

PENGEMBANGAN PRODUK *YOGURT DRINK* DENGAN *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13

INTISARI

Yogurt *drink* berpotensi sebagai media yang tepat untuk mengenalkan probiotik kepada konsumen. Tujuan penelitian ini untuk mengetahui apakah probiotik *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dapat sebagai *co culture* dalam pembuatan yogurt *drink* menggunakan kultur starter *Streptococcus thermophilus* dan *Lactobacillus bulgaricus*. Berdasarkan suhu optimum pertumbuhannya, *S.thermophilus* dan *L.bulgaricus* termasuk bakteri asam laktat termofil, sedangkan *L. plantarum* Dad-13 termasuk bakteri asam laktat mesofilik. Penentuan suhu fermentasi 37°C, 39°C dan 42°C dipilih untuk mengetahui suhu optimum selama fermentasi. *L.plantarum* Dad-13 dapat tumbuh bersama dengan kultur starter yogurt pada suhu 37°C dengan total bakteri asam laktat 7.83-9.04 log CFU/ml, jumlah sel probiotik 7.74-8.91 log CFU/ml dan pH mengalami penurunan dari 6,43 menjadi 4,13 selama fermentasi. Hingga akhir penyimpanan, jumlah total bakteri asam laktat memiliki nilai 10⁸ CFU/ml dan jumlah sel probiotik memiliki nilai 10⁷ log CFU/ml. pH yogurt *drink* dan yogurt *drink* probiotik mengalami penurunan dengan nilai 4,15-3,94 dan 4,10-3,91. Total asam tertitrasi mengalami peningkatan dengan nilai 0.70-1.22 dan 0.78-1.29. Viskositas mengalami perubahan dengan nilai 46.20-51.00 cP dan 48.27-52.23 cP. Penambahan probiotik selama penyimpanan tidak mengalami perubahan. Berdasarkan evaluasi sensoris, penambahan probiotik *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dapat menghasilkan yogurt *drink* yang mirip dengan yogurt tanpa penambahan probiotik. Oleh karena itu, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dapat digunakan sebagai *co-culture* dalam pembuatan yogurt *drink* probiotik.

Kata kunci: Yogurt *drink*, bakteri asam laktat, probiotik, waktu fermentasi, lama penyimpanan

PRODUCT DEVELOPMENT OF YOGURT DRINK WITH ***Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13**

ABSTRACT

Yogurt drink has the potential to be an appropriate medium to introduce probiotics to consumers. This study aimed to determine whether the probiotic *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 can be used as a co-culture in the manufacture of yogurt drink using starter cultures of *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. Based on the optimum growth temperature, *S.thermophilus* and *L.bulgaricus* are thermophilic lactic acid bacteria, while *L.plantarum* Dad-13 is a mesophilic lactic acid bacteria. Determination of fermentation temperature 37°C, 39°C, and 42°C were selected to determine the optimum temperature. *L.plantarum* Dad-13 can grow with yogurt starter culture at 37 °C with a total lactic acid bacteria of 7.83-9.04 log CFU/ml, a probiotic cell count of 7.74-8.91 log CFU/ml, and pH decreased from 6,43 to 4,13 during fermentation. During 5 weeks of storage, the total number of lactic acid bacteria had a value of 10⁸ CFU/ml, and the number of probiotic cells had a value of 10⁷ log CFU/ml. The pH of yogurt drink and probiotic yogurt drink decreased with values of 4,15-3,94 and 4,10-3,91. Total titratable acidity increased with values of 0.70-1.22 and 0.78-1.29. The viscosity changed with 46.20-51.00 cP values and 48.27-52.23 cP. The addition of probiotics did not affect the color during storage. Based on sensory evaluation, the addition of probiotic *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 can produce yogurt drink that was similar to yogurt without the addition of probiotics. Thus, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 could be utilized as a co-culture in making probiotic yogurt drinks.

Keyword: Yogurt drink, lactic acid bacteria, probiotic, fermentation temperature, storage time