CHAPTER I

INTRODUCTION

1.1 Background

The diverse array of flavors and cooking techniques that grace the Indonesian culinary scene includes the notable dish "Pempek," a culinary masterpiece that skillfully combines local ingredients with intricate cooking methods, providing a captivating insight into the nation's rich gastronomic heritage (Surya et al., 2023). At the core of Pempek is an artfully crafted fishcake, where the careful selection of fish, flour, and seasonings converges to create a seamless fusion of texture and flavor. Beyond its culinary excellence, Pempek transcends mere gastronomy; it serves as a symbol of communal dining experiences and nurtures strong familial connections.

At the core of the Pempek experience lies the special vinegar-based sauce known as "cuka," which, when combined with the fishcake, takes the dish to a higher level. However, the allure of Pempek is not without its challenges, especially concerning global exportation. The delicate balance of components in the cuka makes the entire dish vulnerable to spoilage, and airline regulations prohibiting the transportation of liquids pose constraints on its shelf life, impeding widespread distribution. Despite the substantial production of Pempek, reaching 14 tons daily in 2022, only a limited number of producers, around 5-6, could successfully export Pempek abroad, and such export activities were not a daily occurrence (Rosana, 2022).

Given these constraints, there is a compelling need for innovative preservation methods. A solution involves transforming the traditional liquid "cuka" into a powdered form, not only facilitating ease of handling but also introducing a new sensory dimension through culinary innovation. The concept of shifting from liquid to powder is not groundbreaking as various studies have explored methodologies like spray drying for this purpose (Patel et al., 2009).

In the current research, alternative drying methods—specifically oven drying, dehydrators, and foam-mat drying—are chosen for the sample that is not purely liquid as there is a small part of

the ingredients that could clog the spray drying machine. That is why using the foam-mat drying method aims to change the cuka from a liquid to a powder, with a particular focus on the physical attributes of the cuka powder. This approach seeks to reduce the risk of microbial growth, effectively extending the shelf life of the cuka and, consequently, the entire Pempek dish. By doing so, the experiment seeks to mitigate the risk of microbial growth, effectively prolonging the shelf life of the cuka Pempek.

The reason why this experiment uses the foam-mat drying method is because this technology is applicable at the household-industrial level. In light of this, the study explores the characteristics of instant pempek sauce through the utilization of the foam mat drying method. Foam mat drying, operating as a liquid drying process, employs a stable foaming agent to expedite water evaporation, resulting in a high-quality powdered product. The foam stabilizer is applied with drying temperatures ranging from 50°C to 80°C, achieving a final moisture content of approximately 2-3% (Zubaedah, 2013). To convert glucose and fructose into instant sauce, a specialized technology, namely Foam mat drying, is necessary.

The foam-mat drying technique necessitates the addition of a foaming agent and filler. Commonly employed foaming agents in this method encompass maltodextrin, tween 80, carboxymethylcellulose (CMC), and egg white (albumin) (Susanti, 2014). In the present study, maltodextrin serves as the chosen foaming agent. Maltodextrin finds application in food due to its specific properties, characterized by a rapid dispersion process and high solubility (Ramadhia et al., 2012). Proper utilization of maltodextrin is associated with a reduction in water and ash content, an increase in dissolution time, antioxidant activity, and the preservation of aroma and color. Egg whites are employed as a foaming agent due to ovomucin, a component capable of generating substantial and enduring foam (Asiah et al., 2012).

This ambitious initiative is motivated by the overarching objective of not only addressing logistical hurdles in global exportation but also safeguarding and conveying the cultural significance

and gastronomic charm of Pempek on a global scale. Essentially, this research seeks to stretch the boundaries of culinary adaptation, harmonizing tradition with innovation to ensure that the essence of Pempek goes beyond geographical limitations and continues to enchant taste buds worldwide. Through a careful examination of physical properties and the resultant impacts of the transformation, this experiment serves as a testament to the dynamic realm of culinary arts, where creativity and adaptability intersect to protect and promote cultural heritage. The conversion process aims to change the cuka from a liquid to a powder, with a particular focus on the physical attributes of the cuka powder This approach seeks to reduce the risk of microbial growth, effectively extending the shelf life of the cuka and, consequently, the entire Pempek dish. By doing so, the experiment seeks to mitigate the risk of microbial growth, effectively prolonging the shelf life of the cuka Pempek.

1.2 Objective

The purpose of this experiment is to evaluate the physical properties of pempek vinegar sauce powder that was mixed with a certain ratio of egg whites and maltodextrin.

1.3 Hypothesis

The hypothesis of this study are:

- H0 = The physical features of Pempek sauce, converted into powdered form through the foam mat drying method, are believed to be notably affected by the concentrations of maltodextrin and egg white.
- H1 = The physical features of Pempek sauce, converted into powdered form through the foam mat drying method, are believed to not be affected by the concentrations of maltodextrin and egg white.

1.4 Scope of Activity

The scope of this research work involves the production of powdered cuka pempek. The process includes removing water from cuka pempek through dehydration using either an oven or dehydrator, grinding the dried cuka pempek into powder, and removing moisture by reheating the powdered cuka pempek with an oven. The research also involves conducting physical analysis of the RP powder, including hygroscopicity (Gravimetric), solubility (Gravimetric), moisture (Karl Fischer Titration), Aw (PAWKIT), flowability (Carr's index & Hausner ratio), and viscosity (Viscometer).