ABSTRACT

THE EFFECTS OF *Lactobacillus* TYPES AND GLUCOSE CONCENTRATION ON THE CHARACTERISTICS OF MIXED LACTIC FERMENTATED JUICE FROM KATUK (*Sauropus androgynus* L. Merr), CARROT (*Daucus carota* L.) AND HONEY PINNEAPPLE (*Ananas comosus* L.)

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The aims of this research were to determine the type of *Lactobacillus* and glucose concentration that can produce the highest lactid acid bacteria (LAB) and produced the best characteristics of mixed lactic fermentated juice from mixed *katuk*, carrots and pineapple honey. Factorial treatments were arranged in a Complete Randomized Block Design (CBRD) with two factors and three replications. The first factor is the type of BAL (L) (w / v) consisting of *Lactobacillus. casei* (L1), *Lactobacillus acidhopillus* (L2), and *Lactobacillus plantarum* (L3). The second factor is glucose concentration consisting of 1% (G0), 3% (G1), 5% (G2) and 7% (G3). The data obtained were analyzed by analysis of variance and further tested by polynomial orthogonal-orthogonal contrast (OP / OC) tests at 1% and 5% levels.

The results showed that the type of *lactobacillus* significantly increased the total LAB, total lactic acid, total dissolved solids, aroma and overall

acceptance scores but decreased pH and color scores linearly and did not significantly affect taste scores. Glucose concentration significantly increases total LAB, total lactic acid, total dissolved solids, aroma score, taste and overall acceptance scores and decreases pH and color scores linearly. The interaction between *Lactobacillus* species and glucose concentration significantly affected total lactic acid and total dissolved solids, but did not significantly affect total LAB, pH, color score, aroma score, taste score and overall acceptance. The treatment of *Lactobacillus casei* type and glucose concentration of 7% resulted in best lactic juice mixture of katuk, carrot and pineapple honey, with the total LAB 11.12 Log CFU / ml, total lactic acid 1.15%, pH value 3.63, total dissolved solids 17.13^{0}Brix, color score 3.03 (almost like), aroma score 3.52 (almost like), taste score 3.25 (almost like) and overall acceptance 3.37 (almost like).

Keywords : lactate fermented juice, *lactobacillus,* glucose, vegetables, and fruits

ABSTRAK

PENGARUH JENIS *Lactobacillus* DAN KONSENTRASI GLUKOSA TERHADAP KARAKTERISTIK MINUMAN JUS FERMENTASI LAKTAT CAMPURAN KATUK (*Sauropus androgynus* L. Merr), WORTEL (*Daucus carota* L.) DAN NENAS MADU (*Ananas comosus* L.)

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Tujuan penelitian ini adalah untuk mendapatkan jenis *Lactobacillus* dan konsentrasi glukosa yang dapat menghasilkan BAL tertinggi dan karakteristik minuman jus fermentasi laktat campuran katuk, wortel dan nenas madu terbaik. Perlakuan disusun secara faktorial dalam Rancangan Acak Kelompok Lengkap (RAKL) dengan dua faktor dan tiga ulangan. Faktor pertama adalah jenis BAL (L) (b/v) yang terdiri dari *Lactobacillus. casei* (L_1), *Lactobacillus acidhopillus* (L_2), dan *Lactobacillus plantarum* (L_3). Faktor kedua adalah konsentrasi glukosa yang terdiri dari 1% (G_0), 3% (G_1), 5% (G_2) dan 7% (G_3). Data yang diperoleh dianalis dengan sidik ragam dan diuji lanjut dengan uji polinomial orthogonal-orthogonal contrast (OP/OC) pada taraf 1% dan 5%.

Hasil penelitian menunjukkan bahwa jenis *lactobacillus* berpengaruh nyata meningkatkan total BAL, total asam laktat, total padatan terlarut, skor aroma dan penerimaan keseluruhan dan menurunkan pH dan skor warna secara linear namun

tidak berpengaruh nyata terhadap skor rasa. Konsentrasi glukosa berpengaruh nyata meningkatkan total BAL, total asam laktat, total padatan terlarut, skor aroma, skor rasa dan penerimaan keseluruhan dan menurunkan pH dan skor warna secara linear. Interaksi antara jenis *Lactobacillus* dan konsentrasi glukosa berpengaruh nyata terhadap total asam laktat dan total padatan terlarut, namun tidak berpengaruh nyata terhadap total BAL, pH, skor warna, skor aroma, skor rasa dan penerimaan keseluruhan. Perlakuan jenis *Lactobacillus casei* dan konsentrasi glukosa sebesar 7% menghasilkan minuman jus fermentasi laktat campuran katuk, wortel dan nenas madu terbaik, dengan karakteristik total BAL 11,12 Log CFU/ml, total asam laktat 1,15% dan pH 3,63 dengan total padatan terlarut 17,13 ^{0}Brix, skor warna 3,03 (agak suka), skor aroma 3,52 (agak suka), skor rasa 3,25 (agak suka) dan penerimaan keseluruhan 3,37 (agak suka).

Kata kunci : jus fermentasi laktat, *lactobacillus*, glukosa, sayuran, dan buah-buahan