

## ABSTRACT

Modified cassava flour (mocaf), is one of the cassava fermentation products using lactic acid bacteria. Mocaf is generally safe for people that have certain conditions due to its gluten-free. It also contains low-protein but rich in carbohydrates. Fermentation starter can affect the quality of mocaf. *Pediococcus acidilactici* has a potential as a starter for fermented food. Until now there is no research about *P.acidilactici* for mocaf production. This research aims to utilize *P.acidilactici* to produce mocaf and investigate the time of fermentation to the quality of mocaf flour. *P.acidilactici* is used for fermentation due to its ability to ferment and metabolize types of carbohydrates into smaller substrates that could be consumed by humans. In this research, we used two types of lactic acid bacteria, which were *Pediococcus acidilactici* and *Lactobacillus plantarum* (as the positive control). The fermentation was carried out by three different fermentation periods of 12, 24, and 48 hours, followed by a draining and drying process of 60°C for 8 hours. Then the mocaf chips were grinded and sifted. To check the quality of the flour, the proximate analysis was done. The physicochemical properties (such as water content, protein content, ash content, whiteness, and acidity) were analyzed in this research. The data of optical density (OD) at wavelength 600 nm (OD<sub>600</sub>), viable count (using miles misra method) and also pH of the filtrate prove that the fermentation occurs for all time fermentation observation. The pH of the filtrate culture has dropped to around 4 due to lactic acid that is produced by *P.acidilactici* and *L.plantarum*. From the quality analysis of mocaf fermented using *P.acidilactici*, the water content was 5.89% - 9.52%, the ash content was 0.26% - 0.38% and pH flour which fulfilled the national standard (SNI) for mocaf. However, in this research, the protein content and whiteness are not fulfill the national standard (SNI) yet. From the data, it can be concluded that there is no significant difference between *P.acidilactici* with *L. plantarum* (positive control), and also commercial mocaf from the market. We also observed that there was no significant difference in the time of fermentation (12, 24, and 48 hours) on the mocaf flour production and mocaf quality.

Keywords: Mocaf, fermentation, *P.acidilactici*, fermentation duration, proximate analysis