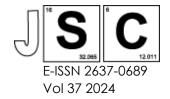
Junior Science Communications

Faculty of Applied Sciences, UiTM Shah Alam https://journal.uitm.edu.my/ojs/index.php/JSC



Colloquium on Applied Sciences 2024 19-21 January 2024, Faculty of Applied Sciences, UiTM Shah Alam, Malaysia

THE EFFECT OF LAB BACTERIA (Lactobacillus plantarum and Lactobacillus acidophilus) FERMENTATION ON ANTIOXIDANT ACTIVITIES AND PROXIMATE COMPOSITION OF SALAK SEED FLOUR

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Structured Abstract

Background: Nowadays, there has been an increase interest in fermentation of plant-derived as food ingredient due to the health-promoting qualities of plant extract. This study is regarding the effect of two type of Lactic Acid Bacteria (LAB) (*L.plantarum* and *L.acidophilus*) fermentation on antioxidant activities and proximate composition of Salak seed flour.

Methods: Fermentation was done after incubation of Lactic Acid Bacteria (LAB) in the De Man, Rogosa, and Sharpe (MRS) broth for 24 hours in 37°C. Antioxidant analysis was carried out by Total Phenolic Content (TPC) which expressed in mg GAE/100g and 2,2-diphenyl-1-picryl hydrazyl (DPPH) assay which was expressed as IC₅₀. Proximate analysis and physicochemical properties which was water activity and pH of fermented Salak seed flour was conducted for each fermented flour by LAB.

Results: Result showed that based on the different temperature and time that has been subjected to the fermentation of Salak seed flour, *L.plantarum* had highest value of antioxidant activity of TPC on room temperature (28°C) for six days fermentation with significant different (p<0.05) between sample means meanwhile for the DPPH assay, highest amount of antioxidant activity was from 28°C of day 9. Meanwhile for *L.acidophilus*, both analysis has a significant different (p<0.05) between the sample means. The highest antioxidant results came from fermentation period of 9 days compared amongst all of the fermented sample. For proximate analysis, a decreased value in the total carbohydrate of fermented Salak seed flour by *L.plantarum* which was chosen according to the highest antioxidant activity from total phenolic content meanwhile for *L.acidophilus*, proximate analysis between the samples is significantly different (p<0.05) with the moisture content, fat and carbohydrate composition is higher than the unfermented sample. In terms of physicochemical analysis, fermentation by *L.plantarum* has no significant different (p>0.05) for water activity and there was significant difference for pH (p<0.05) for fermented samples compared to fermentation by *L.acidophilus*, both showed a significant different (p<0.05) between water activity and pH.

Conclusion: In conclusion, this study showed that there are an effect of temperature and time fermented sample toward its antioxidant activity and its proximate composition of Salak seed flour

Keywords: Fermentation, Salak seed flour, Antioxidant, Proximate composition, Water activity, pH

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