

**PEMANFAATAN UBI JALAR KUNING (*Ipomoea batatas* L.)
SEBAGAI PREBIOTIK TERHADAP KINETIKA FERMENTASI
Lactobacillus paracasei DAN APLIKASINYA PADA
FERMENTASI KOLOSTRUM**

**Winda Lestari Br Barus
16/394507/PT/07180**

INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak ubi jalar kuning (*Ipomoea batatas* L.) sebagai prebiotik terhadap kinetika fermentasi bakteri *Lactobacillus paracasei* dan aplikasinya pada fermentasi kolostrum. Penelitian menggunakan *L. paracasei* yang merupakan bakteri asam laktat (BAL) koleksi Laboratorium Biokimia Nutrisi Fakultas Peternakan UGM. Konsentrasi ekstrak ubi jalar kuning yang digunakan untuk menentukan nilai K_m dan V_{max} *L. paracasei* sebesar 0,01, 0,05, 0,1 dan 0,2%. Produksi asam laktat dan nilai pH fermentasi *L. paracasei* dengan level ekstrak ubi jalar kuning berbeda ($\frac{1}{2} K_m$, $1 K_m$, $1,5 K_m$) diukur setelah masa inkubasi 24 jam. Kadar asam laktat diukur menggunakan metode Barker dan Summerson. Aplikasi inokulan *L. paracasei* dan level substrat ubi jalar kuning sebesar $1,5 K_m$ pada fermentasi kolostrum karena pada nilai $1,5 K_m$ dihasilkan asam laktat paling tinggi. Kolostrum difermentasi selama 21 hari. Parameter yang diamati adalah organoleptik, *Total Plate Count* (TPC), nilai pH, kadar asam laktat dan kadar protein pada fermentasi kolostrum. Hasil data penelitian dianalisis menggunakan Rancangan Acak Lengkap (RAL) pola searah dilanjutkan dengan uji *Duncan's New Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa nilai K_m dan V_{max} *L. paracasei* yang diperoleh yaitu 2,1 g/100ml dan 0,17 g/100ml/jam. Konsentrasi ubi jalar kuning berbeda ($\frac{1}{2} K_m$, K_m , $1,5 K_m$) sebagai perlakuan memberikan pengaruh nyata ($P < 0,05$) terhadap kenaikan asam laktat dan penurunan pH. Hasil uji *Total Plate Count* (TPC), nilai pH, kadar asam laktat dan kadar protein menunjukkan perbedaan nyata ($P < 0,05$). Kesimpulan dari hasil penelitian ini adalah aplikasi *L. paracasei* dan substrat ubi jalar kuning $1,5 K_m$ mampu mempertahankan kualitas kolostrum yang di fermentasi selama 21 hari.

(Kata kunci : Kolostrum, *L.paracasei*, nilai K_m dan V_{max} , ubi jalar kuning)

**UTILIZATION OF YELLOW SWEET POTATO (*Ipomoea batatas* L.)
AS A PREBIOTIC ON FERMENTATION KINETIC OF
Lactobacillus paracasei AND ITS APPLICATION
IN COLOSTRUM FERMENTATION**

**Winda Lestari Br Barus
16/394507/PT/07180**

ABSTRACT

This study aims to determine the effect of yellow sweet potato extract (*Ipomoea batatas* L.) as a prebiotic on bacterial fermentation kinetics of *Lactobacillus paracasei* and its application in colostrum fermentation. This research used *L. paracasei*, lactic acid bacteria (LAB), is collection of Laboratory of Nutritional Biochemistry, Faculty of Animal Science UGM. Concentrations of yellow sweet potato extract was used to determine the K_m and V_{max} *L. paracasei* were 0.01, 0.05, 0.1 and 0.2%. Lactic acid production and fermentation pH value of *L. paracasei* with different levels of yellow sweet potato extract ($\frac{1}{2} K_m$, $1 K_m$, $1.5 K_m$) were measured after 24 hours incubation period. Lactic acid determination was measured using the Barker and Summerson method. Application of *L. paracasei* inoculant and yellow sweet potato substrate $1.5 K_m$ in colostrum fermentation because at $1.5 K_m$ produced the highest lactic acid. Colostrum is fermented for 21 days. The parameters observed were organoleptic, Total Plate Count (TPC), pH value, lactic acid content and protein content in colostrum fermentation. Results of the research data were analyzed using a unidirectional completely randomized design (CRD) followed by Duncan's New Multiple Range Test (DMRT). Value of K_m and V_m *L. paracasei* obtained were 2.1 g/100ml and 0.17 g/100ml/hour. Different concentrations of yellow sweet potato ($\frac{1}{2} K_m$, $1K_m$, $1.5 K_m$) as a treatment had a significant effect ($P<0.05$) on the increase in lactic acid produced and decrease in pH. The results Total Plate Count (TPC), pH value, lactic acid levels and protein levels showed significant differences ($P<0.05$). The conclusion from the results of this study is an application *L. paracasei* and $1.5 K_m$ yellow sweet potato substrate is able to maintain the quality of colostrum fermented during 21 days.

(Keywords : Colostrum, *L. paracasei* , K_m and V_{max} value, yellow sweet potato)