Studi keragaman genetik bakteri asam laktat indigenos Indonesia yang resistan terhadap chloramphenicol dan erythromycin

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Abstrak

Studi keragaman genetik dilakukan untuk mengetahui hubungan kekerabatan bakteri asam laktat indigenos Indonesia yang memiliki kemampuan resistansi terhadap chloramphenicol dan erythromycin. Hasil uji resistansi menunjukkan bahwa isolat DH1, DH7, dan S34 resistan terhadap chloramphenicol (5 g/ml), sedangkan isolat T8 resistan terhadap erythromycin (15 g/ml). Isolat D2, S23, dan T8 diketahui resistan terhadap kombinasi chloramphenicol dan erythromycin (1 g/ml).

Analisis BLAST menunjukkan bahwa isolat bakteri asam laktat terdiri atas Lactobacillus plantarum, L. fermentum, Pediococcus acidilactici, dan P. pentosaceus. Analisis pohon filogenetik diketahui bahwa isolat D2, S12, S34, T3, dan T8 memiliki kekerabatan yang dekat dengan L. plantarum. Isolat R31 dan DH1 memiliki kekerabatan yang dekat dengan L. fermentum. Isolat LK14, S23, R24, DH7,DS13, GR3, HB3 memiliki kekerabatan yang dekat dengan genus Pediococcus.
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Study on genetic diversity was useful to determine the kinship of Indigenous Indonesia lactic acid bacteria which have the capability of resistance to chloramphenicol and erythromycin. The resistance test showed isolates DH1, DH7, and S34 that were resistant to chloramphenicol (5 g/ml), whereas T8 was resistant to erythromycin (15 g/ml). Isolates D2, S23, and T8 were remain resistant to the combination of chloramphenicol and erythromycin (1 g/ml).

The results of BLAST analysis showed that there were four different species of lactic acid bacteria, such as Lactobacillus plantarum, L. fermentum, Pediococcus acidilactici, and P. pentosaceus. The results of phylogenetic trees analysis showed that isolates D2, S12, S34, T3, and T8 have a close kinship with L. plantarum, whereas isolates R31 and DH1 have a close kinship with L. fermentum. Moreover, isolates LK14, S23, R24, DH7, DS13, GR3, HB3 have a close kinship to the genus Pediococcus.