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Anti-Toothache Medicinal Plants in Ethnobotanical Knowledge

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A B S T R A C T

Objective: Toothache, often caused by tooth decay, cracks, or sensitivity to temperature, is one of the most distressing types of pain. Medicinal plants have long been used in traditional medicine and ethnobotanical knowledge for treating toothache. This study aims to identify medicinal plants used in Iranian ethnobotanical practices to alleviate toothache.

Methodology: In this review, articles were searched using keywords such as medicinal plants, Iran, tooth, toothache, and ethnobotany. Databases including Google Scholar, SID, Magiran, PubMed, and Scopus were utilized for the search. Relevant ethnobotanical articles were reviewed for this study.

Results: Medicinal herbs such as *Origanum vulgare, Papaver somniferum, Mentha aquatica L., Mentha spicata L., Ferula persica Willd, Glycyrrhiza glabra L., Perovskia abrotanoides Kar., Dianthus caryophyllus, Viola odorata, Astragalus verus, Zingiber officinale, Allium sativum, Thymus danensis* are identified as the most effective plants against toothache in traditional medicine.

Conclusion: Iran's diverse herbal flora and rich ethnobotanical knowledge offer valuable insights and resources for the treatment of toothache. The findings of this study highlight the importance of incorporating this traditional knowledge into pharmacological research to develop effective anti-toothache. drugs.

Keywords: Tooth, Toothache, Traditional Medicine, Ethnobotany, Medicinal Plants, Treatment, Iran

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Introduction

Oral health is an integral component of overall well-being, contributing significantly to both physical and psychological health [1]. Beyond preventing oral diseases, it is increasingly recognized as a crucial factor in maintaining systemic health and enhancing self-esteem [2]. The intricate structure of the tooth, comprising enamel, dentin, cementum, and pulp, underscores its complex role in oral function and protection [2].

Toothache constitutes a potential indicator of severe dental or periodontal pathology, necessitating prompt and appropriate intervention to mitigate complications and maintain quality of life [3]. The etiology of toothache is multifaceted, encompassing dental caries, gum infections, tooth fractures, and pulpal inflammation [4].

The integration of medicinal plants into healthcare regimens has emerged as a complementary approach for symptom management and overall well-being. While their therapeutic potential is recognized, medical supervision is essential to ensure safety and efficacy [5]. Certain botanicals, including mint, clove, and green tea, possess oral health benefits such as reduced gingival inflammation and halitosis [6]. Traditional medicine has a rich history of utilizing medicinal plants for toothache relief; however, indiscriminate use may precipitate adverse effects, necessitating a cautious and informed approach [7].

The aim of the present study is to identify medicinal plants used in Iranian ethnobotanical knowledge for the treatment of toothache.

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Methodology

A literature search was conducted to identify ethnobotanical knowledge pertaining to the use of medicinal plants for toothache management in Iran. Relevant articles were retrieved from multiple databases, including Google Scholar, SID, Magiran, PubMed, and Scopus, using the keywords "medicinal plants," "Iran," "tooth," "toothache," and "ethnobotany."

Results

Generally, the medicinal plants such as Origanum vulgare, Papaver somniferum, Mentha aquatica L., Mentha spicata L., Ferula persica Willd, Glycyrrhiza glabra L., Perovskia abrotanoides Kar., Dianthus caryophyllus, Viola odorata, Astragalus verus, Zingiber officinale, Allium sativum, Thymus danensis and etc. are among the most important herbal remedies used in traditional Iranian medicine for toothache. Additional information regarding herbal remedies for toothache can be found in Table 1.

Table 1: Medicinal Plants Effective for Toothache in Ethnobotany of Iranian

Scientific name	Herbal family	Plant name	Organ used	Potential Mechanisms for Relieving Tooth Pain	Study area
Origanum vulgare	Labiatae	Marzanjoush	Aerial parts	Anti-inflammatory and analgesic properties	Arasbaran, East Azerbaijan [8]
Papaver somniferum	Famariaceae	Khashkhash kouhi	Aerial parts	Analgesics; inhibits pain pathways in the CNS.	Urmia, West Azerbaijan [9]
Mentha aquatica L.	Lamiaceae	Poneh Abi	Leaf, Flower	A cooling sensation and reduces nerve response to pain.	Amol, Mazandaran [10]
Mentha spicata L.	Lamiaceae	Poneh sonbolei	Leaf, Flower	Analgesic and anti-inflammatory effects	Amol, Mazandaran [10]
Ferula persica Willd	Apiaceae	Fruleh	Aerial parts	Anti-inflammatory and analgesic properties.	Razojergalan, North Khorasan [11]
Glycyrrhiza glabra L.	Fabaceae	Shirinbian sosouk	Root	Reduces inflammation and soothes mucous membranes	Razojergalan, North Khorasan [11]
Perovskia abrotanoides Kar.	Lamiaceae	Brazembel	Aerial parts	Antioxidant and antiinflammatory properties.	Razojergalan, North Khorasan [11]
Dianthus caryophyllus	Caryophyllaceae	Mikhak	Flower	A natural anesthetic and anti-inflammatory agent.	Sarein, Ardabil [12]
Viola odorata	Violaceae	Banafsheh	Flower	Mild analgesic and anti-inflammatory effects.	Ajabshir, East Azerbaijan [13]
Astragalus verus Olivier.	Fabaceae	Gavan khardar	Flower, Resin	Anti-inflammatory effects.	Golestan [14]
Dianthus caryophyllus L.	Caryophyllaceae	Mikhenag	Seed	Pain relief by numbing the nerves and reducing inflammation	Golestan [14]

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Zingiber officinale L.	Zingiberaceae	Zangabil	Aerial parts	Anti-inflammatory and analgesic effects.	Meshkin shahre, Ardabil [15]
Allium sativum L.	Amaryllidaceae	Sir	Bulb	Allicin provides antimicrobial properties; may help prevent tooth infections.	Meshkin shahre, Ardabil [15]
Corcuma longa	Zingiberaceae	Zadjoubeh	Rhizome	Anti-inflammatory and analgesic effects	Meshkin shahre, Ardabil [15]
Thymus danensis	Laminaceae	Avishan	Aerial parts	Antimicrobial, anti-inflammatory, and analgesic effects.	Meshkin shahre, Ardabil [15]

Discussion

Toothache constitutes a prevalent health problem with a substantial negative impact on quality of life. Iran, with its rich ethnomedicinal heritage, offers a valuable context for exploring the traditional use of medicinal plants for dental pain relief. Ethnobotany provides a framework for investigating the intricate relationship between humans and plants, offering insights into indigenous knowledge and practices [6].

Syzygium aromaticum, commonly known as clove, has a longstanding reputation for its analgesic properties, specifically in the management of toothache [17]. Clove oil, a potent antiseptic, contributes to the reduction of dental infections [18]. Ginger, renowned for its anti-inflammatory actions, offers potential relief from the inflammation and pain associated with dental conditions. Both ginger tea and extract can be utilized for analgesic purposes [19]. Garlic, with its established antimicrobial and anti-inflammatory properties, has been traditionally employed for toothache management. Topical application of garlic cloves is often advocated for rapid pain alleviation [20]. Chamomile, known for its sedative and anti-inflammatory effects, can mitigate both dental pain and associated anxiety [21]. Turmeric, with its inherent anti-inflammatory and antioxidant attributes, promotes oral health and can be topically applied in combination with coconut oil for pain relief [22]. Thyme, possessing antimicrobial properties, aids in infection control and pain reduction, and can be utilized as a mouthwash [23]. Cinnamon, with its antimicrobial actions, offers potential benefits in managing dental infections and pain. A combination of cinnamon powder and honey is often recommended as a topical analgesic [24]. The analgesic mechanisms of these medicinal plants predominantly involve anti-inflammatory, analgesic, and antiseptic properties, contributing to the reduction of inflammation and pain throughout the body [24].

Conclusion

Traditional Iranian medicine offers a wealth of knowledge regarding medicinal plants and their therapeutic applications. This study highlights the potential of these plants in managing toothache. While ethnobotanical insights provide valuable information, it is imperative to emphasize the importance of professional dental care for comprehensive treatment.

Statements and Declarations

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Competing interests

The authors have no competing interests to declare that are relevant to the content of this article.

Ethics approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Urmia University of Medical sciences, Urmia, Iran.

Consent to participate

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

Author contributions

AGH: Conceptualization, the original draft writing, investigation, writing including reviewing and editing and investigation and formal analysis; RL: Conceptualization, supervision, and project administration; RL and AGH:

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