

CHAPTER I

INTRODUCTION

1.1 Background of the Study

There are a lot of new food products on the market nowadays, particularly vegan-friendly ones. A vegan lifestyle is thought to be beneficial for preventing metabolic disorders in humans (Bamisaye & Adepoju, 2018). A vegan is a person who follows a plant-based diet and abstains from all animal products, including meat, eggs, shellfish, insects, and seafood (Vegan society, 2017). Innovation in the creation of vegan snack items has been fueled by the rising demand for plant-based substitutes. Although many plant-based substitutes offer reduced saturated fat and cholesterol, some products are highly processed and may contain added sodium or artificial additives (Tso, R., & Forde, C. G. 2021). Consumer acceptance is influenced by sensory attributes, price, labeling, and perceived health benefits. This study investigates a vegan snack derived from banana peel and natural spices, including its formulation, nutritional profile, sensory qualities, and consumer acceptability.

One of the world's leading banana-producing nations, Indonesia produced over 8.74 million tonnes of bananas in 2021 (Badan Pusat Statistik. 2022). According to scientific research, banana peels make up between 30% and 40% of the fruit's weight, with 35% being the most often accepted estimate (Emaga, T. H., et al. 2007). Based on this ratio, it is projected that Indonesia produced approximately 3.06 million tonnes of garbage from banana peels in that particular year (Ravindran, R. M., Jaiswal, S., & Jaiswal, A. K. 2018). Instead of letting it build up as uncontrolled agricultural waste, this large amount of organic waste indicates a great possibility for sustainable application, such as in the manufacture of bio-compost, animal feed, culinary ingredients, or biodegradable products.

Banana peels have not been widely used by the community as a material for food processing. Banana peels, often discarded as waste, are emerging as valuable by-products due to their rich nutritional and functional properties.

This review highlights the potential applications and health benefits of banana peel, which is a rich source of dietary fiber, antioxidants, polyphenols, and essential minerals such as potassium and magnesium (Sulaiman, S. F., et al. 2011). Studies have demonstrated antimicrobial, antioxidant, and anti-inflammatory properties of banana peel extracts, suggesting their usefulness in functional foods, cosmetics, and even bioplastics (Imam, M. U., et al. 2016). Banana peels can be processed into the main ingredient in making banana peel jerky.

Jerky is a popular snack enjoyed by many people, a type of dried and seasoned meat product, has become increasingly popular as a convenient, high-protein snack among health-conscious consumers and outdoor enthusiasts. However traditional jerky is generally made from animal ingredients such as beef, turkey, or pork, It presents a problem for vegetarians. Vegetarians cannot indulge in this popular snack, which is renowned for its savory flavor and crispy texture, because to this dietary limitation.

The drying process is critical for both preservation and texture development, often involving controlled heating to reach safe internal temperatures (around 72°C) to eliminate pathogens before dehydration (Ismail et al., 2022). Various meats can be used for jerky production, including beef, rabbit, and poultry, with each type affecting the final product's color, texture, and nutritional properties. Recent studies have explored improvements in jerky processing, such as pre-stretching beef strips before drying to enhance texture and reduce drying time, as well as using ground meat for uniform curing and drying (Nurwantoro et al., 2023).

Using banana peels as a base for vegan jerky is a promising approach due to their rich nutritional profile, including high dietary fiber, essential minerals like potassium and phosphorus, and bioactive compounds with antioxidant and antimicrobial properties that support health and food safety (Sharma et al., 2023). Banana peels have also demonstrated potential as a functional ingredient in plant-based meat products, improving texture, flavor, and consumer acceptance while maintaining microbiological safety, making them

a viable substitute for traditional textured vegetable protein in jerky formulations (Issara et al., 2024).

Furthermore, utilizing banana peels helps reduce food waste by transforming an often-discarded byproduct into a sustainable, nutrient-dense snack option, aligning with environmental and economic goals. The prebiotic potential of banana peels additionally contributes to gut health by promoting probiotic growth, adding functional benefits beyond basic nutrition (Tan et al., 2024). Overall, banana peel-based vegan jerky offers a nutritious, eco-friendly, and appealing alternative to conventional jerky, supporting both health-conscious and environmentally sustainable food choices.

The aim of the research is making banana peel as a jerky because is a creative and sustainable approach to lowering food waste and encouraging ecologically friendly eating practices. And also provides a vegan-friendly, allergy-conscious substitute for traditional beef jerky, which uses more resources and produces more emissions, while also reducing the environmental effect of the product for a rising number of customers looking for sustainable food alternatives.

1.2 Objectives of the Study

The objectives of this study are following below:

1. Introduce the idea of using leftover banana peels, which fall under the category of food waste, to enhance their culinary potential and cut waste while increasing the variety of food alternatives.
2. Promote banana peel upcycling as a sustainable strategy for reducing food waste and enhancing circular economy practices in the plant-based food industry.