

ABSTRACT

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POTENTIAL OF SINBIOTIC DRINK OF PROCESSED SHALLOT JUICE USING *Lactobacillus casei* AND *Lactobacillus acidophilus*

Thesis, Faculty of Science dan Technology (2018).

(xv + 88 pages, 10 tables, 22 figures, 29 appendices)

Shallot has inulin content acting as a growth substrate for probiotic bacteria. Synbiotic is a combination of probiotic and prebiotic which can give beneficial effect of health toward digestive system. Thus, synbiotic improves survival and gives dietary supplement of live microbial in digestive tract. The objective of this research is to determine the formulation of sugar and skim milk, acid lactic bacteria ratio, the inulin content and chemical composition by GC-MS technique in before and after fermentation, viability test, and acid survival test. The chosen formulation of shallot synbiotic drink based on formulation of sugar and skim milk was ratio of shallot:water 1:2 with 6% skim milk and 4% sugar added. Then, the chosen bacteria cultures were *L. casei* and *L. acidophilus* 2:1 produced shallot synbiotic drink which has pH value 4.009, total titratable acidity 0.90%, and total lactic acid bacteria 1.31×10^9 CFU/ml. Viability test showed that the product started to enter its stationery phase in 14 days. Acid survival test indicated that the culture could still live in condition with pH value ranging from 3 until 4. The inulin content decreased by 47.44%. Acceptance value of the chosen product using hedonic rating test was neutral (4.73 ± 1.54). Based on GC-MS analysis, there were formation of volatile compound caused by fermentation.

Keyword: synbiotic drink, shallot, lactic acid bacteria, *L. casei*, *L. acidophilus*

Reference: 86 (1979-2017)

ABSTRAK

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POTENSI MINUMAN SINBIOTIK SARI BAWANG MERAH OLAHAN MENGUNAKAN *Lactobacillus casei* DAN *Lactobacillus acidophilus*

Tugas akhir, Fakultas Sains dan Teknologi (2018).

(xv + 88 halaman, 10 tabel, 22 gambar, 29 lampiran)

Bawang merah memiliki kadar inulin yang dapat bertindak sebagai substrat untuk pertumbuhan bakteri probiotik. Sinbiotik merupakan campuran probiotik dan prebiotik yang secara menguntungkan mempengaruhi saluran pencernaan dengan memperbaiki kelangsungan hidup dan menjadi suplemen makanan mikroba hidup di saluran pencernaan. Tujuan dari penelitian ini adalah menentukan formulasi gula dan susu skim, rasio bakteri asam laktat, serta mengetahui kadar inulin dan uji GC-MS awal dan akhir, uji viabilitas, dan uji ketahanan asam. Berdasarkan hasil penelitian, formulasi terpilih adalah perbandingan bawang merah:air 1:2 dengan 6% susu skim dan 4% gula. Rasio kultur bakteri asam laktat terpilih yaitu *L. casei*:*L. acidophilus* 2:1 yang menghasilkan minuman sinbiotik dengan pH 4.009, TAT 0.90%, dan total bakteri asam laktat 9.16×10^9 CFU/ml. Uji viabilitas menunjukkan bahwa produk mulai memasuki fase stationer pada hari ke-14. Kadar inulin akhir 47.44%. Secara keseluruhan tingkat penerimaan adalah netral (4.73 ± 1.54). Berdasarkan hasil GC-MS, terdapat pembentukan senyawa volatil akibat fermentasi.

Kata kunci: minuman sinbiotik, bawang merah, bakteri asam laktat, *L. casei*,
L. acidophilus

Referensi: 86 (1979-2017)