

ABSTRACT

THE EFFECT OF GLUCOSE CONCENTRATION AND PROPORTION OF KATUK LEAVES (*Sauropus androgynus*), CARROT (*Daucus carota L.*) AND HONEY PINEAPPLE P(*Ananas comosus L.*) ON THE MICROBIOLOGICAL AND SENSORY CHARACTERISTICS OF JUICE FERMENTED BY LACTIC ACID BACTERIA

By

AISYAH ANGGUN RAMADHANI PUTRI

The aimed of the research was to study the effect of glucose concentration, proportion of *katuk* leaves, carrot and honey pineapple, and their interactions on microbiological and sensory characteristics of juice fermented by lactic acid bacteria (JFLB) and to find out the best treatments for producing high quality juice. The treatments were arranged in a Complete Randomized Block Design (CBRD) with two factors and three replications. The first factor was the concentration of glucose i.e. 1% (G1), 3% (G3), 5%(G5), 7%(G7). The second factor was proportion of katuk leaves, carrot and honey pineapple i.e. 15:45:40(P1), 30:30:40(P2) and 45:15:40(P3) (%). Data was analyzed using analysis of variance and continued by comparison and orthogonal polynomials analysis at 5% significance level. The results showed that total lactic acid bacteria, total lactic acid, total soluble solids, taste score and overall acceptance of

the JFLB increased and the pH value decreased when the glucose concentration was increased, however, the increasing of the glucose concentration failed to affect the hedonic score of aroma and color of the JFLB. Effect of the proportion of *katuk* leaves, carrot and honey pineapple on total lactic acid, total soluble solids, pH value as well as hedonic score of taste, color, aroma, and overall acceptance of the JFLB were observed, but the proportion did not affect the total lactic acid bacteria of the juice. Effects of glucose concentration on the characteristics of JFLB were not depend on which proportion of the *katuk* leaves, carrot and honey pineapple applied. The best JFLB was produced when the proportion of 15% *katuk* leaves, 45% carrot, 40% honey pineapple was applied and 7% glucose was added, whereas the juice contained total lactic acid bacteria $5,34 \times 10^{11}$ CFU/mL, total lactic acid 1,59%, total soluble solids 16,10°Brix and had pH 3,80. The hedonic responses for taste, aroma, color and overall acceptance of the best juice were considered as rather like, whereas their scores were 3,65, 3,33, 3,65 and 3,4, respectively.

Keywords: lactic fermented juice, *katuk* leaves, carrot, honey pineapple, glucose

ABSTRAK

PENGARUH KONSENTRASI GLUKOSA DAN PROPORSI KATUK (*Sauropus androgynus*), WORTEL (*Daucus carota L.*) DAN NENAS MADU(*Ananas comosus L.*) TERHADAP KARAKTERISTIK MIKROBIOLOGIS DAN SENSORI JUS YANG DIFERMENTASI BAKTERI ASAM LAKTAT

Oleh

AISYAH ANGGUN RAMADHANI PUTRI

Tujuan penelitian ini adalah untuk mengetahui pengaruh konsentrasi glukosa, proporsi daun katuk, wortel dan nenas madu dan interaksinya terhadap karakteristik mikrobiologi dan sensori jus yang difermentasi bakteri asam laktat (JFLB) serta menentukan perlakuan terbaik untuk menghasilkan jus yang berkualitas. Perlakuan disusun secara faktorial dalam Rancangan Acak Kelompok Lengkap (RAKL) dengan dua faktor dan tiga ulangan. Faktor pertama adalah konsentrasi glukosayang terdiri 1% (G1), 3% (G3), 5% (G5), dan 7% (G7). Faktor kedua yaitu proporsi daun katuk:wortel:nenas madu yang terdiri dari 15:45:40(P1), 30:30:40 (P2) dan 45:15:40(P3) (%). Data yang diperoleh dianalisis dengan sidik ragam dan diuji lanjut dengan uji Polinomial dan Perbandingan Ortogonal pada taraf 5%. Hasil penelitian menunjukkan bahwa total bakteri asam laktat, total asam laktat, total padatan terlarut, skor rasa dan

penerimaan keseluruhan dari JFLB meningkat dan nilai pH menurun ketika konsentrasi glukosa meningkat, namun peningkatan konsentrasi glukosa tidak berpengaruh terhadap skor aroma dan warna dari JFLB. Proporsi daun katuk, wortel dan nenas madu berpengaruh terhadap total asam laktat, total padatan terlarut, pH, skor rasa, warna, aroma, dan penerimaan keseluruhan dari JFLB, tetapi proporsi tidak berpengaruh terhadap total bakteri asam laktat pada jus. Pengaruh konsentrasi glukosa terhadap karakteristik dari JFLB tidak tergantung pada proporsi daun katuk, wortel dan nenas madu yang diterapkan. JFLB terbaik dihasilkan dengan proporsi daun katuk 15%, wortel 45%, nenas madu 40% dan penambahan glukosa 7% (P1G4) dengan nilai total BAL $5,34 \times 10^{11}$ CFU/mL, total asam laktat 1,59%, nilai TPT 16,10°Brix dan pH 3,80. Penilaian hedonik untuk rasa, aroma, warna dan penerimaan keseluruhan dari jus terbaik yaitu agak suka dengan skor masing-masing yaitu 3,65, 3,33, 3,65, 3,4.

Kata kunci : jus fermentasi laktat, daun katuk, wortel, nenas madu, glukosa