



# Unconventional Dentistry in India – An Insight into the Traditional Methods

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## ABSTRACT

Unconventional medicine (UM) has been known and practised since the recorded history of civilization. Some unconventional practices may be viewed as “the continuity of traditions, religious beliefs, and even quackery that non-specialists practice.” These practices have been associated with religious beliefs and the spiritual domain as well as with the physical domain. In ancient Old World civilizations, UM was performed by skilled experts or wise men; in today’s Western civilization, practitioners may or may not be licensed, and some are charlatans. Dentistry, like medicine, is a traditional, science-based, highly regulated healthcare profession that serves increasingly sophisticated and demanding clients. Today, traditional dental practice is dealing with an array of challenges to the established professional system; these challenges are generally termed “alternative” (or complementary, unconventional, or integrative). Genuine alternatives are comparable methods of equal value that have met scientific and regulatory criteria for safety and effectiveness. Because “alternative care” has become politicized and is often a misnomer – referring to practices that are not alternative to, complementary to, or integrating with conventional health care – the more accurate term “unconventional” is used.

**Key words:** Alternative medicine, Ayurveda, Dental, Herbal, Unconventional

## INTRODUCTION

### Overview of Indian healing traditions in India

Human populations have migrated to the Indian subcontinent since prehistoric times as evidenced by the archaeological and modern genetic findings. Even the earliest settlers had knowledge of the medicinal value of plants and other substances and their uses. The vast amount of medical knowledge that has come down to modern times is the result of long evolution through trial and error and exchange of know-how between diverse communities and regions. Today, the traditional medical practices are being obliged to accommodate to the norms of modern biomedicine as the awareness grows among the scientific community and general

public as to the intrinsic value of traditional medicine. As a result of these exchanges and assimilations, Ayurveda, Unani, and Siddha have entered the mainstream to compliment biomedicine, giving a more holistic approach to patient management. The challenge is to integrate the best of the different healing traditions to meet the healthcare needs of the contemporary society.<sup>[1,2]</sup>

Excavations at different sites suggest that medical interventions such as dentistry and trepanation were practiced as early as 7000 BCE in the Indian subcontinent. Organized forms of agriculture practiced by the people of the Indus civilization, the importance they gave to certain medicinal plants and trees, and the emphasis on hygiene and water sanitation suggest an advanced awareness of health management.<sup>[3]</sup>

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DOI: 10.4103/2225-4110.130951

## Unconventional dentistry

Unconventional medicine (UM) has been known and practised since the recorded history of civilization. Some unconventional practices may be viewed as “the continuity of traditions, religious beliefs, and even quackery that non-specialists practice.”<sup>[1]</sup> These practices have been associated with religious beliefs and the spiritual domain as well as with the physical domain. In ancient Old World civilizations, UM was performed by skilled experts or wise men; in today’s Western civilization, practitioners may or may not be licensed, and some are charlatans. Dentistry, like medicine, is a traditional, science-based, highly regulated healthcare profession that serves increasingly sophisticated and demanding clients. Today, traditional dental practice is dealing with an array of challenges to the established professional system; these challenges are generally termed “alternative” (or complementary, unconventional, or integrative). Genuine alternatives are comparable methods of equal value that have met the scientific and regulatory criteria for safety and effectiveness. Because “alternative care” has become politicized and is often a misnomer – referring to practices that are not alternative to, complementary to, or integrating with conventional health care – the more accurate term “unconventional” is used.

## Use of herbal products

The term “medicinal plant” is not a taxonomic term, but is based on the utility of the plants. Any plant used in any system of medicine can be categorized as a medicinal plant. In spite of the tremendous progress in the development of medical science, plants continue to be an important source of drugs in many countries around the world. During the past two decades, reliability and usage of herbal product has become of increasing importance due to the side effects and complications of many chemical and synthetic medicines. About 25% of drugs are derived from plants and many others are formed from prototype compounds isolated from plant species.<sup>[4]</sup> Kanwar et al.<sup>[5]</sup> reported that about 2 million traditional health practitioners use over 7500 medicinal plant species.

A lot of research has been carried out on the utilization of medicinal plants in the treatment of a variety of ailments,<sup>[5-10]</sup> especially during the last two to three decades. As a result, the commercial use and exploitation of these herbal medicines has increased markedly as pointed out in the detailed review by Joshi.<sup>[11]</sup> However, there are only a few reports on the utility of medicinal plants in the treatment of specific diseases. For example, Sadangi et al.<sup>[12]</sup> have reported 10 species of medicinal plants used in the treatment of ear and mouth diseases by the tribal people of Kalandhandi district, Jadhav<sup>[13]</sup> has documented 15 species of medicinal plants used in different types of fever, while Kadel and Jain<sup>[14]</sup> reported that 34 plant species are being used for the treatment of snakebite in Madhya Pradesh and Chhatisgarh states.

Teeth are very hard but sensitive organs which are implanted in the jaw bones. They not only help in the biting and grinding of food but also aid speech. Any malfunctioning of the teeth or a disease of the gums disturbs the process of digestion. Lack of oral hygiene and an excess of fleshy food and sweets harm our teeth by causing pyorrhea, toothache, bleeding gums, and dental caries. The use of medicinal plants to treat dental problems has been discussed from time to time by many researchers, viz. the use of *Argemone*

*mexicana*, *Azadirachta indica*, and *Ocimum basilicum* (羅勒 Luó Lè) in dental health care has been reported by Singh and Dhakre,<sup>[9]</sup> while the use of *Hedychium spicatum* and *Zanthoxylum armatum* (花椒 Qín Jiāo) has been reported by Arya and Prakash.<sup>[10]</sup> Acharya et al.<sup>[15]</sup> have reported 26 herbal medicines used to treat dental diseases. In addition, Kanwar et al.<sup>[2]</sup> have reported the use of *Achyranthes aspera* (土牛膝 Tǔ Niú Xī), *Aegle marmelos*, and *Vitex negundo* (黃荊 Huáng Jīng) in dental care by the locals of Kangra district, and Tomar<sup>[13]</sup> has reported the use of six species of plants by the local people of Meerut district (India) to treat dental caries. Sharma and Joshi<sup>[4]</sup> have reported the use of 30 species of medicinal plants in Almora district, with 5 of these plant species being used by the local people for dental health care [Table 1].<sup>[16]</sup>

## TRADITIONAL ORAL HYGIENE HABITS

Although the importance of dental plaque control was not fully understood, traditional oral hygiene devices were intended not only to cleanse the oral cavity but also to arrest periodontal disease.

Cool tea leaves were used to alleviate heat in the gingiva (thought to be related to stomach heat). Herbs that are commonly used include lotus leaves, tea polyphenols, *Radix Zanthoxyli*, and *Flos Lonicerae*.<sup>[17]</sup>

Some of these traditional products have been subjected to *in vitro* and *in vivo* studies to assess their effectiveness. An extract of lotus leaves demonstrated significant antibacterial activity against some of the more common putative periodontopathogens such as *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, and *Fusobacterium nucleatum*.<sup>[18]</sup> Tea polyphenols such as catechins have been shown to have an inhibitory action on the virulence factors of both *Prevotella intermedia*<sup>[19]</sup> and *Po. gingivalis*.<sup>[20]</sup> In addition, epigallocatechin has been reported to inhibit matrix metalloproteinase activity, osteoclast formation,<sup>[21,22]</sup> and osteoclast activity.<sup>[23,24]</sup> A local drug delivery system utilizing Green tea (綠茶 Lǜ Chá) catechin has been shown to be effective in improving clinical periodontal parameters.<sup>[25]</sup> A direct relationship has also been proposed between the intake of Green tea and periodontal status.<sup>[26]</sup>

## Chewing sticks

The most commonly used chewing sticks are obtained from neem, mango (*Mangifera indica* (芒果 Máng Guǒ)), babul (*Acacia arabica*), and guava (*Psidium guajava* (番石榴 Fān Shí Liú)). Miswak (*Salvadora persica*) remains popular as a chewing stick, especially among Muslim communities in the Indian sub-continent and the Middle East.<sup>[27]</sup> It has been reported that chewing sticks may be as effective as toothbrushes in the mechanical removal of plaque,<sup>[28-31]</sup> but this evidence is not conclusive.<sup>[32]</sup> Chewing sticks are thought to increase salivation, and thereby assist in flushing out of oral microorganisms. Miswak has been shown to have antibacterial effects against early colonizers in plaque, such as streptococci, and possibly against the periodontopathogen *Po. gingivalis*.<sup>[33]</sup> This effect is thought to be partly mediated by the tannins and thiocyanate released during chewing of this stick. The thiocyanate released in this manner is thought to be capable of activating the salivary H<sub>2</sub>O<sub>2</sub>/peroxidase/thiocyanate system, thereby exerting potent antibacterial effect.<sup>[34]</sup> Mango contains

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