

ISOLASI DAN IDENTIFIKASI BAKTERI ASAM LAKTAT PENGHASIL EKSOPOLISAKARIDA DARI *SOURDOUGH* BERAS PECAH KULIT DAN *SOURDOUGH* BUAH LOBI-LOBI (*Flacourtia inermis* Roxb)

INTISARI

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Sourdough merupakan adonan yang terbuat dari campuran tepung, air, dan mikroflora yang tumbuh secara spontan karena fermentasi. Dalam *sourdough* terkandung berbagai macam jenis BAL yang memiliki banyak manfaat. Melalui metabolismenya, BAL menghasilkan beberapa zat makromolekul penting, salah satunya eksopolisakarida. EPS dari bakteri berpotensi untuk diaplikasikan di berbagai industri seperti industri farmasi, kosmetika dan pangan contohnya pengental, stabilisator, pengemulsi, dan pembentuk gel. Untuk itu, penelitian ini bertujuan untuk mendapatkan isolat BAL penghasil EPS *indigenous* Indonesia yang berasal dari *sourdough* tepung beras pecah kulit dan buah lobi-lobi.

Dalam penelitian ini, proses isolasi diawali dengan inokulasi sampel *sourdough* beras pecah kulit dan *sourdough* buah lobi-lobi ke dalam media MRS agar dengan metode *pour plate* dilanjutkan pemurnian dengan metode *streak plate*. Selanjutnya kultur diinkubasi pada suhu 37°C selama 2 hari. Isolat yang diperoleh kemudian dikonfirmasi menggunakan pengecatan Gram, uji katalase, uji ph, uji TTA, uji motilitas, dan uji fermentasi karbohidrat. Selanjutnya dilakukan uji kemampuan isolat bakteri menghasilkan eksopolisakarida dengan menginokulasi isolat pada media agar BHI + *Congo red* 0,08% yang ditambahkan sukrosa sebanyak 10%. Isolat bakteri yang secara fenotip menunjukkan produksi eksopolisakarida terbanyak selanjutnya diidentifikasi berdasarkan pada amplifikasi sekuen 16S rRNA.

Dari hasil isolasi didapatkan 26 isolat BAL yang berpotensi menghasilkan eksopolisakarida. Hasil identifikasi menunjukkan bahwa terdapat 2 isolat identik di antaranya isolat SL3 dan SL4 yang menghasilkan EPS paling optimal merupakan *Pediococcus pentosaceus*.

Kata kunci: isolasi, BAL, eksopolisakarida, *sourdough*

**ISOLATION AND IDENTIFICATION OF EXOPOLYSACCHARIDE
PRODUCING LACTIC ACID BACTERIA FROM BROWN RICE
SOURDOUGH AND LOBI-LOBI FRUIT (*Flacourtia inermis* Roxb)
SOURDOUGH**

ABSTRACT

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Sourdough is a dough made from a mixture of flour, water and microflora that grows spontaneously due to fermentation. Sourdough contains various types of LAB which have many benefits. LAB produces several important macromolecular substances, one of them is exopolysaccharide. Bacterial exopolysaccharide potential to be applied in various industries such as the pharmaceutical, cosmetic and food industries, for example thickeners, stabilizers, emulsifiers and gel formers. Therefore, this research aims to obtain Indonesian indigenous LAB producing EPS derived from brown rice flour sourdough and lobi-lobi fruit sourdough.

In this research, the isolation process began with inoculation of brown rice sourdough and lobi-lobi fruit sourdough into MRS agar media using the pour plate method followed by purification using the streak plate method. Next, the culture was incubated at 37°C for 2 days. The isolates obtained were then confirmed using Gram staining, catalase test, pH test, TTA (%) test, motility test, and carbohydrate fermentation test. Then, the ability of bacterial isolates to produce exopolysaccharides were tested by inoculating the isolates on BHI agar media + 0.08% (w/v) Congo red with 10% (w/v) sucrose added. Bacterial isolates that phenotypically showed the highest exopolysaccharide production were then identified molecularly based on 16S rRNA sequence amplification.

From the isolation results, 26 isolates were obtained which had the potential to produce exopolysaccharides. The identification results showed that there were 2 identical isolates including isolates SL3 and SL4 which produced the most optimal EPS were identified as *Pediococcus pentosaceus*.

Keywords: Isolation, LAB, exopolysaccharide, sourdough