

## I. INTRODUCTION

### 1.1 Background

In 2020, the demand for soy in Indonesia reached 3.28 million tons (Harsono, et al., 2021). This surge in demand can be attributed to the rising popularity of plant-based diets in the country (U.S. Soybean Export Council, 2020). Aside for its well-known for its health benefits, including the presence of isoflavones that have been shown to improve bone health (Harahap & Suliburska, 2021) soy is widely recognized for its high-quality protein content, comparable to animal protein (Sathyapalan, et al., 2017). Additionally, research suggests that incorporating soy into one's diet may help reduce the risk of certain chronic diseases, including cardiovascular disease and certain types of cancer. As a sustainable and environmentally-friendly crop, soy also contributes to global food security and helps alleviate pressure on animal-based protein sources. Nowadays, soy has become a popular food staple in Indonesia, serving as an affordable substitute for costly animal-based protein sources. In order to obtain health benefits, the United States Food and Drug Administration (FDA) recommends consuming a minimum of 25 grams of soy protein daily, which can lead to approximately a 12% reduction in blood cholesterol (Blanco Mejia et al., 2019). Given its many nutritional benefits, promoting adequate soy intake can play a significant role in supporting overall health and well-being for individuals

The measurement of protein and energy intake from soy consumption in a population allows researchers and healthcare workers to recognize patterns and trends in a person's dietary habits, which may be utilized to comprehend and manage any potential nutrient deficiencies or health risks (Reinwald, Akabas, & Weaver, 2010). As a prospective method of dietary assessment, food record does not rely on the

respondent's memory and typically records intake over a few consecutive days (Fialkowski, et al., 2010). However, this method has some drawbacks, such as not accounting for long-term variation in diet and simplification of menus due to burden on the participant (Shin, Oh, & Kim, 2014). Despite its limitations, the food record method is still considered a relatively precise method of measuring food and nutrient intake, offering comprehensive information about dietary intake, without the need for an interviewer, and eliminates recall bias (Kowalkowska, et al., 2013).

Freedman et al. (2006) found that food records are more suitable than FFQs for assessing the relationship between dietary fat intake and breast cancer incidence. In Indonesia, Fitranti & Marthandaru (2016) used food records and 24-hours food recall to observe the effect of soy milk and ginger on cholesterol levels, reporting a significant decrease. Other regions, such as Japan, Australia, and the United States, have also utilized food records to measure soy consumption (Setchell, et al., 2013). However, in Indonesia, research using soy food records in adults is limited, focusing mainly on specific groups like infants with cow-milk allergy and hypercholesterolemia women (Rahadiyanti & Mulyati, 2017). Therefore, this study aims to estimate and compare the protein and energy intake from soy in Indonesian adults using estimated food records.

## **1.2 Research aim**

- 1) To estimate the protein and energy intake from soy food among Indonesian adults using weighed food records.
- 2) To compare the protein intake from soy food consumption among Indonesian adults with the recommended daily intake of 25 grams using weighed food records.

- 3) To estimate the contribution of protein intake from soy to the recommended daily amount of energy intake using weighed food records.

### **1.3 Research scope**

The scope of the research was to estimate protein and energy intake of Indonesian adults with respect to soy consumption by using weighed food records. Indonesian adults aged 18 - 55 years were instructed to record their dietary intake for three consecutive days to estimate energy and protein intake from soy. NutriSurvey was used for calculating nutritional content of the food ingredients from the data obtained, and the protein and energy content were compared to the recommended daily intake.

### **1.4 Hypotheses**

The hypotheses for all the research aims are as follows

$H_0$  : Protein intake from soy consumption is not within the recommended daily intake of 25 grams and protein from soy does not contribute significantly to overall energy intake in Indonesian adults.

$H_1$  : Protein intake from soy consumption in Indonesian adults fulfills the recommended daily intake of 25 grams and protein from soy contributes significantly to overall energy intake.