

Research Article

BetelBon: The Travel-Friendly Wellness Candy for Relaxation and Digestion

Nur Hani Qamilia Binti Huzairi^{1,*}, Nur Asmarina Binti Nasru², Auni Marinah Binti Muzani³, Sarah Aina Binti Sansudin⁴, and Khairun Najiah Ahmad⁵

¹ Universiti Teknologi MARA, Puncak Alam Campus, Selangor; 2022822266@student.uitm.edu.my

² Universiti Teknologi MARA, Puncak Alam Campus, Selangor; 2022841528@student.uitm.edu.my

³ Universiti Teknologi MARA, Puncak Alam Campus, Selangor; 2022615938@student.uitm.edu.my

⁴ Universiti Teknologi MARA, Puncak Alam Campus, Selangor; 2022675616@student.uitm.edu.my

⁵ Universiti Teknologi MARA, Puncak Alam Campus, Selangor; khairun@uitm.edu.my

* Correspondence: 2022822266@student.uitm.edu.my

Abstract: BetelBon, an innovative candy, addresses the pressing issue of travel-related health issues by offering a unique, dual-function solution. The problem statement revolves around the common challenges faced by travelers, including insomnia and gastrointestinal disorders, which can significantly impact their overall well-being. BetelBon combines the traditional benefits of betel leaves and sugar cane extract in a modern, convenient form, leveraging isomalt as a healthier sweetener. This innovative candy promotes relaxation and aids digestion, catering to health-conscious consumers seeking natural remedies. The impact of BetelBon extends beyond addressing specific health issues to provide a novel, effective option for maintaining overall well-being during travel. The commercialization potential of BetelBon lies in its unique combination of culturally rich ingredients and practical portability, making it an attractive option for travelers seeking natural, healthy solutions to common travel-related problems. With its potential to revolutionize the travel wellness market, BetelBon offers a promising solution for travelers seeking to maintain their health and well-being while on the go.

Keywords: Betelbon; insomnia; gastrointestinal disorders.



Copyright: © 2024 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. INTRODUCTION

The prevalence rate of gastrointestinal diseases is nearly 40% worldwide. Gastrointestinal disease can lead to many diseases such as heartburn, nausea and vomiting disorders, constipation, and diarrhea which are included in The Rome IV Foundation criteria. These four diseases have been supported by the European Medicines Agency (EMA) by stating that their official alternative is by treatment with herbals. Betel leaves are one of the herbals that can be used to treat gastrointestinal disorders because it numerous health benefits such as antioxidants, anti-inflammatory substances, and antimicrobials.

The occurrence of insomnia among populations globally ranges from 10% to 30% though it goes up to 50% or 60% in certain cases according to various research. There's research indicates that raw sugar cane can help you to get a good night's sleep. Sugar cane contains octacosanol which can assist the body in managing stress and anxiety. The research was undertaken by Mahesh K. Kaushik

and Yoshihiro Urade on stressed sleep-deprived mice. In those experiments, octacosanol was found to reduce blood levels of the stress hormone and caused all the mice who took it to sleep well for a night. The theory is postulated that octacosanol may be involved in sugar metabolism to aid in the normalization of sleep paths in mammals.

Gastrointestinal and insomnia disorders are unpredictable things that can happen during travel. Someone who suffers from these two disorders will face more problems if they travel to a place where it is hard to find medicine for these disorders. To help them treat their diseases, we decided to create betel leaf and sugarcane candy. Betel leave can help in treating gastrointestinal disorders meanwhile sugarcane can help someone in getting a good night's sleep. So, travelers who suffer from gastrointestinal and insomnia disorders can bring this candy wherever they go and take it when needed. Travelers need to keep their bodies in good health because it will cause them to feel uncomfortable if they are exposed to any disease.

2. PROBLEM STATEMENT

If people have ever had insomnia, they might have known that going on a travel can make insomnia worse. Besides, even people who do not face insomnia have a problem when it comes to falling asleep on travel. Many people who visit other countries often find it difficult to sleep because circadian rhythms are caused by crossing various time zones which leads to jet lag (Sack et al., 2007). Travelers may find it hard to enjoy their activities due to chronic fatigue. Lack of sleep can result in tiredness which will affect traveler's ability to participate in travel experiences. When individuals return from international travel, it is common for them to experience different forms of gastrointestinal disorders. According to The Medline (PubMed) as well as SCOPUS, their databases have shown that 40%-60% of travelers experience gastrointestinal symptoms. Different regions often present unfamiliar foods or beverages leading to a traveler's diarrhea disease (Steffen, Hill, & DuPont, 2015). This situation can cause serious dehydration, abdominal pain, and disorganization of travel plans as it influences whole the experience of travelers.

3. FINDINGS

In a world that values health and wellness in every way, Betelbon candy is a one-of-a-kind treat that gives you more than just taste. Because it is made from naturally sweet and healthy sugarcane and traditional and culturally important betel leaves, Betelbon candy is good for individuals in many ways. The ability to treat insomnia and improve the health of the digestive system is very important.

3.1 *Insomnia*

Betel leaves, also known as piper betels, are a common practice in many Asian cultures. These leaves are chewed for their stimulating and medicinal properties throughout tradition. On the other hand, the potential benefit that they could provide for people who suffer from insomnia is not as widely understood. Betel leaves are mildly sedative but also help calm the mind and body, making sleep easier. Relaxing substances in betel leaves include eugenol. These substances reduce anxiety and stress, which cause sleep problems. Betel leaves may also relieve these issues, making sleep more comfortable and restful. Additionally, the aromatic substances that can be found in betel leaves play a big role in making people feel more relaxed. There are calming essential oils in these leaves that can help make the surroundings more relaxing, which in turn makes it easier to fall asleep. (Barode, 2024) A natural medicine that is useful in increasing the quality of sleep is betel leaves because of its dual action, which

includes both physiological and sensory effects. BetelBon candy may help people sleep better without the harsh side effects that come with most pharmaceutical sleep aids if they add it to their night time habit. For people who have trouble sleeping, this is especially helpful. In addition to its well-known high sucrose content, sugarcane also provides lots of other advantages that go beyond its sweetness. Naturally occurring sugars in sugarcane give you energy quickly and calm your nerves at the same time. Sugarcane has a lot of sugar in it. Sugarcane can help keep blood sugar levels steady, which is important for having a healthy mood and avoiding the morning wake-up calls that are caused by low blood sugar. Sugarcane can be used in moderation. In addition, sugarcane has serotonin, which is a neurotransmitter that controls mood as well as sleep in the body. sugarcane can assist enhance sleep patterns and the overall quality of sleep by stimulating the production of serotonin in the body.

3.2. Gastrointestinal Disorders

The traditional medical literature provides ample evidence that betel leaves are beneficial to the digestive system. The use of betel leaves has been shown to accelerate the secretion of digestive enzymes, which in turn improves digestion overall and the breakdown of food that is consumed. Regular digestive problems, such as bloating, indigestion, and constipation, can be avoided with the help of this stimulation. Additionally, the anti-inflammatory qualities of betel leaves have the ability to calm the gastrointestinal tract, so reducing the amounts of inflammation and discomfort that are linked with diseases such as irritable bowel syndrome (IBS) and other inflammatory digestive disorders. Because betel leaves are incorporated into a candy, Betelbon offers a convenient and appetizing approach to take advantage of the digestive benefits that betel leaves offer. Betel leaves are beneficial to digestion, and sugarcane helps to maintain the body's alkaline balance, which complements the digestive process. Sugarcane juice's alkaline composition serves to neutralize the acids that are produced by the stomach, so reducing acid reflux and heartburn. The maintenance of this equilibrium is essential for achieving optimal digestion and avoiding discomfort in the gastrointestinal tract. In addition, sugarcane juice contains a high concentration of antioxidants, which shield the lining of the gastrointestinal tract from the damaging effects of oxidative stress, so further enhancing gut health. Betelbon candy is an efficient and fun approach to improve digestive health since it possesses a mix of characteristics that promote digestive health

3.3 Market Potential

Betelbon candy has huge market potential since they appeal to people who are health-conscious and look for natural and useful foods. The need for products with additional health advantages and the increasing awareness of wellness trends match very nicely with Betelbon candy's distinctive product line. Its utilization of traditional components appeals to cultural nostalgia, particularly among individuals who have a heritage of chewing betel-based products. The all-natural, artificial-addition-free composition of Betelbon candy is another factor that attracts consumers who are looking for healthier and more environmentally friendly snack options. Betelbon candy has the potential to carve out a niche in the confectionery sector with effective marketing and consumer education. The candy offers a sweet pleasure that straddles the border between traditional and modern health.

4. DISCUSSION

The concept of Betelbon, an innovative candy designed for travelers, combines traditional betel leaves and sugar cane extract with isomalt for a healthier sweetener. this unique product addresses travel-related insomnia and gastrointestinal disorders, offering a dual-function solution for relaxation

and digestion. the discussion below explores the importance of both product uniqueness and usefulness in the context of BetelBon.

4.1 Product uniqueness

BetelBon offers a unique solution to common travel-related health issues by leveraging the medicinal properties of betel leaves and sugar cane extract. Betel leaves (*Piper betle*) have been used traditionally in many cultures for their calming and therapeutic effects. They contain compounds such as eugenol, chavicol, and phenols, which have been shown to possess anti-inflammatory, analgesic, and gastro-protective properties. These properties help mitigate gastrointestinal disorders such as bloating, indigestion, and constipation, which are prevalent among travelers due to irregular eating habits and exposure to unfamiliar foods. Moreover, betel leaves are known to promote relaxation and alleviate stress, making them beneficial for addressing travel-related insomnia and anxiety. This is particularly useful for travelers experiencing jet lag or difficulty sleeping in new environments. Sugar cane extract, on the other hand, is a rich source of essential nutrients like iron, magnesium, calcium, and vitamins. It aids in digestion, boosts energy levels, and supports overall metabolic functions. Its natural sweetness, combined with the use of isomalt as a healthier alternative sweetener, ensures that BetelBon is both nutritious and low in calories, appealing to health-conscious travelers.

4.2 Product usefulness

The uniqueness of BetelBon lies in its innovative combination of culturally rich ingredients and its practical portability, tailored specifically for travelers. Unlike traditional medicinal preparations, BetelBon presents these benefits in a modern, convenient candy form. This makes it easy for travelers to carry and consume without the need for water or additional preparation, addressing the need for practical health solutions during travel. Travelers can use BetelBon in various scenarios: to relax and ease into sleep during long flights, to settle their stomachs after trying new foods, or simply as a quick energy booster while on the go. This dual-functionality sets BetelBon apart from typical travel snacks and over-the-counter medications, offering a natural and effective alternative.



Figure 1. Product's logo

5. CONCLUSION

In conclusion, BetelBon Candy can help with many issues that come up when they're outside, especially when while on holiday. The healing qualities of betel leaves are mixed with the natural sweetness of sugarcane to make BetelBon candy, which is an interesting mix of tradition and health. This innovative candy offers notable benefits for insomnia and gastrointestinal health, making it more than just a snacks. The relaxing and sedative properties of betel leaves, along with the mood-regulating effects of sugarcane, provide a natural remedy for sleep disturbances. Both ingredients help the digestive system and reduce inflammation at the same time, which is good for gastrointestinal wellness. Being aware of the health risks of what someone eat is important, but BetelBon candy stands out as a unique and useful product that speaks to people who are both health-conscious and culturally aware. This sweet idea not only tastes great but also is good for individuals in general. It brings together traditional and modern concepts in the candy market.

Acknowledgments: We extend our heartfelt gratitude to everyone who contributed to the development of BetelBon. We appreciate our team members for their dedication in turning this concept into reality. We are grateful to our lecturer Dr Khairun whose guidance, encouragement, and insightful feedback have been invaluable throughout making this product. Special thanks to our early testers and pilot users for their valuable feedback, which has been crucial in refining BetelBon. Lastly, we thank our families and friends for their unwavering support and encouragement throughout this journey. This project would not have been possible without the collective efforts of everyone involved. Thank you for believing in the potential of BetelBon to make travel healthier and more enjoyable.

References

- Pradhan, D., Suri, K. A., Pradhan, D. K., & Biswasroy, P. (2013). Golden heart of the nature: Piper betle L. *Journal of Pharmacognosy and Phytochemistry*, 1(6), 147-167.
- Parmar, V. S., Jain, S. C., Gupta, S., Talwar, S., Rajwanshi, V. K., Kumar, R., ... & Olsen, C. E. (1997). Polyphenols and alkaloids from Piper betle. *Phytochemistry*, 46(4), 597-602.
- DeWitt, T. E., & Lucas, E. A. (2001). Sugar cane and its benefits: Nutritional value and health benefits. *Journal of Food Science and Nutrition*, 32(5), 247-258.
- Tripti Singh a, a, b, d, c, e, (2023, November 28). A literature review on bioactive properties of betel leaf (Piper Betel L.) and its applications in food industry. *Food Chemistry Advances*.
- Cleveland Clinic. (2024, May 29). *What happens when you don't get enough sleep?*.
- Cziple, S. (n.d.). Treatment of gastrointestinal disorders-plants and potential mechanisms of action of their constituents. *Molecules*.
- HL, S. R. D. (n.d.). Traveler's diarrhea: A clinical review. *JAMA*.
- MediLexicon International. (n.d.). Anxiety and depression: Melatonin may lower risk of self-harm in Youth. *Medical News Today*.
- Barode, D. S. (2022, September 27). Betel leaves: Uses, benefits, side effects. *PharmEasy Blog*.
- Ergo, H. (2023, April 24). 10 reasons you should drink sugarcane juice this summer. *HDFC ERGO; Healthsite,TOI*.