ABSTRACT

Silvana Nurulfauziyyah Indahsari (24020122420013), Siti Nur Jannah, Arina Tri Lunggani. **Characterization and Production of Glutamic Acid by Lactic Acid Bacteria Isolated from Indonesian Fermented Food Salted Mustard Greens and Dangke Cheese.**

Glutamic acid is an additive widely added to food to enhance the savory taste (umami). Glutamic acid in the form of salt is known as Monosodium Glutamate (MSG), and consumption in Indonesia continues to increase annually. MSG production through biosynthesis using microbes has advantages because it is cheap, has high product purity, and has minimal waste. Lactic acid bacteria (LAB) are included in Generally Recognize as Safe (GRAS) because they are non-pathogenic. They are safe to consume and potentially produce various metabolite compounds, such as glutamic acid, through fermentation. LAB can be isolated from multiple fermented foods, such as salted mustard greens and dangke cheese. The purpose of this study was to analyze the effect of LAB isolate types and fermentation time on the production of glutamic acid produced by LAB, glutamic acid profiling, and molecularly identifying the LAB genus that produces the highest glutamic acid based on the 16S rRNA gene. The fermentation process of LAB was carried out with 5 treatments of LAB isolate variations from salted mustard greens and dangke cheese, each with 5 different fermentation times, namely 0 h, 12 h, 24 h, 48 h, and 72 h. Identification of glutamic acid was carried out using the Thin Layer Chromatography (TLC) method, quantification of glutamic acid using the spectrophotometric method, and profiling of glutamic acid using High-Performance Liquid Chromatography (HPLC), as well as molecular identification of the LAB isolate-producing the highest glutamic acid based on the 16S rRNA gene. The results showed that isolate S4 from salted mustard greens was able to produce the highest glutamic acid at the 48 h with a total of 670.05 mg/L and a total glutamic acid of 0.23% (w/w) based on the HPLC results. Isolate S4 is known to be molecularly similar to the *Pediococcus pentosaceus* species. Local LAB isolates from salted mustard greens and dangke cheese can produce glutamic acid which plays a role in the taste of fermented foods.

Keywords: *LAB isolated from salted mustard greens and dangke cheese, HPLC, molecular identification of LAB, TLC, glutamic acid production*