ABSTRACT

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CHARACTERISTIC OF TEMPEH FERMENTED BEVERAGE USING LACTIC ACID BACTERIA AS PROBIOTIC
(xvi+ 105 pages: 25 figures, 8 tables, and 24 appendices)

Tempeh is a soy-based fermented food that requires long time processing, which is mostly allocated to soaking and fermentation process by Rhizopus sp. Previous studies had reported that tempeh contains bioactive compounds that promote beneficial effects such as antioxidant. Therefore, the aim of this research was to investigate tempeh fermented beverage as a potential probiotic fermented beverage. The fermented beverage was made with different concentrations of sugar (4, 6, 8, or 10%) and skim milk (4, 6, or 8%). The combination of water and tempeh were mixed with different ratios of 1:4, 1:5 and 1:6 (w/v). This product was fermented for 12 h using Streptococcus thermophilus and Lactobacillus plantarum (1:1, 5%). Physicochemical properties of fermented beverage including pH, total titratable acidity, total lactic acid bacteria were observed. The chosen formulation of the tempeh fermented beverage in this research was by the addition of 4% sugar, 4% skim milk, and 1:6 ratio which had pH values of 3.72±0.005, total titratable acidity of 0.80±0.029%, and total lactic acid bacteria of 9.06±0.01 log CFU/mL. Then, the chosen product was stored for 3 weeks in refrigerator. In every week (0, 1, 2, and 3) the product was analyzed for several parameters including pH, total titratable acidity, total lactic acid bacteria, antioxidant activity, total phenolic compound, total flavonoid, and sensory analysis. Based on the fermented drink standard and sensory analysis, tempeh fermented beverage is still acceptable at the 2 weeks storage time. This product contains 112.11 mg isoflavone/100 ml sample.

Keywords: fermented beverage, isoflavone, lactic acid bacteria, tempeh, storage

References: 136 (2003-2016)