

CHAPTER I. INTRODUCTION

1.1. Background

Cangkuk (Lubuk Jambi language: *cangkuak*) is a fermented food made from beef or buffalo meat with betung bamboo shoots, salt, rice and water. Cangkuk is also made from beef or buffalo meat, added with kluwak endosperm (kluwak), salt, and rice. Cangkuk's manufacturing technique, ingredients, and formulation are unique to each region in the Kuantan Mudik district, resulting in a final product with different characteristics. The fermentation process is carried out without adding microbial cultures (spontaneous) for one to three weeks in a tightly closed container (Mirdhayanti, 2022).

Cangkuk has existed in Kuantan Singingi Regency since ancient times before the discovery of refrigeration techniques with the aim that beef lasts a long time and does not just rot, Cangkuk is one of the local wisdom of Kuantan Singingi Regency, which is now beginning to diminish in existence (Aldona *et al.*, 2019). Differences in raw materials and fermentation media used in Cangkuk processing in Kuantan Mudik District will add to food diversity and the development of added value to meat-based food products (Mirdhayanti, 2022). Cangkuk is a traditional food that needs to be preserved and preserved because the existence of Cangkuk in the Kuantan Singingi Regency is decreasing due to modern society tending to switch to using freezers as a tool to preserve meat.

Meat is the main raw material used in making Cangkuk. Meat is an important source of animal protein that fulfills nutritional needs and provides

properties for maintaining health. The fermentation process in meat can reduce the impact of headaches, circulation disorders and poisoning after consuming meat due to the high content of tyramine and histamine from the decarboxylation of amino acids (Virgili *et al.*, 2007). The fermentation process in meat will also produce simpler compounds that are easier to digest and fermented meat contains higher nutritional status because it contains peptides and amino acids (Singh *et al.*, 2012). Beef and buffalo meat has a protein content of 18.7-18.8%; 14% fat; 76.6% moisture content; 1% ash content and a characteristic meat pH value of 5.4 (Hasbullah, 2005).

The public widely recognizes fermented food products derived from fishery products, but traditional fermented food products made from beef or buffalo still need to be made available. Traditional food processing has been known for a long time. One way of processing is by fermentation. Fermentation of meat can produce food products with higher nutritional value status, improve product quality by producing distinctive textures, aromas and flavors and extend product shelf life (Smid & Hugenholtz, 2010).

Lactic acid bacteria are a group of bacteria that break down carbohydrates (glucose) into lactic acid which will lower the pH and cause a sour taste (Muchtadi & Ayustaningwarno, 2010). Lactic acid bacteria are essential in almost all food and beverage fermentation processes. Their main role is to acidify raw materials by producing mostly lactic acid, a small portion of acetic acid, ethanol, and CO₂ (Nur, 2005). Lactic acid bacteria include microorganisms that are safe when added to food because they are non-toxic and do not produce toxins, so they are called food-grade microorganisms or known as Generally Recognized As Safe (GRAS)

microorganisms, which are microorganisms that do not pose a health risk, even some types of bacteria are useful for health. Lactic acid bacteria are useful for improving the quality of hygiene and food safety through the natural inhibition of harmful pathogenic flora (Kusmiati & Malik, 2002).

Based on research conducted by Mirdhayanti (2022), it was found that the number of Lactic Acid Bacteria (LAB) of Cangkuak with bamboo shoot fermentation media produced a higher value (10^7 - 10^8 cfu/g) compared to Cangkuak with fermentation media of kluwak endosperm contents (10^3 cfu/g). The results of previous cangkuak research have been reported by Salahuddin (2004) that cangkuak from Sorolangun Regency, Jambi Province, contains high levels of lactic acid bacteria, ranging from 7.40 log CFU/g - 9.23 log CFU/g. Research on the presence of microbes in fermented food products (fish, milk, vegetables) has been widely conducted, but information on the presence of fermenting microbes and the in vitro potential of cangkuak fermenting bacteria has never been reported. It is hoped that the discovery of potential fermenting natural microflora can improve the quality of Cangkuak products, as well as become scientific information about the safety of Cangkuak and make traditional Cangkuak products sustainable so that further research needs to be carried out to isolate natural microflora and determine their potential.

1.2. Research Problem

1. What does natural microflora (bacteria, yeast, mold) present in cangkuak?

2. What is the proportional presence of bacterial groups (fermentative, proteolytic, lipolytic, cellulolytic and amylyolytic) in traditional cangkuak fermentation products?
3. To analyze the *in vitro* potential of fermentative bacteria of cangkuak?
4. What is the presence of pathogenic bacteria in traditional cangkuak fermentation products?

1.3. Research Objectives

1. To determine the presence of natural microflora (bacteria, yeast, mold) in cangkuak.
2. To analyze the proportional presence of bacterial groups (fermentative, proteolytic, lipolytic, cellulolytic and amylyolytic) in traditional cangkuak fermentation products.
3. To analyze the invitro potential of fermentative bacteria of cangkuak.
4. To determine the presence of pathogenic bacteria in traditional cangkuak fermentation products.

1.4. Benefits of Research

The benefits of this research are expected to provide scientific information and a reference for further research in exploring the natural microflora of traditional meat-based cangkuak fermentation products in Kuantan Mudik District.