



# AYUSH in Oral Health and Diseases: An Overview

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## Abstract

“AYUSH” is an abbreviated form for *Ayurveda*, Yoga and Naturopathy, *Unani*, *Siddha*, and Homeopathy. These are the indigenous complementary and alternative medical practices used in India. Oral diseases are significant global health ailments and greatly influence the general life quality. Compromised oral health is connected with numerous systemic chronic diseases. Oral healthcare professionals face many challenges in the management of dental conditions. It is essential for oral healthcare professionals to be abreast of Complementary and Alternative Medicine modalities, as there is a growing need for the amalgamation of these traditional systems with conventional, science-based Dentistry for the holistic management of oral diseases. The present paper highlights the AYUSH medicine systems that can be comprehensively integrated into modern oral healthcare.

**Keywords:** Complementary and Alternative Dentistry, Holistic Dentistry, Integrative Dentistry, Naturopathic Dentistry

## 1. Introduction

With a rise in lifestyle-related diseases, escalating drugs cost and adverse effects associated with modern medicines, there is a global revival of interest in the holistic Complementary and Alternative Medicine (CAM) systems, especially concerning the management and prevention of non-communicable, chronic and systemic disorders. This drift towards other medicine systems is patient-led<sup>1,2</sup>. It is becoming more widely acknowledged that no one medical system can adequately address all of modern society's healthcare needs. There is undoubtedly a need for modern, inclusive, and integrated healthcare

systems that would usher in new healthcare regulations. In this aspect, India is in a favourable position because of its long history of indigenous medical expertise, robust infrastructure, and trained workforce<sup>1</sup>.

“AYUSH is an abbreviated form for *Ayurveda*, Yoga and Naturopathy, *Unani*, *Siddha*, and Homeopathy”. These are the CAM modalities practised in the subcontinent and a few Asian countries<sup>3</sup>. These traditional medicine systems apply holistic approaches. They incorporate herbs, animals, and minerals-based medicines and also use spiritual therapies, manual techniques and exercises, either used alone or in combination for the maintenance of wellbeing, diagnosis, treatment and prevention

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of diseases<sup>4</sup>. The therapeutic benefits of these systems are well recognized and are being practised since time immemorial<sup>5</sup>.

Oral diseases are major health concerns and greatly influence life quality. Bad oral health is connected to numerous chronic and systemic illnesses. Dentists face many challenges in the form of resistance to oral microflora, drug tolerance, opportunistic infections, and adverse effects of conventional treatments. Oral healthcare professionals need to be cognizant of CAM modalities, as there is a growing demand for amalgamation of these safe, effective, economical, preventive and treatment options with the standard, science-based dentistry for the holistic management of oral diseases<sup>6,7</sup>. The present paper throws light on the AYUSH medicine systems that can be comprehensively integrated into modern dentistry.

## 2. Ayurveda

The name 'Ayurveda' which means the "Science of Life" has been derived from the combination of 'Ayu' (life) and 'Veda' (knowledge). It is a traditional system of preventive, promotive and curative healthcare modality originating from the Vedic culture of India. It takes a holistic approach to the physical, psychological, social and spiritual facets of health and diseases in humans. It has been chronicled around 5000 years ago and is presently practised in India and many other countries<sup>1</sup>. Its earliest authoritative works are the *Sushruta Samhita* and *Charaka Samhita*. Dentistry has been covered in the *Shalya-Chikitsa* section of *Ayurveda*<sup>8</sup>. According to estimates, 65% of the Indian rural population use *Ayurveda* and herbal remedies to address their basic medical needs<sup>9</sup>. *Ayurveda* uses substances of plant, animal, marine, metals and minerals origin as raw materials for medicine production. If produced appropriately and used judiciously, *Ayurvedic* drugs are often safe and have few to no known adverse effects<sup>1</sup>.

According to *Ayurveda*, there are three fundamental substances known as the *doshas* or constitutions, called *Vata*, *Pitta*, and *Kapha*. It states that equilibrium of the *doshas* leads to health while an imbalance leads to ailments<sup>10</sup>.

In *Ayurveda*, dental health is called "Danta Swasthya"<sup>11</sup>. It recommends the use of a variety of therapies, including dietary changes, lifestyle adjustments, drugs and therapeutic procedures to strengthen oral tissues and prevent oral ailments<sup>12</sup>. *Ayurveda* advocates daily therapeutic procedures for oral health maintenance such as *Dant Dhavani* (Brushing), *Jivha Lekhana* (Tongue scrapping) and *Gandoosha* (gargling or oil pulling) and tissue regeneration therapies<sup>13</sup>.

"Dant Dhavani": Herbal chewing sticks (*Datun*) are recommended to be used after each meal and in the morning to prevent oral diseases. These sticks are about nine inches in length and about a person's little finger in thickness. One end of it is crushed to resemble toothbrush bristles and then rubbed on teeth surfaces. Commonly used herbal chewing sticks are stems of neem, liquorice, black catechu, arjuna tree, fever nut, milkweed plant and babool<sup>9,13</sup>. These have medicinal, anti-cariogenic<sup>14</sup> and anti-microbial properties<sup>9</sup>.

*Jivha Lekhana*: The tongue scrapper is a handle-equipped, U-shaped metal strip that is 4 - 5 cm wide. It is used to scrape the tongue. Tongue scraping stimulates the tongue reflex points, digestive enzymes secretion; eliminates bacterial flora, bad breath and improves taste sensation<sup>13</sup>.

*Gandoosha*: Oil pulling is an ancient *Ayurvedic* practice which includes oil swishing around in the mouth to improve oral and overall health. It strengthens the teeth, gums, and jaws while preventing dental caries, bad breath, gum bleeding, dryness of mouth, lips and throat. Sunflower or sesame oil are commonly used<sup>13</sup>. It is also stated that oral oil swishing stimulates enzymes and removes toxins from the blood<sup>9</sup>. It is a helpful technique for mouth cleaning when brushing is not possible, for example, in bed-ridden patients and patients with mouth ulcers, nausea, asthma, indigestion, fever and cough<sup>7</sup>. *Ayurvedic* herbs which are useful in dental practice are elaborated in Table 1.

**Table 1.** Ayurvedic herbs useful in the management of oral disorders

Ayurvedic Herbs	Actions	Uses in Oral Diseases
<b>Aloe vera</b> ( <i>Aloe barbadensis</i> Miller)	Antibacterial <sup>13</sup> , antitumor, anti-inflammatory, immunosuppressive, wound healing properties <sup>9</sup> .	Topical remedy for minor cuts, burns, skin and oral infections <sup>9</sup> . Management of oral lichen planus <sup>13</sup> . Component of toothpaste and mouthwashes <sup>15</sup> .
<b>Asgand</b> ( <i>Withania somnifera</i> )	Anti-anxiety	Dental anxiety <sup>13</sup> .
<b>Babul</b> ( <i>Acacia arabica</i> Wild)	Antibacterial action against <i>P. intermedia</i> and <i>P. gingivalis</i> .	Periodontal diseases <sup>13</sup> .
<b>Clove / Launga</b> ( <i>Syzygium aromaticum</i> )	Analgesic, antiseptic, antimicrobial action.	Analgesic in dental caries, general gingival pain, dental abscess, and other gum diseases. Eugenol is an active component and is employed in root canal treatment and temporary restorations <sup>13</sup> .
<b>Datiwan</b> ( <i>Alucita bidentata</i> )	Analgesic, anti-microbial.	Toothache and pyorrhoea. The stem is used as a toothbrush <sup>13</sup> .
<b>Garlic/ Lahsun</b> ( <i>Allium Sativum</i> , Liliaceae)	Anti-bacterial, anti-viral, anti-fungal <sup>13</sup> , anti-carcinogenic, immune strengthening agent <sup>9</sup> .	Dental infections <sup>13</sup> .
<b>Ginger/ Adraka</b> ( <i>Zingiber officinale</i> )	Analgesic, anti-inflammatory <sup>9</sup> .	Toothache <sup>13</sup> .
<b>Gotu kola</b> ( <i>Centella asiatica</i> )	Wound healing property.	Oral ulcers, Periodontal diseases <sup>13</sup> .
<b>Guduchi</b> ( <i>Tinospora cordifolia</i> )	Anti-inflammatory, anti-oxidant, immunomodulator.	Acts as a radioprotector as it improves salivary flow and decreases mucositis severity in patients undergoing radiotherapy <sup>13</sup> .
<b>Honey</b> ( <i>Apis mellifera</i> )	Antibacterial, anti-inflammatory, immunostimulatory activity.	Oral ulcerative lesions <sup>13</sup> .
<b>Indian bdellium gum/ Guggul</b> ( <i>Commiphora mukul</i> )	Anti-oxidant, anti-inflammatory <sup>9</sup> .	Oral infections <sup>13</sup> .
<b>Indian gooseberry/ Amla</b> ( <i>Emblica officinalis</i> )	Well-known Ayurvedic <i>Rasayana</i> herb regarded as a general builder of oral health.	Component of the two widely used ayurvedic preparations, <i>Triphala</i> and <i>Chyawanprash</i> . <i>Triphala</i> is useful in periodontal disease management <sup>9</sup> .
<b>Jasmine</b> ( <i>Jasminum</i> )	Antioxidant, Anti-ulcerogenic.	Odontalgia, periodontitis, ulcerative stomatitis, skin lesions, ulcers <sup>13</sup> .
<b>Kantakari</b> ( <i>Solanum xanthocarpum</i> )	Anti-caries activity.	Dental caries <sup>13</sup> .
<b>Katha</b> ( <i>Acacia catechu</i> )	Analgesic, antibacterial, anti-ulcer, antipyretic.	Wound healing, gingivitis, dental caries, tonsillitis, halitosis <sup>13</sup> .
<b>Lemon /Nimbu</b> ( <i>Citrus limon</i> )	Anti-bacterial property.	Root canal medicament <sup>13</sup> .
<b>Mango leaf/ Aam</b> ( <i>Mangifera indica</i> )	Anti-bacterial action against anaerobic dental microflora.	Used as an adjunct to maintain oral hygiene <sup>13</sup> .
<b>Neem</b> ( <i>Azadirachta indica</i> )	Antioxidant, analgesic, antimicrobial, anti-inflammatory, immune stimulant, antiplaque <sup>13</sup> , anti-cariogenic <sup>15</sup> .	Periodontitis <sup>13</sup> , stems are used for teeth brushing <sup>15</sup> .
<b>Nettle</b> ( <i>Urtica dioica</i> )	Analgesic	Applied to tooth cavities to treat toothache <sup>13</sup> .
<b>Eucalyptus/ Nilgiri</b> ( <i>Eucalyptus globulus</i> )	Antibacterial	Periodontal diseases <sup>13</sup> .
<b>Olive oil</b> ( <i>Olea europaea</i> )	Antibacterial	Periodontal diseases <sup>13</sup> .
<b>Orange oil</b> ( <i>Citrus sinensis</i> )	Solvent	Used in softening <i>gutta-percha</i> and for dissolving endodontic sealer <sup>13</sup> .
<b>Piper cubeba</b> ( <i>Piperaceae</i> )	Antibacterial, anti-cariogenic.	Prevention of dental caries <sup>13</sup> .
<b>Pomegranate/ Anar</b> ( <i>Punica granatum</i> )	Anti-inflammatory, anti-microbial, antioxidant.	Oral inflammation, periodontal diseases, candida-associated denture stomatitis, Management of bleeding gums due to scurvy <sup>13</sup> .
<b>Turmeric/ Haldi</b> ( <i>Curcumin longa</i> )	Antiseptic, antibacterial, anti-inflammatory, pain killer, anticarcinogenic <sup>9</sup> .	Dental caries prevention; dental pain, periodontal diseases, recurrent aphthous ulcers, oral potentially malignant disorders; used as a dental plaque detecting system and pit and fissure sealant <sup>13</sup> .
<b>Tulsi leaves</b> ( <i>Ocimum sanctum</i> )	Antibacterial	Prevention of dental plaque, gingivitis and halitosis <sup>13</sup> .

### 3. Yoga

Yoga is the science and art which includes physical, mental and spiritual practices. The purpose of Yoga is for uniting the mind, body and spirit<sup>16</sup>. The name “Yoga” originates from “Yuj” a Sanskrit root meaning union<sup>17</sup>. Yogic practice in India was recorded as early as 3000 BC<sup>10</sup>. Maharishi Patanjali first chronicled the Yoga philosophy and practice in his classic work - *Yoga Sutras*, which is regarded as the most authoritative treatise on yoga<sup>17</sup>. Yoga is a preventive, curative, rehabilitative and promotive intervention for the overall improvement of health<sup>1</sup>. It focuses on the body, mind and breath through *asanas* (physical postures), meditation and *pranayama* (breathing techniques)<sup>18</sup>. Yoga is known to improve both physiological and psychological parameters, resulting in enhanced stress resilience, well-being and quality of life<sup>19</sup>. Yoga practice has few reported adverse effects and a low risk of serious injury<sup>20</sup>.

The basic healing principles of yoga are: 1) The human body is an integrated system with many interconnected dimensions that are inseparable from one another. 2) Individuals and their requirements are unique and therefore the practices should be tailored accordingly. 3) Yoga is self-empowerment with the healing occurring from within. 4) A person's quality and state of mind play a crucial role in the healing process<sup>17</sup>.

Yoga benefits the practitioners by reducing inflammation, relieving pain, improving the immune and oxidative status and promoting wound healing<sup>19,20</sup>. It prevents stress-related cellular immunity impairment<sup>20</sup>. Thus, yoga is also indirectly supportive in oral disease prevention and oral health preservation<sup>10</sup>. The yogic practices and their uses in dentistry are presented in Table 2.

**Table 2.** Yogic practices and their uses in Dentistry

General Yogic Practices	Oral Uses
	<b>Periodontitis:</b> The role of stress is well established in the inflammatory destruction of the periodontium. Studies have shown a direct impact of Yoga on stress reduction. Thus, Yoga positively affects the treatment outcome and reduces the severity of periodontal diseases <sup>21</sup> .
	<b>Oral cancer:</b> Yoga Intervention influences better outcomes in oral cancer patients <sup>19</sup> .
	<b>Oral psychosomatic disorders:</b> A stressful lifestyle leads to systemic disorders and also oral ailments such as dental caries, periodontal diseases, burning mouth syndrome, autoimmune disorders and xerostomia. Yoga intervention is known for its positive role in stress management and thus improves the disease outcome <sup>19</sup> .
Specific Asanas	Oral Uses
Sirhasana	Stimulates the blood flow to the mouth thus strengthening the jawbones, teeth and preventing periodontal problems <sup>10</sup> .
<i>Shitali</i> and <i>Shitkar Pranayama</i>	<b>Malalignment of teeth:</b> In this practice, the teeth are occluded during breathing to intermittent forces which can result in the correction of mal-aligned teeth <sup>10</sup> .
<i>Sarvangasana</i>	Increases the blood circulation to the mouth thus, preventing oral disorders <sup>10</sup> .
<i>Bhujangasana</i> and <i>Padmasana</i>	<b>Management of work-related musculoskeletal pain in dental practitioners:</b> Dentistry demands prolonged static position with limited mobility thus, makes the practitioners vulnerable to occupational, postural and musculoskeletal problems <sup>16</sup> . Regular practice of <i>Bhujangasana</i> is therapeutic as it tones the entire spine <sup>10</sup> <i>Padmasana</i> is also beneficial as it tones the spine by keeping it erect and flexible <sup>16</sup> .
<i>Khechari mudra</i>	<b>Xerostomia:</b> The breathing technique practised as part of <i>Khechari mudra</i> stimulates saliva production and prevents mouth drying. Yoga positions that involve twists, inversions, and forward bends are also known to increase salivation. <b>Dental caries:</b> Increased saliva secretion reduces caries risk <sup>19</sup> .

## 4. Naturopathy

Naturopathy is an economical, drugless, non-invasive healing system which stimulates the body's inherent power to recover health with the aid of five of nature's great elements - The Earth, Air, Water, Fire and Ether. It advocates "Return to Nature" and living simple in harmony with oneself, community and environment<sup>1,22</sup>. Naturopathy has immense preventive, curative, promotive and restorative potentials. Its effectiveness is well-known in chronic, autoimmune, allergic and psychosomatic diseases<sup>1</sup>. It is a healing approach utilizing "natural" means such as diet and lifestyle. Treatment modalities in Naturopathy are Food, Massage, Chromo, Magneto, Space, Air, Mud, Water, Fire Therapies, Acupressure, etc<sup>22</sup>.

Naturopathy is based on the theories of vitality, enhancing the body's self-healing ability and healthy living<sup>1</sup>. It emphasises restoring health by supporting and strengthening the body's natural internal healing abilities<sup>22</sup>.

Naturopathy is an emerging field in dental medicine<sup>23</sup>. Naturopathic Dentistry, focuses on safe and nontoxic materials for healing support to oral tissues. The core belief is that the body's overall health affects oral health and vice versa. Some naturopathic products are gluten and sulfate-free and are helpful for patients with allergies or sensitivities<sup>22</sup>.

Most Naturopathic dentists avoid Mercury in fillings and also dissuade Fluoride usage in mouthwashes, drinking water and toothpaste. Naturopathic dentists provide conventional services and also manage TMJ disorders, snoring, sleep apnoea and halitosis. Some unconventional techniques involve Electro Dermal Screening (EDS), Contact Reflex Analysis (CRA), Applied Kinesiology (testing utilizing muscles or other indicators), magnets, essentials oils, hypnosis, massage, herbs, homoeopathy, heat and cold therapy, craniosacral manipulation, light therapy, colour therapy, hydrotherapy and aromatherapy<sup>22</sup>. Few Naturopathic remedies and their dental uses are presented in Table 3.

**Table 3.** Naturopathic remedies and their oral uses

Naturopathy Remedies	Uses in Oral Diseases
Rose oil	Dental anxiety.
Combination of 1/3 Peppermint oil, 2/3 ethanol	For headaches. Peppermint is mentally, emotionally and physically invigorating <sup>22</sup> .
Lavender	Reduces dental anxiety <sup>24</sup> . Helps in muscle relaxation and lymphatic drainage when applied on trigger points or muscle "knots", also useful for oral abscesses, burns, sprains, scar prevention and in skin conditions <sup>22</sup> .
Lemon	Works as antiseptic, antiviral and astringent. It helps clean skin. It is also mentally refreshing <sup>22</sup> . Fresh solution of lemon is employed as root canal medicament <sup>25</sup> .
Eugenol (Clove oil)	Toothache sedative <sup>22</sup> .
Myrrh, Rose, Frankincense and Lavender	Management of periodontal infections and gingivitis <sup>22</sup> .
<i>Helichrysum</i>	Useful as an analgesic during periodontal surgery <sup>22</sup> .
Components in natural toothpaste and mouthwashes. a. Baking soda, sea salt, citrus acid b. Zinc oxide, papaya plant extract c. Oils of green tea and peppermint d. Grapefruit seed extract	a. Fight tartar b. Whiten teeth c. Fight bacteria d. Block acids <sup>22</sup> .
Aromatherapy (Oils of lavender, sandalwood, basil, bergamot etc.,)	Beneficial in inducing soothing, calming and relaxing effects <sup>26</sup> .
Hypnosis	Dental anxiety, procedures where anaesthesia is contraindicated <sup>27</sup> .



## 5. Unani

*Unani* medicine is a comprehensive modality providing preventive, curative rehabilitative and promotive healthcare. It is a holistic system which considers the entire individual's personality rather than a reductionist approach toward diseases<sup>28</sup>. *Unani* means "Greek Medicine." It originated during the Greek period and was also developed by the Arabs and Persians into an extensive medicine system. Hence, it is also called as Greco-Arab Medicine<sup>29</sup>. In this system, drugs originating from plant, animal and mineral sources are used<sup>1</sup>.

*Unani* is based on the four humors theory of Hippocrates namely: blood, phlegm, yellow and black bile<sup>29</sup>; and any disruption in these humors' equilibrium causes diseases and therefore the treatment is aimed at re-establishing the humoral equilibrium. Patient

temperament (*Mizaj*) is also given great emphasis both during the diagnosis and treatment of diseases. *Unani* describes four modes of treatment namely: *Ilaj-bil-Tadbir* (Regimental Therapy), *Ilaj-bil-Dawa* (Pharmacotherapy), *Ilaj-bil-Ghidha* (Dietotherapy) and *Ilaj-bil-Yad* (Surgery). The system also encompasses the science of maintaining health (*Hifzän-i Sihhat*)<sup>1</sup>.

Oral diseases are systematically elaborated in *Unani* literature<sup>30</sup>. Similar to *Ayurveda*, *Unani* also advocates daily usage of therapeutic procedures for oral health maintenance such as chewing sticks for teeth brushing. *Unani* practitioners recommend the usage of herbal formulations in their *Usool-e-Ilaj* (*Unani* principles for treatment) for oral health management and disease prevention<sup>31</sup>. *Unani* medicines useful in oral diseases are presented in Table 4.

**Table 4.** *Unani* medicines and their uses in oral diseases

<i>Unani Medicines</i>	<b>Actions</b>	<b>Uses in Oral Diseases</b>
<i>Aqar qarha</i> ( <i>Anacyclus pyrethrum</i> DC)	Analgesic, deobstruent, sialagogue, anti-inflammatory.	Toothache, dental caries, instability of teeth, pyorrhoea, speech stammering, tongue flaccidity <sup>30</sup> .
<i>Aqaqia/ Babool</i> ( <i>Acacia arabica</i> Lam)	Wound healing, astringent, haemostatic, desiccant <sup>30</sup> , anti-plaque and anti-gingivitis <sup>32</sup> .	Oral ulcer, sore throat, teeth weakness, gum bleeding. The stem is used for cleaning the mouth <sup>30</sup> , as a component of toothpaste <sup>32</sup> .
<i>Gile-Armani</i> ( <i>Armenian bole</i> )	Anti-inflammatory, astringent, anti-haemorrhagic, antiulcer, haemostatic, desiccant, antiseptic	Excessive salivation, saliva drooling in sleep, stomatitis, oral septic ulcer <sup>30</sup> .
<i>Filfil e Siyah</i> ( <i>Piper nigrum</i> Linn.)	Sialagogue, anti-inflammatory, analgesic, cleanser.	Xerostomia, toothache <sup>30</sup> .
<i>Rose/ Gul-e-Surkh</i> ( <i>Rosa damascena</i> Mill.)	Anti-inflammatory, antibacterial, deobstruent, exhilarant, astringent, desiccant <sup>30,33</sup> .	Toothache <sup>30</sup> , infections including gingival diseases <sup>33</sup> .
<i>Gulnar Farsi</i> . ( <i>Punica granatum</i> Linn)	Anti-ulcer, analgesic, anti-inflammatory <sup>30</sup> , anti-plaque <sup>34</sup> .	Gingivitis, toothache, halitosis, bleeding gum <sup>30</sup> .
<i>Heel e khurd/ Chhoti ilaichi</i> ( <i>Elettaria cardamomum</i> L (Maton))	Antiseptic, antibiotic properties, anti-inflammatory, exhilarant, mouth freshener, analgesic, antifungal <sup>29,30</sup> .	Toothache, oral candidiasis <sup>30</sup> , oral infections <sup>29</sup> .
<i>Kaat safed</i> ( <i>Acacia catechu</i> Willd)	Astringent, antiseptic, blood purifier, ulcer desiccative <sup>30</sup> , antioxidant, analgesic, antibacterial, antipyretic <sup>29</sup> .	Oral ulcer, teeth and gums weakness, gingivitis, gum bleeding, stomatitis <sup>30</sup> wound healing, dental caries, tonsillitis, halitosis <sup>29</sup> .
<i>Kabab chini</i> ( <i>Piper cubeba</i> )	Anti-inflammatory, antiseptic, mouth refresher, astringent.	Oral ulcer, halitosis, septic gingivitis, septic stomatitis <sup>30</sup> .
<i>Kababa khandan</i> ( <i>Zanthoxylum armatum</i> DC)	Antiseptic, anti-inflammatory, antiulcer.	Gum bleeding, toothache, stomatitis <sup>30</sup> .

**Table 4.** to be continued...

<b>Kafoor</b> ( <i>Cinnamomum camphora</i> )	Analgesic, exhilarant, antiseptic, antipyretic, anti-pruritic.	Toothache, bad breath, stomatitis, pimples in the mouth <sup>30</sup> .
<b>Neem</b> ( <i>Azadirachta indica</i> A. Juss)	Antimicrobial, antiulcer, anti-inflammatory, analgesic, antitumor, immunomodulatory.	Gingivitis, plaque, dental caries <sup>30</sup> .
<b>Miswak/ Peelu</b> ( <i>Salvadora persica</i> Linn)	Anti-inflammatory, anti-cariogenic antifungal <sup>30</sup> , antimicrobial, analgesic <sup>29</sup> .	Candidiasis, gingivitis, plaque, dental caries, gingivo-stomatitis <sup>30</sup> dental hypersensitivity, dental caries prevention <sup>29</sup> .
<b>Podeena</b> ( <i>Mentha arvensis</i> Linn)	Antibacterial, anti-ulcer, antiseptic, antifungal, anti-inflammatory, exhilarant, mouth freshener, antipyretic, anti-haemorrhagic.	Gum inflammatory conditions, oral ulcers, toothache, halitosis, candidiasis, mouth freshener <sup>30</sup> .
<b>Qaranfal/Laung</b> ( <i>Syzygium aromaticum</i> Linn)	Anti-inflammatory, anti-ulcer, antiseptic, sedative, stomachic.	Bad breath, stomatitis, toothache septic gingivitis <sup>30</sup> .
<b>Sandroos</b> ( <i>Trachylobium hornnemannia num</i> Hayne)	Astringent, detergent, anti-ulcer, haemostatic, desiccant, tooth and gums strengthener.	Teeth weakness, gum bleeding, toothache, septic gingivitis, stomatitis pyorrhoea <sup>30</sup> .
<b>Shibb e yamani/Phitkiri</b> (Alum)	Antiseptic, antiseptic, detergent, astringent, gums and teeth strengthener, anti-inflammatory, anti-ulcer.	Stomatitis, sialorrhea, teeth weakness, gum bleeding, gums and teeth inflammatory conditions <sup>30</sup> .
<b>Sumaq</b> ( <i>Rhus coriaria</i> Linn.)	Astringent, repellent, antiseptic, styptic, sedative.	Stomatitis, septic gingivitis, pyorrhoea <sup>30</sup> .
<b>Sumbul-ulteeb</b> ( <i>Nardostachys jatamansi</i> DC)	Anti-inflammatory, resolvent, detergent, mouth freshener, cicatrizant, desiccant.	Toothache, halitosis <sup>30</sup> .
<b>Tabasheer</b> ( <i>Bansalochan</i> ) ( <i>Bambusa bambos</i> Druce)	Exhilarant, desiccative, astringent, refrigerant, anti-inflammatory, antidote, styptic.	Oral ulcers, oral inflammatory conditions, bleeding gums, stomatitis <sup>30</sup> .
<b>Mur makki</b> ( <i>Commiphora myrrh</i> Linn)	Analgesic, antibacterial, astringent, anticancer.	Gingivitis, halitosis, chapped lips, mobile teeth, soreness, swelling, canker sores <sup>29</sup> .
<b>Kulanjan</b> ( <i>Greater Galanga</i> )	Antibacterial, antifungal, antiprotozoal, antiallergic, antitumor, antiulcer.	Oral cancer, halitosis <sup>29</sup> .
<b>Kulzam</b>	Analgesic, anti-inflammatory, antibacterial, antifungal, antioxidant, immunomodulatory agent.	Popular <i>Unani</i> formulation used for several ailments including oral problems <sup>35</sup> .
<b>Majoon suranjan</b>	Disease-modifying properties.	Polyherbal formulation used for dental and related pain <sup>29</sup> .

## 6. Siddha

*Siddha* is a time-honoured Indian traditional medicine system which emerged 2000 years ago in Tamil Nadu. The word 'Siddha' is achievement and 'Siddhars' are those who have achieved perfection in Medicine<sup>1</sup>. Agasthiyar is regarded as the 'Hippocrates of Siddha medicine'<sup>36</sup>.

The basic principle of *Siddha* is similar to *Ayurveda*. According to this system, there are five elements (*Aimpoatham*): Earth, water, fire, air and space; three

humors (*Mukcuttram*): *Vatha*, *pitha* and *kapha*. The humoralequilibrium is considered health and its disruption results in diseased states. There are eight methods of examination (*Envakai Thervukal*): Examination of the tongue, eyes, body colour, study of voice, touch, stools, urine and pulse which determine the diagnosis, aetiology, treatment and prognosis. According to *Siddha*, lifestyle and diet play a central role in health and also in healing illnesses. This concept is known as *pathya* and *apathya*, which essentially is a dos and don'ts list<sup>37,38</sup>.

108 herbs collectively called 'Karpa mooligaigal' are predominantly utilized in *Siddha*, for curing diseases including oral conditions. Most of the *Siddha* recommended herbs possess anti-inflammatory, anti-microbial, anti-tumour, anti-plaque, anti-cariogenic, analgesic anti-stress and rapid healing properties<sup>36</sup>.

Various tooth powders are prescribed in *Siddha* literature which include: Powdered burnt bark of *Acacia arabica* and burnt almond shell mixed with salt; Dried and powdered tender leaves of *Melia azadirachta*; *Thriphala chooranam* composed of powdered *Kadukkai* (*Terminalia chebula*), *Nellikai* (*Embelica officinalis*) and *Thandrikai*

(*Terminalia belerica*) in equal quantity; Powdered dried leaves of *puthina* (*Mentha arvensis* L); Powdered bark of *Terminalia arjuna* and *Kalnar parpam* (Calcium silicate)<sup>39</sup>.

Some *Siddha* remedies which are used in the management of oral disorders are *Peekaruvil* (*Acacia farnesiana* Linn. willd.), *Thuvarai* (*Cajanus cajan* Linn. Millsp), *Alamarum* (*Ficus benghalensis* Linn.), *Shemmuli* (*Barleria prionitis* Linn.), *Mozhukupirkankai* (*Luffa cylindrical* M. Roem), *Palvalipoondu* (*Spilanthes calva* DC) and *Vaagai* (*Albizia lebbek* Benth)<sup>40</sup>. Table 5 presents the *Siddha* medicines and their dental uses.

**Table 5.** *Siddha* medicines and their oral uses<sup>41</sup>

<b>Siddha Medicines</b>	<b>Actions</b>	<b>Uses in Oral Diseases</b>
<b>Manjal poo chedi</b> ( <i>Spilanthes acmella</i> Murr)	Local anaesthetic, antipyretic.	Toothache.
<b>Thotta sinungi</b> ( <i>Mimosa pudica</i> Linn)	Wound healing capacity, antimicrobial property mainly against gram-positive bacteria.	Oral wounds and ulcers.
<b>Chukuti chedi</b> ( <i>Solanum nigrum</i> Linn)	Anti-secretory action reduces gastrin secretion.	Oral ulcers.
<b>Vata or Vada tree</b> ( <i>Ficus bengalensis</i> Linn)	Anti-inflammatory, Antibacterial, antitumour.	Fractured bones.
<b>Kundumani</b> ( <i>Abrus precatorius</i> Linn)	Antioxidant, anti-inflammatory, analgesic.	Dentifrice, strengthening of gums and teeth.
<b>Semparuthi</b> ( <i>Hibiscus rosa sinensis</i> Linn)	Cooling effect, astringent.	Burning sensations of mouth, young stem used as a toothbrush.
<b>Karunelii</b> ( <i>Kirganelia reticulate</i> Baill)	Bactericidal.	Bleeding gums, stems are used as a toothbrush.
<b>Mahila</b> ( <i>Mimusops elengi</i> Linn)	Anti-inflammatory.	Inflammatory swellings, traumatic ulcerations, gingival abscesses, periodontal infections.
<b>Thandrikai</b> ( <i>Terminalia bellirica</i> Roxb)	Antioxidant, antibacterial, free radical scavenging, analgesic, antimicrobial.	Periodontal and pulpal infections.
<b>Nuna/ Noni</b> ( <i>Morinda citrifolia</i> )	Antibacterial, antiviral, antitumor, analgesic.	TMJ Ankylosis, toothache, muscle ache, oral cancer, aphthous ulcer, recurrent stomatitis.
<b>Sitaphalam</b> ( <i>Annona squamosa</i> )	Antibacterial, antimicrobial, antitumour.	Periodontal abscess, dry socket, gingival bleeding, wound healing, oral cancers.
<b>Velaippapolam</b> ( <i>Commiphora myrrha</i> )	Anti-inflammatory, analgesic.	Diseases associated with inflammatory pain.
<b>Sivakarantjai</b> ( <i>Sphaeranthus amaranthoides</i> Burm)	Rejuvenator herb of <i>Siddha</i> system.	Burns, latex allergies, leukoplakia, erythroplakia, oral submucous fibrosis.
<b>Bhasma</b> (Metal-based herbal medicines) <sup>36</sup>	Antibacterial.	Oral bacterial infections.



## 7. Homeopathy

The term 'Homeopathy' originates from the Greek 'homoios', meaning similar and 'pathos' meaning sickness<sup>42</sup>. Samuel Christian Friedrich Hahnemann, a German physician in the 1800s formulated the Homeopathy theory<sup>43</sup>. It has a holistic view of health and believes that every disease has basic causes that the homeopathic remedies focus on<sup>44</sup>. The remedies are derived from plants, animals, minerals and unhealthy tissues<sup>42</sup>.

Homeopathy is based on the following laws:

- The law of similar: According to this like shall be cured by like; i.e., the remedy for a disease is a substance that produces similar disease in healthy individuals.
- The law of single remedy: According to this, the drug prescribed must be a single substance and not a mixture of different substances.
- The law of minimum dose: A substance when administered in a minute dose will cure illness in a sick individual but when administered in larger doses to a healthy individual produces the disease.

- Concept of Vital Force: Homeopathy believes in the vital force existence in the body which is responsible for various life manifestations, and derangement of this force leads to diseases. The vital force must be restored to normal for the disease to be cured<sup>43</sup>.

The rationale for consideration of homeopathic remedies in Dental practice is: to manage dental phobias; to provide treatments that work along with mainstream medicine; prevention or inhibition of disease processes and management of oral conditions with a holistic approach<sup>42</sup>. Homeopathic medicines are particularly useful in managing simple mild toothache to more complex and chronic conditions that are difficult to treat such as atypical facial pain, post-extraction osteitis, burning mouth syndrome and dental anxiety<sup>45</sup>. It is also an effective adjunct during oral surgery in reducing associated inflammation, bleeding and pain<sup>42</sup>. Homeopathic medicines can be taken together with allopathic drugs without causing any interaction between them<sup>46</sup>. The homeopathic drugs useful in treating dental conditions are presented in Table 6.

**Table 6.** Homeopathic drugs useful in the treatment of oral conditions<sup>7,42,43</sup>

Homeopathic Drugs	Uses in Oral Diseases
<i>Aconite</i> and <i>Gelsemium</i>	Dental anxiety
<i>Arnica</i>	Inflammation, trauma
<i>Hypericum</i>	Nerve pain
<i>Chamomilla</i> , <i>Antimonium crudum</i> , <i>Aranea diadema</i> , <i>Calcarea carbonica</i> , <i>Belladonna</i> , <i>Magnesia phosphorica</i> , <i>Coffea cruda</i>	Toothache
<i>Calc carb</i>	Delayed eruption of teeth
<i>Chamomilla</i>	Local anaesthesia antidote
Silica: Causes exfoliation of any root fragments or bone splinters following surgical extraction of teeth. <i>Staphysagria</i> : Useful when incision of soft tissues is required. <i>Arnica</i> , Phosphorous: To control bleeding following oral surgical procedures	Oral surgery
<i>Arnica</i> , <i>Ferrum phos</i> , <i>Lachesis</i>	Bleeding
<i>Belladonna</i> , <i>Coffea</i>	Dry socket
<i>Borax</i> , <i>Merc col</i>	Apthous ulcers
<i>Hypericum</i> : Has nerve injury healing property	Post cavity filling
Magnesium, Phosphorus or <i>Causticum</i>	Trismus
<i>Ruta</i>	Valuable in patients undergoing orthodontic treatment

**Table 6.** to be continued...

<i>Chamomilla, Hypericum</i>	Teething problem
<i>Merc sol</i>	Used for eliminating mercury from the body whenever amalgam fillings are removed
Graphites, Petroleum, <i>Rhus toxicodendron</i> and <i>Arsenicum album</i>	Oral herpes
<i>Arum triphyllum, Calcrea flourica, Rhus Toxicodendron, Phytolacca</i>	TMJ disorder
<i>Arnica, Hypericum, Mercurius solubilis</i>	Gingivitis
<i>Merc sol</i> , Phosphorus	Periodontitis
<i>Belladonna</i>	Bruxism
<i>Hypericum and Calendula tinctures (Hypercal)</i>	Abrasions
<i>Carboveg with Merc sol</i>	Halitosis
<i>Aconite, Ignatia, Aranea diadema, Lachesis, Lycopodium, Sanguinaria</i>	Trigeminal nerve-related diseases
<i>Belladonna, Hepar sulphuris calcareum, Silicea, Myristica, Calendula</i>	Abscesses
Phosphorus	Sialorrhea
<i>Borax</i>	Oral mucosal lesions (Apthous ulcers, oral lichen planus, candidiasis)
<i>Kreosotum</i>	Dental caries prevention
<i>Natrum muriaticum</i>	Diseases of lip and mouth (cold sores, fever blisters, angular cheilitis)

## 8. Discussion

The relevance of AYUSH in the present healthcare perspective is that it can be promising alternatives in the rural healthcare system as many parts of rural India lack modern healthcare facilities<sup>47</sup>. These modalities also have immense potential as preventive therapies. Daily regimens to maintain health and prevent diseases have been described in many of these systems. They help treat pre-disease conditions and it has been proven that timely interventions in prediabetic and pre-hypertensive conditions with alternative medicines can result in disease regression and restoration of health. These modalities use the body's healing mechanisms and have been very useful in managing chronic or untreatable diseases. They can bring about a rejuvenation of the body both physically and mentally with elaborate treatments being described to improve the quality of life by improving tissue quality and reducing age-related tissue degeneration. They can be used as gentle therapy of choice during pregnancy, lactation and childhood. They also have great potential in the management of mental health conditions<sup>48</sup>.

There are several advantages of AYUSH modalities. With the current concerns of side effects of mainstream medicines including opportunistic infections and antibiotic resistance; these systems could be a boon due

to their therapeutic advantages, safety and efficacy<sup>4</sup>. Better patient compliance can be expected particularly in paediatric patients when compared to conventional pharmaceutical therapy<sup>49</sup>. These modalities have a holistic perspective and deal with the patient's mind, body and spirit rather than focusing only on the disease. Most of these therapies have a non-invasive approach; there is ease of accessibility, especially in rural parts and they are economical compared to conventional medical practices<sup>7</sup>.

However, AYUSH modalities have certain limitations such as they typically lack scientific validation and are generally based on tradition, belief in supernatural energies, religion and pseudoscience; scientific research on alternative medicine is few and frequently of poor quality; they might exhibit adverse reactions in combination with conventional therapies<sup>10</sup>; toxicity associated with traditional medicines is not well documented. In case of emergencies such as cardiovascular accidents, trauma, shocks, acute conditions, urgent conventional medical attention is non-negotiable. Conventional medical treatments are necessary for some conditions that cause irreversible structural changes such as fractures, thrombosis, traumas, wounds, foreign bodies, deep caries, tumours, cysts, stones, epilepsy, advanced malignancies, nutritional, vitamin deficiencies etc<sup>49</sup>.

In the current era of modern medicine, it is equally vital for healthcare professionals to have sound knowledge regarding other alternative medical practices. A holistic perspective toward managing patients with an integrative medicinal approach is the way forward. It is crucial to approach alternative medicine with a scientific mindset: Sceptical and critical, but also open to new knowledge. Healthcare workers must be able to imbibe popular knowledge, update it and integrate it into modern medicine for the greater good of the population<sup>50</sup>. More training programmes, collaborations and communication between providers of conventional and traditional medicines is also imperative<sup>15</sup>.

The justification for the integration of *AYUSH* modalities with conventional oral healthcare should be achieved through evidence-based practices and scientific validation. Countries with a rich heritage of traditional medicine should support and integrate them into national healthcare policies. The concerned authorities should develop policies and guidelines to regulate and monitor alternative medical practices to instil confidence in all the stakeholders. It is imperative to ensure the safety of patients<sup>7</sup>. It is equally essential for the general population to be made aware of accurate information about alternative modalities, their benefits and limitations and they should be empowered to make the right decisions regarding their health and wellbeing.

## 9. Conclusion

The traditional wisdom of *AYUSH* in combination with modern dental practice will transform Dentistry into an accessible, affordable, effective and much safer system and facilitate holistic management of oral health. Further, systematic exploration and integration of *AYUSH* modalities into Dentistry will lead to the development of novel preventive and therapeutic oral health strategies, thus ushering in a new era of Integrative Dentistry which will unite the best practices from both traditional and contemporary medicine systems.

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