

Chapter 1

Introduction

1.1 Background

In recent years, Indonesia's food market has the most growing area in dairy application, including UHT milk (Euromonitor International, 2025). Furthermore, the source also mentions that the milk consumption habit slowly integrates from storing the milk inside the refrigerator into making the milk become part of kids' lunch boxes due to its nutritional value and practical convenience from parents point of view.

From the data focusing on the industry, Symrise Indonesia is eager to expand its area of field in dairy especially in strawberry tonality. Amongst other liquid milk format categories in Indonesia, flavored milk drink places first in volume sales for 5 consecutive years, with a past CAGR value of 4.66% and value of 21.1 trillion in 2024 alone (see **Figure 1.**) (Euromonitor International, 2025).

Volume Trend of Milk Products Over Years

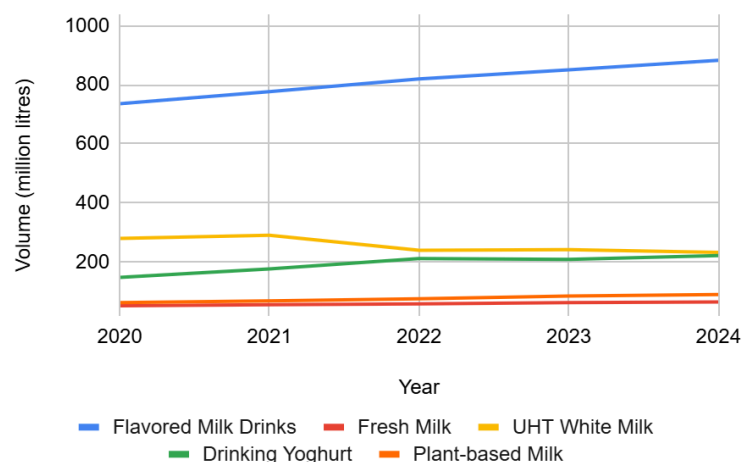


Figure 1. Volume Trend of Milk Products Over the Past Five Years

Based on Mintel (2025), strawberry flavor places second as the most launched flavor variant under the category of liquid flavored milk with 20 releases, such as Grandairy Strawberry Milk and Milklife

UHT Milkshake Strawberry Cheesecake (see **Figure 2.**). This indicates that strawberry as a core flavor still has potential as its market is still growing.

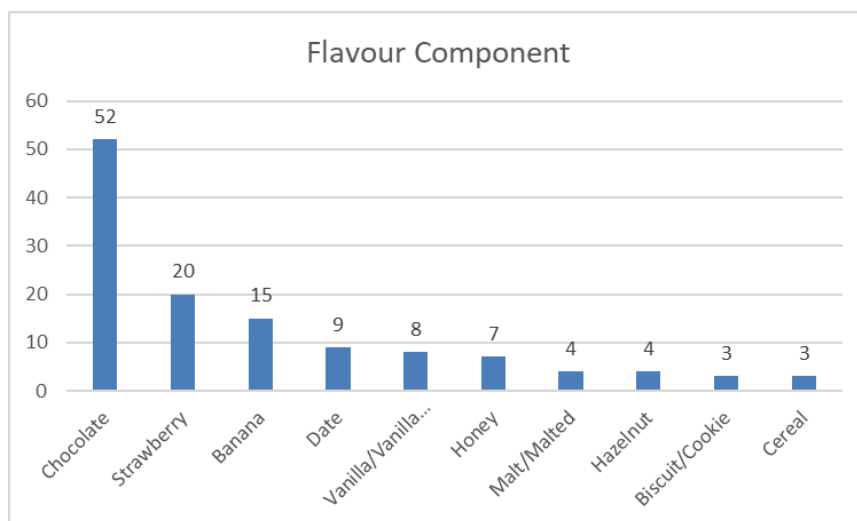


Figure 2. Highest Flavour Components Released Between January 2020 and February 2025 under Category of Flavored Milk Type Liquid with Launch Type including New Product, New Variety, and New Formulation in Indonesia ©2025 Mintel Group Ltd.

Stabilizer brings a downside on flavored milk which is decreasing and altering the release of flavor and aroma of flavor profiles. Despite the drawback, stabilizers are added to retain optimum properties of the emulsion beverage appearance, body, mouthfeel, and consistency. The function is related to texture improvement and physical stability including prevention of creaming, phase separation, and protein denaturation within heat exposure (Seisun, 2009). Based on market observation in the Indonesian market, it was found that some of the stabilizers used by UHT commercial strawberry flavored milk include vegetable based stabilizer in Greenfields Strawberry, Ultra Milk Susu Stroberi, Frisian Flag, and Grand Dairy Strawberry Flavor. Chosen stabilizers compare one having wide availability with various types and forms, κ -carrageenan. One, commonly applied in milk beverage products as it forms soft and elastic gel, gellan gum. One consisting of carrageenan, mono- and diglyceride, alongside guar gum which provides mouthfeel yet not giving significant effect to viscosity (Singh and Gallier, 2017; Reis et al., 2020). Hence the following are included: κ -carrageenan, gellan gum, and carrageenan mixture. Thus, usage of a combination of both stabilizer and flavoring is done in the research to investigate the viscosity alongside sensory characteristics of milk, involving acceptability testing on day 1, 7, and 14 after production of milk.

1.2 Objective

The purpose of the study is to investigate the impact of stabilizers on the physicochemical properties and sensorial characteristics of strawberry flavored milk on day 1, day 7, and day 14 post pasteurization days. The result of the study is to make use of the best stabilizer that exhibits the best physicochemical properties and sensorial characteristics in a period of two weeks for internal evaluation and sample submission within the company.

1.3 Hypothesis

The hypothesis of this study is as follows.

H0: Stabilizer will not significantly affect the physicochemical properties and sensory characteristics of strawberry flavored milk on day 1, day 7, and day 14.

H1: Stabilizer will significantly affect the physicochemical properties and sensory characteristics of strawberry flavored milk on day 1, day 7, and day 14.