

CHAPTER I

INTRODUCTION

1.1 Background of study

Indonesia as a society is known for its cultural diversity such as traditional practices and customs. Some of them are historically influenced by colonialism. Just like Indonesia, which experienced a long colonial period under Dutch rule and left a big influence on aspects of people's lives and culinary delights in Indonesia. One of the Indonesian foods that were influenced by Dutch culture is Frikadeller. (Windiany et al. 2023). Frikadel in the Netherlands is mostly made of minced and fried minced meat (Anggeraeni, 2018). the tongues of the Indigenous people who find it difficult to pronounce frikadel turn it into perkedel, in Central Java and East Java they call it bergedel. The perkedel themselves underwent several adjustments, namely by combining various types of Indigenous food ingredients, so that they became tempeh perkedel, tofu perkedel and corn perkedel (Irawan; Santosa, 2023). In this day, Perkedel is a food commonly made from fried potatoes or boiled before being crushed and then mixed with minced meat, sliced leaves onions, and celery leaves then mixed with spices. Round shape flattened dipped in beaten chicken eggs (Rafiansyah, 2017). The assumption of unpopularity of the other perkedel such as perkedel tempeh is because lack of likability, thus this study is aimed to innovate the recipe of perkedel using legume as base ingredients.

Chickpea (*Cicer arietinum* L.) is an important grain legume that is grown and consumed all over the world (Ullah et al. 2020). it is traditionally commercialised as seeds, flour or canned foods. In the frame of alternative protein sources, chickpea emerged as a rich source of dietary proteins (17–22%) that can be dry- or wet-extracted (Boukid, 2021). Other than protein, chickpeas contain carbohydrates, fat, minerals, bioactive compounds, and antinutrients, which all influence the efficiency of recovery and key quality attributes of chickpea protein Ingredients (Shevkani et al., 2019). in addition to

their protein content, relates to the level of dietary fiber, which is one of the highest among pulses. Indeed, the consumption of fiber-rich foods is highly recommended (Barber et al.,2020). The rising attention towards this crop is shown by several papers focusing on chickpea genetic diversity, and industrial processing (Farooq et al., 2018), including the influence of cooking methods on the nutritional quality (Bulbula; Urga, 2018) and development of attractive, convenient ready-to-eat food formulations. several studies reported the health benefits of chickpea consumption, including the reduction of postprandial glucose and related health risks (Summo et al., 2019), such as diabetes mellitus and metabolic syndrome (Aisa et al., 2019). Furthermore, bioactive compounds in chickpea exhibit anti-hypertensive activities (Bhagyawant et al., 2019).

Chickpea (*Cicer arietinum*) is a member of the legume family (Fabaceae) and is widely cultivated for its edible seeds (Mangena, 2020). It is an annual herbaceous plant with a deep taproot system, allowing it to access water and nutrients from deeper soil layers (Zhou et al., 2020). The leaves of chickpeas are compound, consisting of three leaflets, and are arranged alternately along the stem. The flowers are white, pink, or purple and are borne in clusters (Jukanti et al., 2019). The fruit of chickpeas is a pod containing one to two seeds, commonly known as chickpeas or garbanzo beans (Chand et al., 2021). The seeds are usually round, smooth- textured, and come in various colors, including beige, green, black, and red, depending on the variety (Majid et al., 2020) The protein content of chickpeas, averaging between 19% to 25% by weight, is particularly noteworthy (Lago-Oliveira et al., 2023)

Gluten is the name given to a group of wheat grain storage proteins found in wheat and related grains (rye and barley). Gluten is composed of prolamins (gliadins in wheat, ahordein in rye, and secalin in barley) and glutelins (glutenins in wheat). (Cohen et al.,2019). Rajnincová et al. (2019) state that the Codex Alimentarius limits the gluten content to 20 mg·kg⁻¹ for naturally gluten-free foods. For food products that are not naturally gluten-free, a maximum limit for the content of gluten of 200 mg·kg⁻¹ is stipulated, which corresponds to 0.02% gluten. The predominant protein components in legume

seeds are globulins (35–80%) and albumins (2–37%) and Albumins and globulins are the primary proteins present in chickpeas, with tiny amounts of glutelins and prolamines present (Singh et al., 2022) this statement is compatible to Rajnincová et al. (2019) state that peas, lentils, and chickpeas can be classed as gluten-free crop plants and, therefore, used for the purposes of a gluten-free diet. Several diseases termed as “gluten related disorders” includes celiac disease (CD), non-celiac wheat sensitivity (NCWS) and wheat allergy (WA), for which main external trigger is gluten. The only effective treatment for celiac disease is lifelong adherence to a gluten-free diet. A gluten-free diet requires avoidance of all foods that contain wheat, rye, barley, and oats. (Cohen et al., 2019). A lifetime gluten-free diet (GFD) is the treatment for individuals with CD (Itzlinger et al., 2018). Chickpea could be an alternate for gluten free product depending on the consumption and processed, thus this study is aimed to make a perkedel using chickpea as base ingredients.

1.2 The objective of the study

The objective of the study that I do there are a multiple reason as why I choose to make perkedel chickpeas:

1. To introduce fresh innovation into the food industry.
2. The objective is to encourage the use of chickpeas because they are not very well-liked.
3. Increase the awareness of perkedel based on legumes as an alternative for gluten free diet option.