

ABSTRAK

USWATUN KHASANAH. Penelitian berjudul Pengaruh Lama Penyimpanan Dingin Terhadap Total Bakteri Asam Laktat (BAL) dan Kadar Asam Laktat Kefir Susu-Kolostrum Sapi dilakukan pada tanggal 6-23 Januari 2020. Penelitian ini bertujuan untuk mengetahui pengaruh lama penyimpanan dingin terhadap total BAL dan kadar asam laktat kefir susu-kolostrum sapi dengan waktu simpan sampai 12 hari. Materi yang digunakan dalam penelitian ini adalah susu sapi sebanyak 2,5 liter, kolostrum sapi 2,5 liter, biji kefir 250 gram, aquades 5 liter, NaCl 0,85%, NaOH 0,1 N, media MRSA 122,76 gr, dan Indikator *Phenolptalien* (PP) 1%. Metode penelitian menggunakan metode eksperimen dengan Rancangan Acak Lengkap (RAL) menggunakan 5 perlakuan dan setiap perlakuan terdiri dari 4 ulangan. Perlakuan penelitian yaitu kefir susu-kolostrum sapi disimpan dingin dengan P0 penyimpanan 0 hari (sebagai kontrol), P1 penyimpanan 3 hari, P2 penyimpanan 6 hari, P3 penyimpanan 9 hari, P4 penyimpanan 12 hari. Variabel yang diukur dalam penelitian ini adalah total BAL (cfu/ml) dan kadar asam laktat (%). Data yang diperoleh kemudian dianalisis dengan ANAVA dan dilanjutkan dengan uji ortogonal polinomial. Hasil penelitian menunjukkan lama penyimpanan sampai hari ke 12 terhadap total BAL rata-rata yang dihasilkan sebesar $9,70 \pm 0,13$ log cfu/ml sampai dengan $9,46 \pm 0,20$ log cfu/ml. Rata-rata hasil pengujian kadar asam laktat sebesar $1,08 \pm 0,08\%$ sampai dengan $1,19 \pm 0,06\%$. Analisis variansi menunjukkan bahwa lama penyimpanan sampai hari ke 12 pada kefir susu-kolostrum sapi berpengaruh nyata ($P < 0,05$) terhadap total BAL dengan persamaan $y = -0,0013x^4 + 0,0305x^3 - 0,2173x^2 + 0,4737x + 9,7$ dan $R^2 = 46,43\%$, dan berpengaruh sangat nyata ($P < 0,01$) terhadap kadar asam laktat dengan persamaan yaitu $y = -9E-05x^4 + 0,0016x^3 - 0,0053x^2 + 0,0014x + 1,0825$ dan $R^2 = 54,41\%$. Berdasarkan hasil tersebut dapat disimpulkan bahwa lama penyimpanan dalam dingin sampai hari ke dua belas pada kefir susu-kolostrum sapi menyebabkan total BAL dan kadar asam laktat menurun.

Kata Kunci : susu sapi, kolostrum sapi, kefir, total BAL, kadar asam laktat

ABSTRACT

USWATUN KHASANAH. The study entitled The Effect of Cold Storage Duration on Total Lactic Acid Bacteria (LAB) and Lactic Acid Levels of Milk-Colostrum of Cattle was conducted on 6-23 January 2020. This study aims to determine the effect of cold storage length on total LAB and Lactic acid levels of milk kefir cow. bovine colostrum with a shelf life of up to 12 days. The material used in this study was 2.5 liters of cow's milk, 2.5 liters of cow colostrum, 250 grams of kefir seeds, 5 liters of distilled water, 0.85% NaCl, 0.1 N NaOH, 122.76 gr MRSA media, and 1% Phenolptalien Indicator (PP). The research method uses the experimental method with a completely randomized design (CRD) using 5 treatments and each treatment consists of 4 replications. The research treatments were cow's milk-colostrum kefir kept cold with P0 storage for 0 days (as a control), P1 storage for 3 days, P2 storage for 6 days, P3 storage for 9 days, P4 for storage for 12 days. The variables measured in this study were total LAB (cfu / ml) and lactic acid levels (%). The data obtained were then analyzed with ANAVA and continued with the orthogonal polynomial test. The results showed storage time up to the 12th day of the total BAL produced was 9.70 ± 0.13 log cfu / ml to 9.46 ± 0.20 log cfu / ml. The average test results of lactic acid levels were $1.08 \pm 0.08\%$ to $1.19 \pm 0.06\%$. Analysis of variance showed that the length of storage up to 12th day on cow-colostrum milk kefir had a significant effect ($P < 0.05$) on total LAB with the equation $y = -0.0013x^4 + 0.0305x^3 - 0.2173x^2 + 0.4737x + 9,7$ and $R^2 = 46.43\%$, and have a very significant effect ($P < 0.01$) on lactic acid levels with the equation $y = -9E-05x^4 + 0.0016x^3 - 0.0053x^2 + 0.0014x + 1.0825$ and $R^2 = 54.41\%$. Based on these results it can be concluded that the length of storage in the cold up to the twelfth day in cow milk-colostrum kefir causes total LAB and lactic acid levels to decrease.

Keywords: cow's milk, cow colostrum, kefir, total LAB, lactic acid levels