International Journal of Science and Research Methodology (IJSRM)
Volume 29, Issue 4, April 2026 ijsrm.humanjournals.com ISSN: 2454-2008

Can You Brush Your Teeth with Manuka Honey?

Jun Kobayashi[1], Keiichi Ikeda[2]

[1]Faculty of Nutrition, University of Kochi, 2751-1 Ike, Kochi, Kochi 781-8515, Japan; [2]Faculty of Pharmaceutical Sciences, Hokuriku University, 3 Ho, Kanagawa-machi, Kanazawa, Ishikawa 920-1181, Japan

Received: 21 February 2026 Revised: 10 March 2026 Accepted: 25 March 2026

ABSTRACT

Recently, a rare and expensive type of honey called Manuka honey has become well known. Manuka honey is said to have strong antibacterial and antioxidant properties, along with other notable health benefits (for example, in the treatment of diseases). It can only be harvested in limited areas of New Zealand, resulting in a small annual production volume. Consequently, cases of food fraud have been reported in which non-Manuka honey is mistakenly sold at high prices. Even though Manuka honey has strong antibacterial and antioxidant properties, excessive consumption can have adverse effects. With support from previously reported articles and our own opinions, this paper describes the characteristics of Manuka honey, with specific focus on whether it can be used in toothpaste to prevent tooth decay.

Keywords: Manuka honey, Antibacterial effect, Antioxidant property, Cavity prevention

INTRODUCTION

Manuka honey, a rare type of honey, has recently gained notable attention[1),2)]. Depending on the quantity and quality, it can be expensive, ranging from $30 to >$100 per jar for more expensive varieties. Manuka honey is said to have high antibacterial and antioxidant properties and can be used to treat wounds, relieve sore throats and coughs, and prevent skin aging, among other health benefits[2)]. Some people consume Manuka honey as a superfood (i.e., food containing exceptionally high levels of beneficial ingredients). This honey has a low annual production volume as it can only be harvested in limited areas of New Zealand. Owing to this, cases of food fraud have been reported in which non-Manuka honey is mistakenly sold at high prices. Despite its strong antibacterial and antioxidant properties, excessive consumption of Manuka honey may have adverse effects. This paper describes the characteristics of Manuka honey from the perspective of whether it can be used in toothpaste to prevent tooth decay.

History of Manuka honey

Manuka (*Leptospermum scoparium*) is a shrub species native to New Zealand that belongs to the Myrtaceae family[1),2)]. New Zealand is an island nation separated from other countries by the sea, and its plants, including the Manuka plant, have developed and preserved their unique characteristics without being influenced by the genes of flora from neighboring countries. As the name suggests, Manuka honey is made from nectar of the Manuka plant collected by bees.

The Māori are indigenous people of New Zealand; they arrived in the island country between 700 and 1700 AD and learned how to use Manuka to treat many illnesses[2)]. Manuka leaves, bark, and twigs were boiled; the steam was inhaled for nasal colds and the liquid rubbed onto the skin for stiff shoulders and rheumatic joints, as well as drunk for stomach upsets. In cases of dysentery, Manuka sprouts were chewed and swallowed. The bark was topically used for skin diseases and as a mouthwash to wash sore eyes. Manuka oil, which is distilled from Manuka leaves, is used in a wide range of fields due to its beneficial effects. The leaves, bark, and branches of the Manuka plant contain special components similar to those found in honey.

Manuka honey production began in the early 1800s after Europeans arrived in New Zealand. Compared to methods using the bark and branches, honey harvesting has the advantage of allowing for continuous use of the benefits of the plant without damaging it. However, Manuka honey was initially considered a low-quality product and sold cheaply. Through long-term consumption and research, people gradually came to understand that Manuka honey possesses unique properties; however, it was not until 2006 that the beneficial effects of Manuka honey were scientifically proven to be caused by its unique antibacterial activity. Currently, Manuka honey is expensive, in short supply, and its price continues to rise[1)]. Compared to pharmaceuticals, Manuka honey meets the need to improve specific symptoms with virtually no side effects.

Effects of Manuka honey

Manuka honey is called the king of honeys and most luxurious honey in the world because it is the only food rich in methylglyoxal (MGO), which provides powerful antibacterial properties[2]. The same component is found in coffee, cheese, and maple syrup but in much smaller amounts. Even regular honey exhibits antibacterial activity due to the presence of hydrogen peroxide[1]; however, the antibacterial activity of hydrogen peroxide is quickly lost when honey is exposed to heat, light, or enzymes in the body. In 2006, naturally occurring MGO was found to be the primary component responsible for the antibacterial activity of Manuka honey. Moreover, compared with other honeys such as lotus and acacia[2),3)], Manuka honey exerts strong antioxidant effects and has bactericidal and disinfectant properties due to the presence of methyl syringate and gluconic acid, respectively.

Numerous studies have demonstrated the antibacterial effects of Manuka honey, which is now used as medicinal honey for therapeutic purposes (Table 1). In addition to its scientifically proven bactericidal effect against *Helicobacter pylori*, a bacterium that has become a health issue in recent years, Manuka honey has been actively used in medical institutions in Oceania, Europe, and North America to treat the complications of diabetes and skin diseases caused by bedsores in patients undergoing long-term care. Approximately 385 tons of Manuka honey were exported to Japan in 2005 and approximately 503 tons in 2019. Currently, it is exported to various countries worldwide, including China, the United Kingdom, and the United States.

Precautions when using Manuka honey

As previously described, Manuka honey contains MGO and methyl syringate, which have antibacterial and antioxidant properties, respectively. Thus, Manuka honey is significant for medicinal use and as a health food for disease prevention. However, the fact that it is a type of honey remains unchanged. Indiscriminately using Manuka honey with a focus on its beneficial effects, or to consume it in excessive amounts, is generally not advisable. Table 2 shows that honey and other sweeteners are high in calories and contain large amounts of carbohydrates. The main substances found in honey and other sweeteners include sugars, such as glucose and fructose. Even if one desires to utilize the antibacterial properties of Manuka honey for medical purposes, its high calorie and sugar content means that consuming large quantities is not recommended (see footnote in Table 1). Patients with diabetes should particularly be careful as sugar intake must be controlled as part of their treatment. As Manuka honey is a natural product, its antibacterial and antioxidant properties are not always constant (Table 3). In nature, temperature, humidity, and plant growth rates change owing to cycling of the four seasons, and optimal times and seasons also exist for harvesting food ingredients. Furthermore, differences in the lifespan of the Manuka plant itself affect honey composition. In view of these factors, the use of Manuka honey should be considered based on whether its effects are strong or weak (Table 4). Differentiating their use, such as using products with a high concentration of active ingredients for treatment and those with a lower concentration for disease prevention, may be necessary.

As is commonly said about honey, it may contain bacteria because it is derived from natural plants; therefore, young children and pregnant women should avoid its use as the honey may cause adverse effects. It can also contain allergens such as pollen; thus, caution is necessary. If symptoms such as itching or discomfort in the mouth or throat, skin rash or swelling, shortness of breath, or nausea occur, consumption should be halted, and if necessary, an allergist should be consulted immediately[4)].

Consequently, food fraud has emerged because of the unique properties of Manuka honey. To produce pure Manuka honey, many Manuka trees are necessary, and an environment in which bees do not collect nectar from plants other than Manuka is also required. However, this approach is extremely geographically limited and difficult to achieve. Products that are artificially imitated, contain only a small amount of Manuka honey (mixed with honey from other plants), or are not Manuka honey at all are sold worldwide (Table 3). The domestic production in New Zealand is approximately 1,700 tons/year, accounting for the majority of total production globally. However, approximately 10,000 tons of honey labeled as Manuka honey are annually sold worldwide. This means that most products sold in stores around the world that are labeled as Manuka honey are either fake or diluted with other substances to the point where they lose their effectiveness. In 2017, the New Zealand government, aiming to demonstrate the authenticity of products labeled as Manuka honey in the global market, considered five identification methods (four chemical substances and one DNA marker) to provide clear evidence that the honey was New Zealand-derived Manuka honey. Subsequently, a scientific definition of Manuka honey and new export rules (which would verify its authenticity) were published. However, this disclosure could potentially trigger further deception (making it possible to add the ingredients in question).

If food labels are to be trusted, then MGO or Unique Manuka Factor (UMF) values would be numerical indicators of the special effects of Manuka honey[4)]. A higher MGO value indicates stronger antibacterial activity; a numerical value of approximately 100–800+ is considered a good indicator of high quality (Table 4). UMF is a numerical value for overall quality evaluation, quantifying antibacterial activity, purity, and freshness. The UMF values range from 5–25+, where higher values indicate a stronger effect and are closer to medical grade. However, for everyday use, choosing products with an MGO of 100–400+ or UMF of 10–15+ is

considered appropriate[4]. Furthermore, selecting products that bear the official New Zealand certification mark (which confirms that the label is not counterfeit) is important.

Can you brush your teeth with Manuka honey?

Is it possible to go to sleep without brushing your teeth after licking Manuka honey?[1] Honey is sweet and sugar (sucrose) causes tooth decay; therefore, people are worried that honey might cause cavities. However, honey contains fructose and glucose but not much sucrose, indicating that it likely would not increase the abundance of *Streptococcus mutans*, the bacterium that causes cavities. Some articles suggest that going to sleep without brushing one's teeth after licking Manuka honey is acceptable, and other studies have claimed that it is better than using mouthwash[4]. Such articles suggest that applying or licking Manuka honey to the gums before bed can help keep the mouth clean during sleep. However, when *S. mutans* breaks down fructose, it produces an acid that dissolves teeth, and glucose becomes a nutrient for the growth of periodontal disease-causing bacteria. Although Manuka honey has strong antibacterial properties, it is diluted by saliva in the mouth. Therefore, going to bed without brushing your teeth after licking Manuka honey should be avoided. This is especially true if Manuka honey is used, the antibacterial activity of which is uncertain. At the very least, after using Manuka honey for brushing your teeth, as a mouthwash, or other purposes, rinsing your mouth with water to ensure that no honey residue remains is advisable[1].

CONCLUSION

This article discussed the history, effects, and precautions of using Manuka honey, as well as whether it can be used to brush teeth. Its unique antibacterial (due to MGO), antioxidant (due to methyl syringate), and antiseptic (due to gluconic acid) properties have made Manuka honey highly valued and treated as a luxury and rare product. Owing to its first two beneficial effects, Manuka honey has significance as a medicinal honey or superfood. As Manuka honey is still a type of honey, its high sugar content may cause side effects due to excessive consumption; however, notable adverse effects may not be caused by a single dose. Furthermore, many counterfeit products are circulating because of its rarity. Therefore, we strongly recommend the careful examination of product labels and other information before purchase to ensure that the product is genuine. While Manuka honey is sometimes thought to be useful for brushing teeth due to its high antibacterial properties, our research suggests that its antibacterial properties may be low in some cases. Moreover, its high sugar content means that even if one does not doubt its effectiveness, Manuka honey use should not be expected to prevent tooth decay.

REFERENCES

1) Is it okay to lick Manuka honey after brushing your teeth? -Five benefits introduced! Jiro's Blog, We'll answer your simple questions that you can't ask anyone else! published March 8, 2019, https://jirob.net/2019/03/08/manuka/ (browsed March 2026).
2) Japan Manuka Honey Association. What is Manuka Honey? https://j-manukahoney.jp/manukahoney (browed March 2026).
3) Emi Kojima. (2024) What is Manuka Honey? -Effects, benefits, and how to choose the right one. Hankyu Food, Delicious reading material, published September 25, 2024, https://web.hh-online.jp/hankyu-food/blog/sweets/detail/001491.html (browsed March 2026).
4) Scientific effects, safe timing, and recommended uses of Manuka honey after brushing your teeth. Denta Life, published August 27, 2025, https://dentalife.jp/manuka-honey-toothpaste-effect-timing-usage/ (browsed March 2026).
5) Akio Kagawa (supervised). (2021) Food composition table eighth revised edition. Kagawa Nutrition University Press, published February 20, 2021, pp. 30-33.

Table 1 Effects of Manuka honey

Effect	Description
Antibacterial and germicidal effects[*1]	Manuka honey contains unique components, such as methylglyoxal and gluconic acid, which are effective in inhibiting and killing bacteria.
Antiviral effects and immune system enhancement	Manuka honey is effective in suppressing the proliferation of influenza viruses, and studies have shown that combining it with antiviral drugs can achieve the same effect while significantly reducing the amount of medication used. As it contains vitamin C, Manuka honey also contributes to improving immunity. Therefore, it is considered effective in treating colds.
Anti-inflammatory effects	Applying Manuka honey to cuts and burns alleviates symptoms. Other reported benefits include effectiveness against atopic dermatitis, cancer prevention and treatment, and lowering cholesterol levels. Due to its naturally derived anti-inflammatory properties, Manuka honey can relieve sore throats and coughs, and clinical studies suggest that it is particularly effective for treating nighttime coughs in children.
Oral care[*2]	Applying Manuka honey to teeth and the tongue can reduce the abundance of *Streptococcus mutans* and improve plaque and gingivitis. Manuka honey is also considered effective for periodontal disease and stomatitis. It also has effects in suppressing bad breath and preventing dry mouth.
Gastrointestinal care[*3]	Due to its antibacterial properties, Manuka honey may help suppress *Helicobacter pylori*, which causes gastritis and stomach ulcers. Gastrointestinal disorders that are difficult to treat with antibiotics have also been reported to improve after Manuka honey use.
Intestinal regulation	Manuka honey relieves symptoms such as loss of appetite and indigestion.
Beauty and antioxidant effects[*4]	The antioxidant effects of polyphenols, methyl syringate, and vitamin C are expected to suppress reactive oxygen species levels, prevent aging, and improve skin health. Manuka honey is also thought to be beneficial for skin conditions, such as acne and other skin problems.

[*1]: Approximately 5 g/dose is recommended.

[*2]: An experiment using UMF 19.5+ Manuka honey twice daily for 21 days was effective in improving the oral environment of children.

[*3]: 5% Manuka honey can kill *Helicobacter pylori*.

[*4]: Direct application can enhance this effect.

This table is based on references 1), 2), and 5).

Table 2 Nutritional components of honey and similar sweeteners

Types of sweeteners	Honey	Maple syrup	Granulated white sugar	Starch syrup	Glucose
Energy (kcal)	329	266	391	342	342
Moisture (%)	17.6	33.0	0.7	15.0	9.0
Protein (g)	0.3	0.1	0	0	0
Carbohydrates (g)	81.9	66.3	99.3	85.0	91.0
Sodium (mg)	2	1	1	Trace	0
Potassium (mg)	65	230	2	Trace	Trace
Calcium (mg)	4	75	1	0	Trace
Magnesium (mg)	2	18	Trace	Trace	Trace
Phosphorus (mg)	5	1	Trace	0	0
Vitamin A	1	0	0	-	0
Vitamin B_1	Trace	Trace	Trace	-	0
Vitamin B_2	0.01	0.02	0	-	0
Vitamin B_6	0.02	Trace	0	0	0
Niacin	0.3	Trace	0	0	0
Folic acid	7	1	0	Trace	0
Pantothenic acid	0.12	0.13	0	Trace	0
Biotin	0.4	0.1	0.1	0	-
Vitamin C	0	0	0	-	0

Unless otherwise specified, the units are given per 100 g of food.

“Trace” indicates a minute amount, and “-” indicates unmeasured.

Manuka honey also contains water (<21%), carbohydrates (fructose and glucose), vitamins, minerals (such as sodium, potassium, and calcium), polyphenols, amino acids (equivalent to protein), gluconic acid, and MGO.

This table is excerpted from data in references 2), 3), and 4).

Table 3 Precautions regarding Manuka honey and its imitations

Type	Points to note	Description
Manuka honey	Antibacterial/antioxidant properties are inconsistent	While counterfeit Manuka honey products exist, even genuine Manuka honey does not necessarily have the same therapeutic effects.
	Not carcinogenic	Manuka honey is safe to consume because it does not contain carcinogens.
	Caution for diabetic patients	Like all honey, Manuka honey is high in sugar; therefore, people with diabetes or high blood sugar should limit their intake. While some reports suggest that this honey is good for preventing tooth decay, if it does not have particularly strong antibacterial properties, the sugars broken down in the mouth can produce acid, making one more susceptible to cavities.
	Possibility of allergic reactions	People with allergies to honey or pollen may experience anaphylactic shock. A doctor should be consulted before use.
	Do not give to infants <1 year old	Honey in general carries a risk of infection, including from *Clostridium botulinum*. For this reason, giving honey to infants is generally not advisable.
	Pregnant women should avoid consumption	Manuka honey, like other honeys and royal jelly, contains many bacteria. Consumption by pregnant women increases the risk of miscarriage.
	Do not expect excessive effects	Excessive consumption can lead to a decrease in the abundance of beneficial gut bacteria; therefore, it is best to limit intake.
Products similar to Manuka honey	Mixing Manuka honey with regular honey	While this honey may possess some of the unique effects of Manuka honey, the strength of these effects is low. Consequently, treatment with these products to inhibit bacterial or viral proliferation could worsen symptoms. Consuming large quantities to compensate for this drawback is not recommended, as this can lead to hyperglycemia.
	Mixing honey with components characteristic of Manuka honey	To prove that it is Manuka honey, or for quality assurance purposes, antioxidant and antibacterial properties are sometimes measured. This can be misused, with certain ingredients being mixed in. While some slight effect may be noted, the product is not genuine Manuka honey, and the buyer is being deceived.
	Falsely labeling a non-Manuka product as Manuka honey	This is the case when a product is labeled as “Manuka honey” but contains only regular honey or starch syrup. If the Manuka honey does not originate from New Zealand, its effects cannot be recognized at all.

This table is based on the content of references 2) and 4).

Table 4 How to choose Manuka honey

Purpose	UMF	MGO
For easy nutritional supplementation and as a sweetener	5+ (83 mg/kg)	30+
Want to incorporate it into your daily diet	5+ (83 mg/kg)	100+
Concerned about health management	10+ (261 mg/kg)	250+
Want to use it for beauty and health	15+ (512 mg/kg)	400+
Expecting strong antibacterial effects	20+ (826 mg/kg)	550+
Expecting high-level antibacterial effects	25+ (1197 mg/kg)	800+

Higher-grade Manuka honey (lower in the table) has a stronger antibacterial effect and more distinctive flavor.

For first-time users, choosing a lower-grade product (higher in the table) is recommended.

UMF: This value compares the antibacterial effect of Manuka honey with that of phenol, a disinfectant. For example, “UMF10+” indicates that the product has an antibacterial effect as strong as a 10% phenol solution. Values in parentheses indicate the approximate MGO content for reference.

MGO: This value refers to the methylglyoxal content in 1 kg Manuka honey. For example, “MGO100+” indicates that the product contains ≥100 mg/kg methylglyoxal. For comparison, coffee contains 23–47 mg/kg, cheese has 4–11 mg/kg, and maple syrup holds 2.5 mg/kg.

This table is based on references 2) and 3).

How to cite this article:
Jun Kobayashi et al. Ijsrm.Human, 2026; Vol. 29 (4): 27-33

Conflict of Interest Statement: All authors have nothing else to disclose.