

**OPTIMALISASI KONSENTRASI EKSTRAK KHAMIR DALAM MEDIA
PERTUMBUHAN SEL *Lactiplantibacillus plantarum* subsp. *plantarum*
Dad-13 PADA PROSES PRODUKSI BUBUK PROBIOTIK**

INTISARI

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Modifikasi media pertumbuhan untuk bakteri asam laktat khususnya strain *L. plantarum* Dad-13 telah banyak dilakukan. Penggunaan ekstrak *yeast* sebagai dalam media fermentasi telah banyak digunakan serta terbukti memberikan pertumbuhan sel yang lebih cepat. Namun, dalam proses produksi perlu dilakukan penghematan bahan baku agar proses berjalan secara efisien. Tujuan dari penelitian ini adalah untuk mempelajari pengaruh optimalisasi konsentrasi ekstrak *yeast* terhadap pertumbuhan *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dalam media pertumbuhan pada proses produksi bubuk probiotik. Media pertumbuhan dengan penambahan konsentrasi ekstrak *yeast* 2,0% (sesuai rekomendasi) digunakan sebagai media pembanding. Media pertumbuhan terdiri dari pepton ikan gabus, ekstrak *yeast*, sukrosa, dan air. Untuk mengetahui pengaruh konsentrasi ekstrak *yeast*, kultur *L. plantarum* Dad-13 ditumbuhkan dalam media pertumbuhan dengan berbagai variasi konsentrasi ekstrak *yeast* (0,5%; 1,0%; 1,5%) pada suhu 30°C selama 20 jam dan pertumbuhan sel diukur dalam CFU/ml. Hasil penelitian menunjukkan bahwa penambahan ekstrak *yeast* sebesar 1,0% (10 g/L) dalam media pertumbuhan menghasilkan jumlah sel *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 sebesar $1,05 \times 10^9$ CFU/ml yang sudah mendekati media kontrol dan paling efisien dalam proses produksi sel.

Kata kunci: bakteri asam laktat, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13, media pertumbuhan, ekstrak *yeast*, pertumbuhan sel

**OPTIMALIZATION OF YEAST EXTRACT CONCENTRATION IN
GROWTH MEDIA OF *Lactiplantibacillus plantarum* subsp. *plantarum*
Dad-13 CELLS IN PROBIOTIC POWDER PRODUCTION PROCESS**

ABSTRACT

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Modification of growth media for lactic acid bacteria, especially *L. plantarum* Dad-13 strain, has been widely done. The use of yeast extract as a fermentation medium has been widely used and found to provide faster cell growth. However, in the production process, it is important to save raw materials so that the process runs efficiently. The purpose of this research is to study the effect of optimizing the concentration of yeast extract on the growth of *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 in growth media in the production process of probiotic powder. Growth media with the addition of 2.0% yeast extract concentration (as recommended) was used as a comparison media. The growth medium consisted of snakehead fish waste peptone, yeast extract, sucrose, and water. To determine the effect of yeast extract concentration, *L. plantarum* Dad-13 cultures were grown in growth media with various yeast extract concentrations (0.5% ; 1.0% ; 1.5%) at 30°C for 20 hours and cell growth was measured in CFU/ml. The results showed that the addition of yeast extract at 1.0% (10 g/L) in the growth medium resulted in a cell count of *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 of $1,05 \times 10^9$ CFU/ml which was close to the control growth medium and most efficient in the cell production process.

Keywords: lactic acid bacteria, *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13, growth medium, yeast extract, cell growth