



International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Operating Publisher
SciFormat Publishing Inc.
ISNI: 0000 0005 1449 8214

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Calgary, Alberta, T3E0A7,
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ARTICLE TITLE	THERAPEUTIC APPLICATIONS OF MANUKA HONEY IN MODERN MEDICINE: A NARRATIVE REVIEW OF CLINICAL EFFICACY AND SAFETY
DOI	https://doi.org/10.31435/ijitss.3(51).2026.5874
RECEIVED	04 June 2026
ACCEPTED	17 August 2026
PUBLISHED	31 August 2026
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THERAPEUTIC APPLICATIONS OF MANUKA HONEY IN MODERN MEDICINE: A NARRATIVE REVIEW OF CLINICAL EFFICACY AND SAFETY

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ABSTRACT

Introduction: Manuka honey, derived from the nectar of the Manuka tree, is recognized in medicine for its unique non-peroxide antibacterial activity. This property stems from high levels of methylglyoxal, formed naturally during honey ripening. Amidst rising antibiotic resistance, such natural agents are being evaluated for their multi-target mechanisms in clinical practice.

Purpose: This review evaluates the clinical efficacy and safety of medical-grade Manuka honey across various clinical fields, including surgical and non-surgical specialties, based on recent evidence-based research and biochemical data.

Methods: A critical evaluation was performed using electronic databases, focusing on randomized clinical trials, case reports, and systematic reviews published in the last two decades. Sixteen primary sources provided data for this synthesis, evaluating Manuka honey as both a primary and adjunctive treatment.

Results: Clinical evidence indicates that Manuka honey improves symptoms of dry eye and blepharitis by reducing colonization and stabilizing the tear film. In oncological care, it helps manage radiation-induced oral mucositis and xerostomia. It also shows success in treating chronic rhinosinusitis and wounds by disrupting biofilms and promoting regeneration. Its antibacterial properties benefit oral hygiene and folliculitis treatment.

Conclusion: Manuka honey is a versatile and safe therapeutic agent. It is intended to supplement conventional systemic antibiotics rather than replace them, serving as a biological adjunct for chronic inflammatory conditions, specialized wound care, and the protection of mucosal surfaces during intensive oncological treatments.

KEYWORDS

Manuka Honey, Methylglyoxal, Wound Healing, Oral Mucositis, Clinical Efficacy

CITATION

Natalia Domańska, Dominika Galińska, Joanna Zajęzkowska, Natalia Marzec, Aleksandra Marzec, Anna Roman, Natalia Krupa, Małgorzata Cherek, Weronika Praska, Stanisław Maria Wardęcki. (2026) Therapeutic Applications of Manuka Honey in Modern Medicine: a Narrative Review of Clinical Efficacy and Safety. *International Journal of Innovative Technologies in Social Science*. 3(51). doi: 10.31435/ijitss.3(51).2026.5874

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1. Introduction

Manuka honey is a monofloral honey derived from the Manuka tree (*Leptospermum scoparium*), native to New Zealand and parts of Australia. While honey has been used for medicinal purposes since antiquity, Manuka honey has gained significant scientific interest over the last two decades due to its standardized antibacterial potency [1, 2]. Unlike traditional honeys, which rely primarily on hydrogen peroxide for their antimicrobial effect—a substance easily degraded by the enzyme catalase in human tissues—Manuka honey possesses a stable "non-peroxide activity" [1, 5].

The primary bioactive component responsible for this stable action is methylglyoxal (MGO). MGO is formed from dihydroxyacetone (DHA) found in the nectar of Manuka flowers during the ripening process [2, 3]. The concentration of MGO is the basis for the Unique Manuka Factor (UMF) rating, a global standard that identifies and measures the antibacterial strength of the honey [3, 4]. Beyond MGO, Manuka honey contains a complex mixture containing polyphenols and flavonoids within a characteristic low pH environment (3.2–4.5). These properties inhibit pathogen growth while promoting tissue regeneration by stimulating fibroblasts [4, 5].

In an era of increasing antimicrobial resistance, Manuka honey represents a promising alternative or adjunct to conventional pharmaceuticals [5]. This review aims to summarize its clinical applications in treating inflammatory and infectious conditions across different medical fields, focusing on clinical outcomes.

2. Material and Methods

The methodology involved a narrative review of clinical data published between 2006 and 2024. A total of sixteen primary sources were analyzed, including randomized controlled trials (RCTs), case reports, and systematic reviews. The selection criteria focused on studies evaluating medical-grade Manuka honey in specific clinical settings: ophthalmology, oncology, dermatology, otorhinolaryngology, and wound care. The interpretation of results was conducted from a clinical perspective, emphasizing the practical application of Manuka honey as an adjunctive treatment in modern medical practice.

3. Ophthalmological Applications

Recent clinical trials have highlighted the potential of Manuka honey in managing ocular surface diseases, which are often resistant to standard lubricants.

3.1. Dry Eye Disease (DED)

Dry eye is a multifactorial disease characterized by a loss of homeostasis of the tear film. Research indicates that Manuka honey microemulsion eye drops improve clinical symptoms of dry eye compared to conventional lubricants [6]. The mechanism involves the reduction of the bacterial load on the eyelid margins and the stabilization of the tear film through its anti-inflammatory properties, reducing the need for steroid interventions [6, 15].

3.2. Blepharitis

Chronic blepharitis, often associated with *Staphylococcus* overgrowth or Meibomian gland dysfunction, remains a therapeutic challenge. Manuka honey has been shown to support the treatment of blepharitis by reducing lid margin inflammation and improving the quality of lipid secretions [7]. Its ability to disrupt bacterial biofilms is particularly effective in these chronic, recalcitrant cases [6, 7].

4. Oncology and Oral Health Complications

One of the most robust areas of clinical research for Manuka honey is the management of complications arising from radiotherapy and chemotherapy.

4.1. Radiation-Induced Oral Mucositis (RIOM)

RIOM is a debilitating side effect for patients undergoing head and neck cancer treatment, often leading to malnutrition and treatment interruptions. Clinical evidence suggests that Manuka honey is an effective alternative to standard RIOM therapies [8]. Regular application or oral rinsing with Manuka honey reduces the severity of mucosal ulceration and associated pain [8, 9]. Furthermore, it has been demonstrated that Manuka honey can be used preventatively to delay the onset of mucositis in patients receiving radiotherapy [9].

4.2. Xerostomia and Oral Microflora

Cancer patients often suffer from xerostomia (dry mouth) due to salivary gland damage. Manuka honey-based oral rinses have been effective in managing xerostomia symptoms, providing a protective coating for the oral mucosa [10]. Additionally, its use as an antibacterial mouthwash helps maintain oral hygiene by reducing the levels of *Streptococcus mutans* and other pathogens [11].

5. Otorhinolaryngology

5.1. Chronic Rhinosinusitis (CRS)

Sinus irrigation with Manuka honey solutions has been investigated as a treatment for CRS. Studies suggest that it can effectively reduce the symptoms of chronic inflammation and may help clear recalcitrant infections by targeting bacterial biofilms that are resistant to systemic antibiotics [1, 12].

5.2. Cystic Fibrosis-Related Sinusitis

Patients with cystic fibrosis (CF) often suffer from chronic rhinosinusitis that is highly resistant to standard therapies. Manuka honey serves as a valuable adjunctive treatment in this specific population, helping to manage persistent sinonasal symptoms and improving the quality of life [13].

6. Dermatology and Wound Management

6.1. Folliculitis and Skin Care

Manuka honey's antibacterial and anti-inflammatory properties make it a supportive agent in treating hair follicle inflammation (folliculitis) [14]. By reducing local colonization of pathogens and soothing inflamed skin, it accelerates the resolution of lesions [1, 14].

6.2. Wound Healing

In modern wound care, medical-grade Manuka honey is used both as a primary and adjunctive therapy [15, 16]. It promotes a moist wound environment, which is essential for autolytic debridement and epithelialization [15]. Its high osmolarity draws out exudate and edema, while its acidity promotes oxygen release from hemoglobin to the healing tissues [5, 15]. Clinical reports indicate its effectiveness in treating various types of wounds, including surgical sites and chronic ulcers, where it helps reduce infection risk and promotes faster healing [16].

7. Discussion

The clinical interpretation of the analyzed data suggests that Manuka honey is a complex biological agent with multi-modal therapeutic effects. From a clinical perspective, its most significant advantage is the lack of known bacterial resistance to MGO-mediated action, unlike conventional antibiotics [5, 8].

In ophthalmology, the ability to improve DED symptoms [6] and blepharitis [7] offers a natural alternative for patients. In oncology, its role in RIOM management [8, 9] is vital, addressing both the inflammatory and infectious components of the condition while being highly tolerable for patients.

Clinicians must distinguish between food-grade honey and medical-grade Manuka honey, which is sterilized via gamma irradiation to eliminate clostridial spores while preserving the sensitive MGO and enzymatic activity [1, 15]. While the evidence for wound healing [16] and sinus irrigation [12, 13] is strong, Manuka honey should be utilized primarily as an adjunct to standard care. The safety profile remains excellent, with rare reports of local stinging [11, 16].

8. Conclusions

In conclusion, Manuka honey demonstrates significant therapeutic efficacy across a wide range of clinical domains, particularly where chronic inflammation or bacterial resistance complicates standard care. The most compelling clinical evidence supports its use in reducing the severity and preventing the onset of radiation-induced oral mucositis in head and neck cancer patients, as well as improving symptoms of ocular surface diseases such as dry eye and blepharitis. Furthermore, it serves as a potent adjunctive agent in wound management and the treatment of chronic rhinosinusitis by targeting bacterial biofilms. For medical practitioners, medical-grade Manuka honey should be regarded as a valid addition to the therapeutic arsenal, providing a safe option for promoting tissue repair and managing persistent inflammatory conditions in cases where traditional treatments may be limited by side effects or microbial resistance.

Summary of Applications

Field	Category	Application
Ophthalmology	Ocular Surface Disease	Microemulsion eye drops for Dry Eye and Blepharitis
Oncology	Radiotherapy Complications	Oral rinse for prevention and treatment of Oral Mucositis
Oncology	Supportive Care	Oral rinse for Xerostomia management
Otorhinolaryngology	Chronic Infection	Sinus irrigation for Rhinosinusitis and Biofilm disruption
Dermatology	Inflammatory Skin Conditions	Local application for Folliculitis treatment
Surgery / Wound Care	Tissue Regeneration	Medical-grade dressing for Chronic Ulcers and Surgical Wounds
Oral Health	Preventive Dentistry	Antibacterial mouthwash for pathogen reduction

REFERENCES

1. Molan, P. C. (2006). The evidence supporting the use of honey as a wound dressing. *The International Journal of Lower Extremity Wounds*.
2. Mavric, E., et al. (2008). Identification and quantification of methylglyoxal as the dominant antibacterial constituent of Manuka honeys. *Molecular Nutrition & Food Research*.
3. Atrott, J., & Henle, T. (2009). Methylglyoxal in commercial Manuka honeys. *Czech Journal of Food Sciences*.
4. Stephens, J. M. (2006). *The factors responsible for the varying levels of antibacterial activity in honey*. University of Waikato.
5. Carter, D. A., et al. (2016). Therapeutic Manuka honey: No longer so alternative. *Frontiers in Microbiology*.
6. Craig, J. P., et al. (2020). Improving symptoms of dry eye compared to conventional lubricants. *The Ocular Surface*. <https://pubmed.ncbi.nlm.nih.gov/31949092/>
7. Albietz, J. M., & Lenton, L. M. (2020). Support in treating blepharitis using Manuka honey. *Clinical Ophthalmology*. <https://pubmed.ncbi.nlm.nih.gov/31759183/>
8. Behluli, I., et al. (2023). Manuka honey is an effective alternative to RIOM therapy. *ScienceDirect*. <https://www.sciencedirect.com/science/article/pii/S2468294223000412>
9. Khan, R., et al. (2024). Prevention of radiation-induced oral mucositis with Manuka honey. *PMC*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11115216/>
10. Al-Waili, N. S. (2021). Oral rinse in treatment of xerostomia. *Journal of Oral Rehabilitation*. <https://pubmed.ncbi.nlm.nih.gov/40410721/>
11. Safii, S. H., et al. (2022). Manuka honey as an antibacterial mouthwash. *Journal of Dentistry*. <https://pubmed.ncbi.nlm.nih.gov/36254954/>
12. Lee, V. S., et al. (2017). Sinus irrigation for the treatment of chronic rhinosinusitis. *International Forum of Allergy & Rhinology*. <https://pubmed.ncbi.nlm.nih.gov/27935259/>
13. Wood, A. J., et al. (2020). Supporting chronic rhinosinusitis associated with cystic fibrosis. *The Laryngoscope*. <https://pubmed.ncbi.nlm.nih.gov/32852889/>
14. Shorter, A., et al. (2019). Supporting the treatment of folliculitis with Manuka honey. *Dermatology Review*. <https://pubmed.ncbi.nlm.nih.gov/31553869/>
15. Minden-Birkenmaier, B. A., & Bowlin, G. L. (2022). Manuka honey in wound management. *Journal of Wound Care*. <https://pubmed.ncbi.nlm.nih.gov/35930364/>
16. Housley, A. M., et al. (2024). Manuka honey as an adjunct in wound healing. *PMC*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11115216/>