution and destruction of the calcium-rich tissues within teeth. *Streptococcus sanguis*, *Lactobacillus* species, *Actinomyces* species, and the Mutans group of *Streptococci* are involved in the pathophysiology of dental caries and tooth decay. *Ayurveda* recommends using herbal liquorice sticks, which are around the thickness of a little finger and nine inches long, to reduce plaque and tooth cavities.

Liquorice has been shown in numerous trials to be a potent anti-inflammatory drug<sup>11</sup>. Ocular illnesses such as gingivitis, cavities, gum disease, aphthous sores, and oral cancer are all known

to respond well to liquorice's beneficial anti-adhesive, and antimicrobial qualities. Investigating liquorice's advantageous phytochemicals may open the door to incorporating herbal components into dental products that enhance oral health<sup>12</sup>.

## 2.5 Aloe vera (*Aloe barbadensis miller*)

Full-strength *Aloe vera* significantly reduces accumulated plaque and proves highly beneficial in treating gingivitis and periodontitis. Its soothing and healing properties help minimize gingival bleeding, reduce swelling, and address soft tissue oedema, contributing to gum health restoration. *Aloe vera* mouthwash serves as an effective antiplaque agent. Subgingival application of *Aloe vera* gel enhances periodontal conditions. *Aloe vera* tooth gel, lacking the abrasive elements in commercial toothpaste, offers a gentler option for individuals with sensitive teeth or gums<sup>13</sup>.

## 2.6 Peppermint (*Mentha piperita*)

Peppermint has multiple oral health benefits. Its antimicrobial properties inhibit bacteria and fungi growth in the mouth, promoting a healthier oral environment and reducing infection risk. The menthol in peppermint delivers a refreshing breath-freshening effect, commonly found in toothpaste, mouthwash, and gum. Its anti-inflammatory and analgesic properties may alleviate gum inflammation and minor oral discomfort. Peppermint's efficacy in combating bad breath and enhancing oral sensation makes it a popular choice in various oral care products. Caution should be exercised in using peppermint products, considering individual sensitivities, and seeking personalized advice from a healthcare professional for optimal oral care<sup>14</sup>.

## 2.7 Sage (*Salvia officinalis*)

The volatile oil of sage includes tannins, flavonoids that are rosmarinic acid, cineole, and alpha- and beta-thujone, which give the herb a camphorous aroma. Gum disease, throat pain, and infection of the mouth are treated with it. Sage oil's antiviral, antifungal, and antibacterial qualities make it useful for these kinds of uses<sup>15</sup>. Sage works as a mild antibacterial to help treat oral ulcers and bleeding gums (cold sores). Before dental work, a cup of warm sage and chamomile herbal tea can help reduce anxiety<sup>16</sup>.

## 2.8 Tea Tree oil (*Melaleuca alternifolia*)

Tea tree oil originates via the *Melaleuca alternifolia* tree plus has strong antibiotic, antifungal, and antiseptic qualities, therefore rendering this a viable option in dental treatment. Its antibacterial attributes combat common oral issues such as plaque, cavities, and gum disease, while its anti-inflammatory effects contribute to gum health improvement<sup>17</sup>. The oil's antifungal properties prove beneficial in addressing conditions like oral thrush, and it effectively targets odour-causing bacteria to tackle bad breath. While tea tree oil may assist in managing gingivitis with its antibacterial and anti-inflammatory traits, caution is advised due to potential irritation. It is recommended to dilute the oil in carrier oils or incorporate it into oral care products. Individuals with allergies or sensitive skin should consult healthcare professionals before use<sup>18</sup>.

## 3. Dietary Guidelines in Ayurveda

*Ayurveda* underscores the significance of diet in maintaining overall health, particularly emphasizing the importance of a diet in maintaining healthy enamel. Recommendations involve incorporating Meals

containing significant amounts of minerals, vitamin D, and other essential minerals. Key dietary suggestions for promoting dental health are included in Table 1.

- Limit the quantity of starchy as well as more acidic snacks and drinks. Especially outside of regular meals.
- When not following a structured meal plan, restrict eating meals - between three and four occasions per day.
- Neglect ingesting sweets and hyper-acidic meals before sleep.
- Highlight the importance of selecting products that prevent dental decay and erosion.
- Consider using sugar-free alternatives to meet these goals.
- Advise individuals to carefully read labels and follow instructions for diluting concentrated drinks.
- Encourage mothers against adding anything other than synthetic dairy products, extracted raw dairy milk, cow's dairy products, or freshwater to their baby's bottles.
- Encourage mothers to transition infants to drinking from a cup or beaker starting at 6 months and to discontinue bottle-feeding by age 1.

**Table 1.** Nutrient-rich foods and their dental health benefits

| Nutrient           | Dietary sources   | Benefits of dental health                        | References |
|--------------------|---|--|------------|
| Calcium            | Dairy products (milk, cheese, yoghurt), tofu, almonds     | Essential for tooth structure and strength       | 19         |
| Vitamin D          | Fatty fish (salmon, mackerel), egg yolks, fortified foods | Facilitates calcium absorption                   | 20         |
| Phosphorus         | Meat, fish, poultry, dairy products, nuts, seeds          | Support tooth enamel and mineralization          | 21         |
| Vitamin K          | Leafy greens (kale, spinach, broccoli), Brussels sprouts  | Promote proper mineralization of bones and teeth | 22         |
| Vitamin C          | Citrus fruits, strawberries, bell peppers, broccoli       | Support collagen production for gum health       | 23         |
| Magnesium          | Nuts, seeds, whole grains, leafy greens                   | Works with calcium for bone and tooth health     | 24         |
| Fluoride           | Drinking fluoridated water, tea, seafood                  | Strengthens tooth enamel and prevent decay       | 25         |
| Omega 3 fatty acid | Fatty fish (salmon, trout, sardines), flaxseeds, walnuts  | May reduce inflammation in the gums              | 26         |

## 4. Holistic Oral Wellness: *Ayurvedic* Insights and Practices

### 4.1 What Exactly Does Oil Pulling Entail?

Oil pulling, also referred to as oil swirling, is the practice of moving oil into the mouth to achieve local and overall benefits, much like how we use modern mouthwashes and dental washes. This practice, utilizing edible oils like sunflower, sesame, and coconut, has a historical background, spanning centuries and has been employed for treating and preventing various oral and systemic diseases<sup>27</sup>. Proponents claim that oil swishing could affect about thirty different systemic illnesses, including diabetes mellitus, migraines, headaches, and asthma<sup>28</sup>. Oil pulling has shown significant benefits for oral health when combined with standard dental hygiene procedures. Based on scientific studies, the therapy may lead to a drop in the total number of oral bacteria, a decrease in deposits and gingival infections, and a decrease in dental caries susceptibility, which may range from a considerable to a mild or moderate level<sup>29,30</sup>.

Oil pulling is a Complementary and Alternative Medicine (CAM) treatment that involves moving oil in the oral cavity to benefit both dental and general wellness<sup>31</sup>. This process is useful for a variety of oils, including sunflower and sesame seed oils<sup>32</sup>. Oil pulling, which originated as an ancient Indian folk remedy, has an extensive record of preventing deterioration, dental malodour, gum bleeding, sore throat, and lips that crack while also strengthening the gums, teeth, and jaw muscles<sup>33</sup>.

This therapeutic practice not only acts as a preventive measure but also serves as a remedy. What adds to the allure of this healing ritual is its simplicity. According to *Ayurveda*, the ancient Indian system of medicine, oil gargling is endorsed for purifying the entire system. *Ayurveda* suggests that different areas of the tongue correspond to various organs. The *Ayurvedic* scripture *Charaka Samhita* refers to this practice as *Kavala* or *Gandusha*, affirming its potential to address approximately 30 systemic ailments, such as headaches, migraines, diabetes, and asthma<sup>34</sup>.

### 4.2 Chewing Sticks

*Ayurveda* highly encourages the usage of medicinal brush strokes, which are normally approximately

nine inches in length as well as thick as a little thumb. These medicinal sticks ought to have an “astringent” (*kashaya*), “acid” (*katu*), and “bitter” (*tikta*) flavour. It is recommended to smash one end, eat it, and take one bite at a time<sup>35</sup>. Chewing sticks produced from the raw branches of selected plants are recommended<sup>36</sup>. Neem (*Azadirachta indica*) is a popular herbal alternative. Individuals with *Vata dosha* dominance may have retreating and weakened teeth, depending on their constitution and dosha dominance. For example, liquorice (*Glycyrrhiza glabra*), black catechu, and cutch tree (*Acacia Catechu* Linn.) are indicated as bittersweet or astringent chewing sticks<sup>37</sup>.

People with *pitta dosha* are advised to utilize bitter-tasting toothpicks such as neem tree branches (*Azadirachta indica*) and arjuna tree branches (*Terminalia arjuna*)<sup>38</sup>. Individuals with *kapha dosha* dominance, who are prone to developing pale gingival hypertrophy, should chew on sticks with a strong taste, such as heat nut (*Caesalpinia bonduc*) and widespread milkweed plant (*Calotropis procera*). According to a recent study, chewing sticks with anti-cariogenic and therapeutic properties were mentioned in ancient *Ayurvedic* writings from around 200 years ago<sup>39</sup>.

Southern India uses leaves from mangoes to clean teeth, and the midrib to clean tongues. Sumant *et al.* found that mango leaves are great for dental aid and produced some intriguing outcomes<sup>40</sup>.

According to Islamic hygiene standards, the miswak, a teeth-cleaning stick originating from the *Salvadora persica* tree (also known as the arak or peelu tree), is extremely important<sup>41</sup>. Research on dental recession and the utilization of chewing sticks (*Miswak*) suggests that those who use Miswak may have more gingival recession sites than people who use toothbrushes<sup>42,43</sup>.

### 4.3 Tissue Regeneration

Veda recognizes the well-known renewing plant amla, generated by plant berries, as an entire dental booster. Furthermore, plants such as amla which foster internal healing and the growth of connective tissue, also contribute to gum health<sup>44</sup>. The collagen-stabilizing properties of bilberry and hawthorn berries fortify gum tissue<sup>45</sup>. Liquorice root aids in promoting anti-cavity properties, diminishing plaque, and exhibiting antibacterial effects<sup>46</sup>.



## 5. Conclusion

The incorporation of herbal wisdom into oral care practices offers a holistic approach to maintaining optimal oral health. Traditional herbs such as neem, clove, turmeric, liquorice, *Aloe vera*, peppermint, sage, and tea tree oil have demonstrated potential benefits in preventing and treating various oral issues. These herbs exhibit antimicrobial, anti-inflammatory, and anti-adhesive properties, contributing to their effectiveness against conditions like gum diseases, dental caries, and gingivitis. Additionally, *Ayurvedic* dietary rules emphasize the need for food that contains essential vitamins and minerals such as calcium as well as vitamin D, phosphorus, vitamin K, vitamin C, magnesium, fluoride, and omega-3 fatty acids for supporting dental health. Furthermore, holistic oral care practices, including oil pulling and the use of herbal chewing sticks, align with *Ayurvedic* principles and have shown promising results in reducing oral bacterial count, plaque, and gingival scores. Tissue regeneration is also highlighted, with herbs like amla, bilberry fruit, hawthorn berry, and liquorice root supporting connective tissue healing. While these herbal remedies and practices hold potential, ongoing scientific research is essential to fully validate their efficacy. Nevertheless, embracing a comprehensive approach that combines herbal wisdom, dietary guidelines, and holistic oral care practices can contribute to achieving and maintaining optimal oral health.

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