

# Chapter 1

## INTRODUCTION

### 1.1 Background

Households and businesses such as restaurants or baked goods producers utilize edible fat products almost everyday, making it an essential ingredient for day to day food production. Its usage ranges from being used as grease or lubricant to acting as an ingredient that influences the overall cooking process such as enhancing flavor, achieving a specific texture, balancing heat transfer and emulsifying or thickening sauces (Memon et al., 2024).

An edible fats manufacturing company in Indonesia is currently formulating samples of butter blends and testing its stability. Butter blends are essentially margarine based products with the addition of butter oil which are anhydrous milk fats. The resulting product could pose as a potential new product type to enter the Indonesian market that mimics the indulgence similar to that of animal milk-based butter while being at a more affordable price.

Storage conditions of any food product in general affects its shelf life, thus bringing about the importance of testing for its stability. The stability is a critical factor that influences the quality, shelf life and overall consumer acceptance. During storage, butter blends undergo various physicochemical and sensorial changes that impact its texture, flavor and nutritional value (Zaeroonali et al., 2014). Improper storage conditions such as exposure to air, light or fluctuations in storage temperature could cause destabilization to occur that could lead to undesirable changes such as oxidation, rancidity and separation (Silva et al., 2021). In order to ensure the product's quality, stability testing is conducted to evaluate the ability of butter blends to maintain its quality throughout its intended shelf life. The following parameters will be conducted on the butter blend

samples stored in different temperatures; peroxide value, free fatty acid value, colour and sensorial evaluation.

### **1.2 Objective**

The objectives of this research project are as follows;

- To store the butter blend samples in two different temperatures of 15°C and ambient (25°C-28°C) over the course of five months and observe, analyze and evaluate the physicochemical changes (or lack thereof) as well as consumer acceptability through sensory analysis.
- To evaluate the percentage change of each of the parameters between the start and the end of the experiment for both temperature samples and compare the results.

### **1.3 Hypothesis**

The hypothesis of this research project are as follows;

- H0: The analysis results between the two butter blend samples of this study will have no significant difference in physicochemical and sensorial properties.
- H1: The analysis results between the two butter blend samples of this study will have a significant difference in physicochemical and sensorial properties.