

ABSTRACT

Azizah, Farah Amalia. 2024. Microbiological, Chemical Characteristics and Amino Acid Profile of Jack Bean Juice (*Canavalia ensiformis*) Fermented Using Symbiotic Culture of Bacteria and Yeast (SCOBY). Supervisor: Arina Tri Lunggani and Noer Laily

Jack beans (*Canavalia ensiformis*) are a type of legume that is still not well utilized. Jack beans can be processed into a jack bean juice fermented drink using Symbiotic Culture of Bacteria and Yeast (SCOBY) as the microorganism culture. The fermentation process can affect the microbiological and chemical aspects of jack bean juice. The aim of this research was to determine the effect of fermentation time on total bacteria, total yeast, dissolved protein content and amino acid profile in the fermented product of jack bean juice and to determine the effect of bacterial and yeast activity on alcohol content, degree of proteolysis and reduced sugar content in fermented jack bean juice product. This research used a factorial completely randomized design (CRD) consisting of two factors, namely the added sugar content and the length of fermentation time. The added sugar content consists of two levels, namely 6% sugar and 10% sugar. The length of fermentation time used consisted of seven levels, namely 0 days, 2 days, 3 days, 4 days, 7 days, 8 days and 10 days. Each level was repeated twice. Data analysis was carried out using two way analysis of variance (ANOVA). If the results show a real difference, then a further DMRT test is carried out. The results showed that the length of fermentation time had a significant effect ($p < 0.05$) on total bacteria, total yeast, soluble protein levels and amino acid levels. Bacterial and yeast activity also showed a significant influence ($p < 0.05$) on alcohol content, degree of proteolysis and reducing sugar content. The lowest degree of acidity is 4.01. Total bacteria increased by 2.6×10^6 cfu/mL - 43.9×10^6 cfu/mL. Total yeast increased from 11.5×10^6 colonies/g - 66.63×10^6 colonies/g. Dissolved protein levels reached 9.26 μ g/mL. The highest levels of amino acids are glutamic acid, proline and valine. Alcohol levels increased to 5.14%. The reducing sugar content increased to 11.91 mg/mL on the 10th day of fermentation. The degree of proteolysis increased from 33.75% to 76.5% on the 8th day of fermentation.

Key word: jack bean juice, fermentation, SCOBY, functional beverage