Pengaruh Konsentrasi Substrat dan Jenis Gula Terhadap Total Bakteri Asam Laktat Minuman Kandidat Probiotik Mangga Arumanis (*Mangifera indica* L. var. *arumanis*)

The Effect of Substrate Concentration and Sugar Type on Total Lactic Acid Bacteria in Probiotic Candidate Drinks of Arumanis Mango (Mangifera indica L. var. arumanis)

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ABSTRACT

Mango is a tropical horticultural commodity with high production in Indonesia, but its utilization is still limited, resulting in high post-harvest losses. One effort to increase added value is through processing it into a spontaneously fermented probiotic candidate drink. This study aims to determine the effect of substrate concentration and sugar type on total lactic acid bacteria (LAB) and determine the best formulation of mango probiotic candidate drink. The study used a factorial Randomized Block Design (RBD) method with two factors, namely substrate concentration (20%, 24%, 28%, 32%, 36%, and 40%) and sugar type (granulated sugar, brown sugar, and palm sugar) with two replications. Fermentation was carried out for 72 hours at 37°C. The main variable observed was total LAB, then analyzed using ANOVA at a 5% level and continued with Duncan's Multiple Range Test (DMRT). The best formulation was further characterized through pH, color, dietary fiber, MIC and MBC, yeast identification, AKK value, and organoleptic tests. The results showed that substrate concentration and sugar type had a significant effect ($P<0.05$) on the total LAB of the mango probiotic candidate drink. The best treatment was obtained in K1G1 (20% substrate concentration and granulated sugar) with a total LAB of 8.1×10^7 CFU/mL. The formulation had characteristics of pH 3.29, L color value of 79.238, a of -0.526, and b* of 32.207, insoluble fiber content of 0.73%, soluble fiber of 82.10%, and total fiber of 82.83%. Antimicrobial activity was demonstrated based on the results of the MIC and MBC assays, therefore, it cannot be concluded as bacteriocin activity In the overall organoleptic test, the product was acceptable to the panelists, although taste optimization is still needed.*

***Key words**: Arumanis mango, probiotic candidate drink, spontaneous fermentation, lactic acid bacteria, substrate concentration, sugar type.*