

Evaluasi keamanan probiotik indigenous *Lactobacillus plantarum* Dad13 pada model tikus *Sprague Dawley*

INTISARI

Bakteri asam laktat (BAL) telah lama digunakan dalam fermentasi makanan. BAL sebagai produk probiotik diketahui memiliki manfaat bagi kesehatan bila dikonsumsi dalam jumlah cukup. Seiring meningkatnya ketertarikan mengenai BAL dan produk probiotik, isolasi bakteri potensi probiotik dari berbagai macam sumber semakin banyak dilakukan. Salah satunya *Lactobacillus plantarum* Dad13, strain lokal berasal dari Dadih (fermentasi susu kerbau dari Sumatera Barat). *L. plantarum* Dad13 telah diuji potensi probiotiknya dan dapat digunakan sebagai kultur starter pada produksi susu fermentasi dalam skala industri. Tujuan dari penelitian ini ialah mengevaluasi keamanan bakteri *Lactobacillus plantarum* Dad13 pada model tikus *Sprague Dawley* agar nantinya dapat digunakan sebagai *ingridient* produk pangan. Dua puluh tikus *Sprague Dawley* jantan dewasa digunakan dalam penelitian ini. Tikus dibagi menjadi lima kelompok, yakni kelompok awal, kelompok Dad 13 dan kontrol perlakuan 14 hari dan kelompok Dad 13 dan kontrol 28 hari. Kelompok perlakuan Dad 13 diberikan suspensi *L. plantarum* Dad 13 dosis tinggi sebanyak 10^{11} CFU/ml selama 28 hari secara oral. Analisa yang diamati antara lain kondisi umum (perubahan berat badan dan konsumsi pakan), indeks berat organ, sel darah putih, kadar malonaldehid (MDA), aktivitas glutamic oxalacetic transaminase (GOT), morfologi intestinal, dan analisa bakteri pada darah dan organ. Hasil penelitian menunjukkan *L. plantarum* Dad 13 dosis tinggi tidak memberikan pengaruh terhadap kondisi umum, indeks berat organ, sel darah putih, kadar malonaldehid (MDA), aktivitas glutamic oxalacetic transaminase (GOT), dan morfologi intestinal. Namun, ditemukan adanya bakteri pada organ dan darah, tidak hanya pada kelompok Dad 13 akan tetapi pada kelompok kontrol dan kelompok awal. Untuk itu perlu dilakukan analisa biomolekuler lebih lanjut untuk mengetahui apakah bakteri tersebut berkaitan dengan pemberian *L. plantarum* Dad 13.

Keyword: Uji keamanan, probiotik, *Lactobacillus plantarum* Dad13

Safety evaluation of *Lactobacillus plantarum* Dad13 as indigenous probiotic bacteria in *Sprague Dawley* rats model

ABSTRACT

Lactic acid bacteria (LAB) has been used in fermented food since many years ago. LAB as a probiotic product known to have a health-promoting effect if consumed adequately. Because of the increasing interest of LAB and probiotic product, several potential probiotic bacteria have been isolated and identified from various sources. *Lactobacillus plantarum* Dad13 is a potential probiotic bacteria isolated from Dadih (West Sumatra traditional fermented food). Furthermore, *L. plantarum* Dad13 has been examined its potential as a starter culture in industrial scale milk fermented production. The aim of this study was to evaluate the safety of *L. plantarum* Dad13 in Sprague Dawley rats model for human consumption. Twenty Sprague Dawley rats were divided equally into five different groups. Initial group without any treatment were sacrificed after adaptation phase. Treatment group were fed with high doses of *L. plantarum* Dad13 suspension (10^{11} CFU/ml per day) and the control group with skim milk 1 ml per day for 14 and 28 days. Feed intake and body weight were evaluated as a general health status. Measurement of organ-weight, white blood cell, malonaldehyde concentration (MDA), Glutamic Oxalacetic Transaminase (GOT) activity, intestinal morphology, and organ microbiological analysis were used as safety parameters. Result showed that *L. plantarum* Dad13 had no adverse effect on general health status, organ weight, white blood cell concentration, MDA concentration, GOT activity, and intestinal morphology. However, in organ and blood there were bacteria detected on almost groups. Therefore, biomolecular studies is needed to confirm their relation to *L. plantarum* Dad 13.

Keywords: safety assesment, probiotic, *Lactobacillus plantarum* Dad13