CHAPTER I
INTRODUCTION

1.1 Background of the Study

Innovation in functional food product continues to grow in line with increasing public awareness of healthy lifestyle. One popular and practica form of functional product is the effervescent beverage, an effervescent product is a type of product designed in the form of tablets or powders that, when dissolved in water, produce carbon dioxide bubbles (CO2), creating a fizzing or bubbling effect similar to soda. Maintaining effervescent tablets in a solid form is not easy, as it requires attention to the components, which consist of sodium bicarbonate and organic acids that produce sodium salts, CO_2, and water. Therefore, this product must be protected from high humidity through proper packaging (Herta,2024) This effect occurs because of the chemical reaction between certain ingredients in the product and water, which generates carbon dioxide gas. Effervescent products are commonly found in effervescent tablets or drink powders that offer a refreshing sensation along with additional health benefits.

One of the most important ingredients in optimizing the product is citric acid and tartaric acid, which are often used in the production of effervescent tablets due to their cost-effectiveness and superior availability compared to other acid sources and carbonate compounds. It would be challenging to manufacture these tablets if the acid were used alone; therefore, a combination is applied (Alya Anggryanti, 2023). The resulting powder tends to clump and weaken if tartaric acid is used as the sole acid.

A im to create a natural effervescent tablet using fruits, offering a convenient and innovative way to consume the nutritional benefits of fruits. The goal is to transform these fruits into effervescent tablets, not only making them more accessible but also allowing consumers to enjoy the health benefits of multiple fruits in a single product. This approach will help people obtain the nutritional value of fruits without needing to eat them individually, combining the benefits of papaya, apple, and oats in one easy-to-consume effervescent tablet. Many people struggle to consume fruits regularly, either due to time constraints, taste preferences, or other lifestyle factors. By converting fruits like papaya, apple, and oats into an effervescent tablet, we can make it easier for individuals to consume these nutrients.

Papaya (*Carica papaya)* is a source of rich in nutrients as, provitamin a, carotenoid, vitamin c, vitamin b, lycopene, minerals diets and fibers food (Permatasari, 2018). Apples (*Malus domestica*) are high in pectin fiber, vitamin C, and polyphenol antioxidants. Regular consumption of apples has been associated with reduced risk of heart disease, diabetes, and improved gut health. Oats (*Avena sativa*) are a source of complex carbohydrates and soluble fiber, particularly beta-glucan, which plays a key role in lowering blood cholesterol levels and stabilizing blood sugar. Oats also promote a feeling of fullness, making them ideal for diet or detox products (a Sava,2023).

Combining these three ingredients into an effervescent tablet is expected to create a product that is not only practical and pleasant-tasting but also supports digestive health, boosts immunity, and helps regulate cholesterol levels. The effervescent form may also enhance the bioavailability of active nutrients, allowing for faster absorption and a more engaging consumption experience compared to traditional drinks given the health benefits of papaya, apple, and oats, developing an effervescent product from these ingredients is a strategic move to meet the growing demand for healthy, convenient, and value-added functional beverages.

1.2 Objectives of the Study

1. To Understand and gain a clear knowledge of effervescent tablets, including their functions and uses.
2. Determine the nutritional facts of the fruits used in the creation of effervescent tablets and to clearly understand the benefits of natural ingredients (papaya, apple and oats) in the formulation of effervescent product.