ABSTRACT

Heriyono, Karina Marshella Florencia. 2025. Microbiological, Chemical, Antioxidant, and Organoleptic Characterization of Black Soybean Kefir (*Glycine max* (L) Merril). Supervisor: Arina Tri Lunggani dan Dwi Retno Fatmawati.

Black soy kefir (*Glycine max* (L) Merril) is one of the products produced through fermentation of kefir grains. Fermentation by kefir grains can reduce the nutritional content of black soy milk. The purpose of this study was to determine the effect of giving different concentrations of skim milk and fermentation time on the characteristics of microbes, protein content, fat content, carbohydrate content, isoflavonoid content, and organoleptic of black soy milk kefir. The research method was carried out using a completely randomized plan (CRD) with two factors. The first factor was the concentration of skim milk consisting of 3 treatments, namely 0%, 4%, and 6%. The second factor was the length of fermentation time consisting of 2 treatments, namely 12 hours and 24 hours. Data analysis was carried out using Two Way ANOVA and continued with Duncan's Test if there was a significant difference. If the data did not meet the ANOVA assumption requirements, a non-parametric test would be carried out. This study obtained the results of the identified microbes were lactic acid bacteria. The highest total acid and alcohol content was obtained by sample P6, which were 1.62% and 0.95% respectively. The highest fat content was obtained by sample P2, which was 0.81%. The highest protein content was obtained by sample P5, which was 6.60%. The highest carbohydrate content was obtained by sample P4, which was 181.18 µg/ml. The highest antioxidant activity was obtained by sample P5, which was 47.37%. The highest genistein content was obtained by sample P2, which was 3.91 µg/ml. The best hedonic test was shown by sample P5 with an assessment of color 3.56; aroma 3.68; taste 2.12; texture 2.88; and an average value of 3.06. Different concentrations of skim milk affected the characteristics of microbes, total acid, alcohol content, fat content, protein content, carbohydrate content, antioxidant activity, and isoflavone levels of black soy milk kefir. Different fermentation times affected the characteristics of microbes, total acid, alcohol content, fat content, protein content, carbohydrate content, and isoflavone levels of black soy milk kefir and did not affect antioxidant activity.

Key word: *black soybean, kefir, fermentation*