

## **UJI POTENSI *Limosilactobacillus fermentum* BN-21 SEBAGAI KANDIDAT PROBIOTIK**

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### **INTISARI**

Penelitian ini bertujuan untuk mengetahui karakter probiotik *Limosilactobacillus fermentum* BN-21 melalui pengujian ketahanan terhadap pH rendah, garam empedu, tekanan oksidatif, dan aktivitas antibakteri terhadap *E.coli* dan *S.aureus*. *L. fermentum* diisolasi dari duodenum ayam kampung yang ada di Bantul, Yogyakarta di Laboratorium Biokimia Nutrisi Fakultas Peternakan UGM yang selanjutnya di beri kode BN-21. Peremajaan bakteri dilakukan dalam media MRS cair. Uji ketahanan dilakukan terhadap kondisi pH rendah (pH 2 dan pH 3) dan garam empedu (0,5%), bakteri yang dapat bertahan dihitung jumlah sel hidupnya menggunakan metode Total Plate Count (TPC), uji ketahanan tekanan oksidatif menggunakan hidrogen peroksida 3% dengan metode *Ring Diffusion Agar*. Aktivitas antibakteri diuji menggunakan ekstrak kasar sampel sebelum dan sesudah dipurifikasi parsial melalui penjenuhan ammonium sulfat dan didialisis. Hasil menunjukkan bahwa *L. fermentum* BN-21 mampu bertahan pada pH 3 dengan rerata 2,46 log CFU/mL, dan mampu bertahan dalam media garam empedu 0,5% dengan rerata 2,51 log CFU/mL. Uji tekanan oksidatif menunjukkan tidak terbentuk zona hambat dan bakteri berkatalase negatif. Uji antibakteri ekstrak kasar sampel sebelum dipurifikasi menghasilkan zona hambat rerata sebesar 8,74 mm pada *E. coli* dan 8,42 mm pada *S. aureus*, serta 5,92 mm pada *E. coli* dan 6,52 mm pada *S. aureus* setelah ekstrak kasar sampel dipurifikasi.

**Kata kunci:** *Limosilactobacillus fermentum* BN-21, pH rendah, garam empedu, tekanan oksidatif, aktivitas antibakteri.

## **Evaluation of the Potential of *Limosilactobacillus fermentum* BN-21 as a Candidate of Probiotic**

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### **ABSTRACT**

This study aimed to determine the characteristics of the probiotic *Limosilactobacillus fermentum* BN-21 through tests of resistance to low pH, bile salts, oxidative stress, and antibacterial activity against *E. coli* and *S. aureus*. *L. fermentum* was isolated from the duodenum of local chickens in Bantul, Yogyakarta, at the Biochemistry Nutrition Laboratory of the Faculty of Animal Science, UGM, and subsequently assigned the code BN-21. Bacterial rejuvenation was carried out in a liquid MRS medium. The resistance test was conducted under low pH conditions (pH 2 and pH 3) and bile salt (0.5%), with the number of viable cells counted using the Total Plate Count (TPC) method. The oxidative stress resistance test was performed using 3% hydrogen peroxide with the Agar Ring Diffusion method. Antibacterial activity was tested using crude extract samples before and after partial purification through ammonium sulfate saturation and dialysis. The results showed that *L. fermentum* BN-21 was able to survive at pH 3, with an average of 2.46 log CFU/mL, and could withstand 0.5% bile salt medium, with an average of 2.51 log CFU/mL. The oxidative stress test showed no inhibition zone, and the bacteria were catalase-negative. The antibacterial test of the crude extract sample before purification yielded an average inhibition zone of 8.74 mm against *E. coli* and 8.42 mm against *S. aureus*. After purification, the inhibition zones were 5.92 mm against *E. coli* and 6.52 mm against *S. aureus*.

**Keywords:** *Limosilactobacillus fermentum* BN-21, low pH, bile salts, oxidative stress, antibacterial activity.