

## PERTUMBUHAN BAKTERI ASAM LAKTAT DAN PROBIOTIK PADA PENGOLAHAN KEJU *CHEDDAR* PROBIOTIK DENGAN VARIASI RASIO INOKULUM LOKAL

### ABSTRAK

Oleh:

An'nisa Fitri Ani

20/463713/TP/12991

Tujuan dari penelitian ini adalah untuk mengetahui pertumbuhan bakteri asam laktat, probiotik, dan penurunan pH selama pengolahan keju *cheddar* probiotik menggunakan starter *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 dan *Streptococcus thermophilus* Dad-11 dengan variasi rasio 1:1 dan 1:3. Kedua strain bakteri tersebut diinokulasikan ke dalam susu yang telah dipanaskan hingga suhu 65°C dengan *holding time* 15 detik. Pengujian jumlah sel bakteri asam laktat dan probiotik dilakukan pada susu segar, curd dan whey setelah fermentasi 4 jam, dan setelah fermentasi 20 jam. Pengujian pH dilakukan pada tiap tahapan pengolahan keju *cheddar*. Hasil penelitian menunjukkan bahwa terjadi peningkatan jumlah sel bakteri asam laktat dan probiotik selama proses fermentasi keju. Pertumbuhan sel bakteri asam laktat setelah fermentasi 20 jam pada keju *cheddar* dengan rasio 1:1 dan 1:3 sebesar 8,43 log CFU/g dan 9,64 log CFU/g. Sementara itu pertumbuhan probiotiknya sebesar 8,34 log CFU/g dan 8,36 log CFU/g. pH akhir keju *cheddar* pada rasio 1:1 dan 1:3 sebesar 5,45 dan 5,25.

**Kata kunci:** keju *cheddar*, probiotik, kultur starter campuran, *Lactiplantibacillus plantarum* Dad-13, *Streptococcus thermophilus* Dad-11.

## GROWTH OF LACTIC ACID AND PROBIOTIC BACTERIA IN PROBIOTIC CHEDDAR CHEESE PROCESSING WITH VARIATION OF LOCAL STARTER RATIO

### ABSTRACT

By:

An'nisa Fitri Ani

20/463713/TP/12991

The purpose of this study was to determine the growth of lactic acid bacteria, probiotics, and pH reduction during the processing of probiotic cheddar cheese using *Lactiplantibacillus plantarum* subsp. *plantarum* Dad-13 and *Streptococcus thermophilus* Dad-11 starters with variations in the ratio of 1:1 and 1:3. Both bacterial strains were inoculated into milk that had been heated to 65°C with a holding time of 15 seconds. Cell count testing of lactic acid bacteria and probiotics was conducted on fresh milk, curd and whey after 4 hours fermentation, and after 20 hours fermentation. pH testing was conducted at each stage of cheddar cheese processing. The results showed that there was an increase in the number of lactic acid bacteria and probiotic cells during the cheese fermentation process. The cell growth of lactic acid bacteria after 20 hours of fermentation in cheddar cheese with 1:1 and 1:3 ratios was 8.43 log CFU/g and 9.64 log CFU/g, respectively. Meanwhile, the growth of probiotics was 8.34 log CFU/g and 8.36 log CFU/g. The final pH of cheddar cheese at 1:1 and 1:3 ratio was 5.45 and 5.25.

**Keywords:** cheddar cheese, probiotics, mixed starter culture, *Lactiplantibacillus plantarum* Dad-13, *Streptococcus thermophilus* Dad-11.