

CHAPTER I

INTRODUCTION

1.1 Background of the Study

In recent years, there has been growing consumer interest in functional beverages that support both physical health and emotional well-being. This trend is particularly evident among individuals who are lactose intolerant, follow a vegan or plant-based diet, or actively seek sustainable and health-promoting food alternatives. Concerns about health, ethics, and the environment are driving the growing demand for plant-based milk alternatives. The increasing demand for plant-based beverages is driven by consumer interest in health, sustainability, and ethical concerns, with nut-based options such as macadamia milk gaining attention due to their nutritional profile and sensory appeal (Camacho-Teodocio et al., 2024).

Macadamia nut-based beverages may be attractive in the current market because consumers value the nutritional value and sensory qualities of macadamia nuts (Camacho-Teodocio et al., 2024). Macadamia nuts are rich in monounsaturated fatty acids (MUFA), particularly oleic and palmitoleic acids, and contain significant amounts of phytochemicals such as tocotrienols and polyphenols, which contribute to their antioxidant capacity and potential cardiovascular benefits (Gulati et al., 2023). In addition to their nutritional benefits, they provide a neutral yet rich base ideal for pairing with botanical ingredients.

Beyond these scientific and market-based motivations, this research also stems from a personal experience. As someone who often experiences difficulty falling asleep and prefers calming beverages before bedtime, I found limited options in the market that combine both relaxing botanical properties and a creamy taste. This sparked my interest in developing a functional beverage that not only supports health but also feels comforting and enjoyable to consume.

Inspired by my personal routine of drinking herbal tea at night, especially chamomile and lavender, to ease stress and improve sleep quality, I wanted to elevate that experience into something more nutritious and multi-dimensional. By combining those calming herbs with macadamia milk, blueberries, and honey. This project reflects my passion for culinary innovation, as well as my desire to address real lifestyle needs through food.

To address the growing demand for functional plant-based beverages that promote relaxation and stress reduction, calming botanicals such as chamomile (*Matricaria chamomilla*) and lavender (*Lavandula angustifolia*) have been incorporated into innovative beverage designs. Chamomile has long been traditionally used as a gentle sedative to soothe the nerves and ease anxiety, as well as to help with hysteria, nightmares, insomnia, and various sleep disorders (Srivastava et al., 2010) and lavender has been considered an effective natural remedy for alleviating insomnia and enhancing sleep quality (Koulivand, P. H., Khaleghi Ghadiri, M., & Gorji, A. (2013). Both herbs are traditionally used to reduce anxiety and promote sleep. When paired with lemon zest, the beverage gains a refreshing aromatic balance and added functional benefits, as citrus zest is a natural source of essential oils, vitamin C, and digestive-supporting compounds (Magalhães, D., Vilas-Boas, A. A., Teixeira, P., & Pintado, M. (2023).

Blueberries also strengthen the formulation, as the main compounds responsible for their antioxidant power are anthocyanidins, which are recognized to contribute approximately 84% of the total antioxidant capacity (Wang et al., 2024). Natural sweeteners like honey not only round out the flavor, but also contribute mild antimicrobial and prebiotic effects. Honey contains a variety of compounds including flavonoids and phenolic acids that contribute to its antimicrobial properties. Additionally, honey has been shown to promote the growth of beneficial gut bacteria, indicating potential prebiotic effects (Jurendic, T., & Tomic, S. (2009).

The combination of these ingredients results in a plant-based beverage that is not only visually appealing but also functional, designed specifically as calming drink to be consumed before bedtime. This innovation serves as a response to evolving dietary patterns and wellness trends, offering a unique, health-supportive beverage that aligns with modern consumer expectations for sustainability, functionality, and sensory appeal.

1.2 Objectives of the Study

The objectives of this study are following below:

1. To introduce the potential of combining various functional plant-based ingredients, such as macadamia nuts, blueberry, lavender, and chamomile into a single beverage that can serve as a healthy, dairy-free alternative suitable for lactose-intolerant, vegan, or health-conscious individuals.
2. To determine the nutritional composition, food safety, and packaging as well as the financial aspects of the Blueberry Lavender and Chamomile Macadamia Milk product.