

ABSTRACT

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UTILIZATION OF BELIMBING WULUH JUICE (*Averrhoa bilimbi* L.) AND EFFECT OF STORAGE TIME ON QUALITY OF FERMENTED DRINK

(xv + 84 pages: 22 figures, 10 tables, 23 appendices)

Belimbing wuluh (*Averrhoa bilimbi* L.) is a fruit which has a sour taste, contains a lot of water, a short storage time as well as low economic value. The purpose of this study is to utilize belimbing wuluh as fermented drink as well as determine the influence of storage time of fermented drink chosen formulation for the quality and acceptability of the panelists. The preliminary stage has been done by mixing fruit and water with different ratio, 1:0, 1:2, 1:4, 1:6, 1:8, 1:10, and 1:12 (w/v). To get three ratios, the pH test is done by mixing skim milk at 4%, then pasteurized at a temperature of 85⁰C for 30 minutes. The results of the test pH is 1:8, 1:10, and 1:12 (w/v). The fermented drink was prepared with cultures of *Streptococcus thermophilus* and *Lactobacillus acidophilus* with ratio of 1:1, 6% (v/v). The fermented drink was processed with different ratios of fruits and water such as 1:8, 1:10, and 1:12 (w/v) and concentrations of skim milk such as 4, 6, and 8% (w/v). The products were fermented for 8 hours and analyzed for pH, total titratable acidity, and total lactic acid bacteria. The result showed that based on these parameters, the chosen formulation was ratio of fruit and water 1:10 and 8% skim milk, with pH value 4,20±0,01, total titratable acidity of 0,67±0,00%, and total lactic acid bacteria of 2,9x10⁸ CFU/mL. Storage of fermented belimbing wuluh juice drink at refrigerator temperature only for 2 weeks could stabilize the quality of this drink with pH value 3,83, total titratable acidity 0,90, total lactic acid bacteria of 10⁸ CFU/mL, and accepted by the standard of fermented drink. After 3 weeks storage, phenolic, flavonoid, and antioxidant activity decreased. The result of organoleptic test shows that the most favorable product is 1 week storage.

Keywords: *Averrhoa bilimbi* L., belimbing wuluh, fermented drink, *Lactobacillus acidophilus*, ratio, skim milk, storage, *Streptococcus thermophilus*, quality

References: 107 (1992–2016)