



TREATMENT OF ORAL ULCERS USING MYRISTICA FRAGRANS (NUTMEG), AN HERBAL MEDICINE– A REVIEW ARTICLE

Dr. Tharani Kumar S^{1*}, Saikat Bera², Dr. P. Anu Sudha³, Dr. Ajay Chandran⁴,
Dr. Nachiappan S⁵

^{1*}ASSOCIATE PROFESSOR, Department of Oral and Maxillofacial surgery

²BDS INTERN, Department of Oral and Maxillofacial surgery

³Associate professor, Department of Oral and Maxillofacial surgery

⁴PROFESSOR, Department of Oral and Maxillofacial surgery

⁵ASSOCIATE PROFESSOR, Department of Oral and Maxillofacial surgery

***Corresponding Author:** Dr. Tharani Kumar S

*MDS ,PHD ,Associate professor, Department of Oral and Maxillofacial surgery, SATHYABAMA DENTAL COLLEGE AND HOSPITAL, CHENNAI

Abstract:

Myristica fragrans, commonly known as nutmeg, has been shown to have many medicinal properties including reduction of plaque and oral halitosis. Myristica fragrans is a spice belonging to the family Myristicaceae. It has been cultivated throughout the world and used for food flavouring, essential oil applications and in traditional medicines. Mostly nutmeg contains terpenes and phenylpropenes. Chemical composition of these constituents varies due to different cultivation conditions. Nutmeg is considered as essential ingredient of numerous industrial applications ranging from food to cosmetics. Its pharmaceutical products are also important due to its antioxidant and antimicrobial properties. More uses and applications of nutmeg by-products are continuously added. Nutmeg is used as a constituent in preparations of medicines such as for dysentery, flatulence, stomach-ache, nausea, vomiting, rheumatism, sciatica, malaria and early stages of leprosy.

Keywords: Myristica fragrans, Oral ulcers

Introduction:

Herbal medicine have been used for centuries to treat various ailments, including oral ulcers, digestive issues, anxiety, depression, strengthening the immune system, pain relief (Traditional indian spices). Some herbs that may help relieve symptoms of oral ulcers include:

Myristica fragrans: Has anti-inflammatory properties, antioxidant and antimicrobial properties reduces inflammation

Ginger: Has anti-inflammatory properties that help reduce inflammation and promote healing of ulcers.

Turmeric: Has anti-inflammatory and antioxidant properties that may help reduce inflammation and promote healing of ulcers.

Aloe Vera: Applying aloe vera gel directly to the ulcer can help soothe the pain and promote healing.

Licorice: Has anti-inflammatory properties and can help reduce pain and inflammation associated with oral ulcers.

Chamomile: Can be used as a mouthwash to help reduce inflammation and promote healing.
Sage: To help alleviate pain and inflammation associated with oral ulcers.

Oral ulcers, also known as canker sores, are a common condition affecting millions of people worldwide. These painful sores can be caused by a variety of factors, including stress, injury, and certain medical conditions. While there are many treatments available for oral ulcers, one natural herbal remedy that has gained popularity in recent years is Myristica fragrans.

Myristica fragrans, also known as nutmeg, is a spice commonly used in cooking. It has also been used for centuries in traditional medicine for its anti-inflammatory and analgesic properties. Recent studies have shown that Myristica fragrans may be effective in treating oral ulcers (1).

The antimicrobial effects of Myristica fragrans extracts act against common oral pathogens which are known to cause dental and periodontal infections. Through rigorous experimentation and analysis, the researchers found that the nutmeg extracts exhibited significant antibacterial activity against these oral pathogens. The findings of this research suggest that Myristica fragrans could serve as a promising natural alternative or adjunct therapy for oral infections. Further exploration of its active compounds and mechanisms of action may lead to the development of new oral health products derived from this natural source (1)

Physicochemical properties:

Several studies have analysed the physicochemical properties of Myristica fragrans and studied the potential uses. A study revealed the average moisture content of the nutmeg samples was approximately 7.65%. This information is important for storage and processing purposes as it indicates the amount of water present in the nutmeg. The ash content which represents the mineral content of the nutmeg was found to be 3.47%. This proves the nutritional value of Myristica fragrans (2)

Water activity (a_w) is a measure of the available water in a substance and affects its stability and microbial growth. The study determined that the nutmeg samples had a water activity of 0.514, indicating a relatively low moisture level that can contribute to its shelf stability. The nutmeg oil is commonly obtained by the simple steam distillation method or hydro distillation. Extractions by those methods will yield about 5% to 15%. Distillation of the nutmeg oil is commonly from the seeds and mace of the nutmeg. The seeds that are mostly used for oil extraction are usually the younger seeds due to the fact that the oil content would be higher than the older seeds, where the oil would be more pale yellow in colour, very volatile and extends a very distinct fragrant note(3)

The extractable colour analysis indicated that the nutmeg samples had a colour intensity of approximately 22.91, indicating the presence of pigments that contribute to its visual appearance and potential applications in the food industry

The study also analyzed the essential oil composition of the nutmeg samples. Gas chromatography analysis identified various compounds, including myristicin, sabinene, and terpinen-4-ol, among others. These compounds contribute to the aromatic and flavor properties of nutmeg and may have potential applications in the fragrance, flavor, and pharmaceutical industries

Biological properties:

Usage of *Myristica fragrans* in traditional and modern medicine as interventional medication for various purposes is observed over a long period. To understand the biological uses of the *Myristica fragrans* oil, a study was conducted using a rabbit model, oral ulcerations were chemically induced in the animals, and nutmeg oil was topically applied to the affected areas. The researchers carefully monitored the healing process and evaluated the antibacterial activity of nutmeg oil against the pathogens present in the oral ulcers(4).

Myristica fragrans contains a compound called eugenol, which has been shown to have antimicrobial and anti-inflammatory properties(5). Here are some potential uses of nutmeg in oral ulcers:

As a Pain relief: *Myristica fragrans* oil can be applied topically to the affected area to help alleviate pain and discomfort associated with oral ulcers.

Antimicrobial activity: *Myristica fragrans* has been shown to have antimicrobial properties that may help prevent the growth of bacteria and fungi that can cause or worsen oral ulcers.

Anti-inflammatory activity: It has also been shown to have anti-inflammatory properties that may help reduce inflammation and promote healing of the oral ulcer.

Conclusion:

While more research is needed to fully understand the effectiveness of *Myristica fragrans* in treating oral ulcers, these studies suggest that it may be a promising natural remedy. Nutmeg has been traditionally used as a natural remedy for various ailments, including oral ulcers. *Myristica fragrans* is generally considered safe when used in small amounts in cooking or as a supplement. However, it is important to further explore the safe dosages with potential benefits before using *Myristica fragrans* for treating oral ulcers. The earlier research provides valuable insights into the physicochemical properties of nutmeg. The findings contribute to the understanding of nutmeg's composition and its potential applications in various industries.

In conclusion, *Myristica fragrans* may be an effective and natural treatment for oral ulcers. Its anti-inflammatory and analgesic properties have been shown to reduce the size and pain of ulcers. However, more research is needed to fully understand its effectiveness and safety.

References

1. Jaafari-Ashkavandi Z, Mehranmehr F, Roosta E. MCM3 and Ki67 proliferation markers in odontogenic cysts and ameloblastoma. *J Oral Biol Craniofacial Res* [Internet]. 2019;9(1):47–50. Available from: <https://doi.org/10.1016/j.jobcr.2018.09.003>
2. Rahardiyani D, Poluakan M, Moko EM. Physico-chemical Properties of Nutmeg (*Myristica fragrans* houtt) of North Sulawesi Nutmeg. *Fuller J Chem*. 2020;5(1):23.
3. Naeem N, Rehman R, Mushtaq A, Ghania B. Nutmeg: A review on uses and biological properties. *Ijcbcs* [Internet]. 2016;9:107–10. Available from: www.iscientific.org/Journal.html
4. Shima Ghazi T, Ali Sultan A-R, Amera K. Antibacterial effect and healing potential of nutmeg oil for chemically induced oral ulcerations in rabbits. *Zanco J Med Sci (Zanco J Med Sci)*. 2013;17(02):393–9.
5. Jaiswal P, Kumar P, Singh VK, Singh DK. Biological effects of *Myristica fragrans*. *Annu Rev Biomed Sci*. 2009;11(March):21–9.