

ABSTRAK

Surfaktan adalah bahan organik yang ditambahkan sebagai bahan aktif pada sabun mandi cair. Keberadaan limbah surfaktan menimbulkan dampak negatif pada lingkungan dan kesehatan. Belimbing wuluh mengandung saponin yang memiliki rantai steroid dan triterpenoid, memiliki sifat non polar yang mirip seperti surfaktan. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi ekstrak buah belimbing wuluh sebagai surfaktan alami terhadap sifat fisik sediaan sabun mandi cair. Jenis penelitian yang digunakan yaitu penelitian eksperimental. Pada penelitian ini dilakukan uji sifat fisik sabun mandi cair yang sesuai Standar Nasional Indonesia (SNI) meliputi organoleptik, homogenitas, pH, viskositas, bobot jenis, tinggi dan stabilitas busa. Sabun mandi cair dibuat dalam 5 formula dengan variasi konsentrasi ekstrak buah belimbing wuluh 1% (F_1), 1,5% ($F_{1,5}$), 2% (F_2), 2,5% ($F_{2,5}$) dan 3% (F_3). Data dianalisis uji *Kruskal-Wallis* dengan uji *post hoc Dunn Pairwise*, kecuali data uji organoleptik dan homogenitas dianalisis deskriptif. Hasil penelitian variasi konsentrasi ekstrak buah belimbing wuluh berpengaruh signifikan pada pH formula F_3 ($7,37 \pm 0,005$) dan F_1 ($8,99 \pm 0,01$); tinggi busa formula $F_{1,5}$ ($22,00 \pm 2,00$ mm) dan $F_{2,5}$ ($32,67 \pm 1,15$ mm); viskositas formula F_3 ($22.687,00 \pm 380,18$ cP) dan F_1 ($124.931,33 \pm 8591,56$ cP); bobot jenis formula F_3 ($1,09 \pm 0,005$ g/mL) dan F_1 ($1,29 \pm 0,005$ g/mL) dan tidak berpengaruh pada stabilitas busa. Formula F_2 dengan konsentrasi 2% ekstrak buah belimbing wuluh menghasilkan formula yang sesuai standar SNI 06 – 4085 – 1996.

Kata kunci: ekstrak buah belimbing wuluh, saponin, surfaktan, sabun mandi cair, sifat fisik

KARAWANG

ABSTRACT

Surfactant is an organic material usually added as active ingredient in liquid bath soap. The presence of surfactant waste has a negative impact on the environment and health. Wuluh starfruit contain saponin which has steroid and triterpenoid chains, it has non-polar characteristic similar like surfactant. This study aims to determine the effect variations concentration of wuluh starfruit extract as a natural surfactant on the physical properties of liquid bath soap. The type of research is experimental. In this study, the physical properties of liquid bath soap were tested according to the Indonesian National Standard (SNI) including organoleptic, homogeneity, pH, viscosity, specific gravity, height and foam stability. Liquid bath soap is made in 5 formulas with various concentrations of star fruit extract 1% (F_1), 1,5% ($F_{1,5}$), 2% (F_2), 2,5% ($F_{2,5}$) and 3% (F_3). Data were analyzed by Kruskal-Wallis test with post hoc Dunn Pairwise test, except for organoleptic test data and homogeneity were analyzed descriptively. The results of the study showed that the concentration variation of the star fruit extract had a significant effect on the pH of the formulas F_3 ($7,37 \pm 0,005$) and F_1 ($8,99 \pm 0,01$); height of foam formula $F_{1,5}$ ($22,00 \pm 2,00$ mm) and $F_{2,5}$ ($32,67 \pm 1,15$ mm); viscosity formula F_3 ($22.687,00 \pm 380,18$ cP) and F_1 ($124.931,33 \pm 8591,56$ cP); specific gravity of the formula F_3 ($1,09 \pm 0,005$ g/mL) and F_1 ($1,29 \pm 0,005$ g/mL) and had no effect on foam stability. Formula F_2 with a concentration of 2% wuluh starfruit extract resulted in a formula that complied with the standards of SNI 06 – 4085 – 1996.

Keywords: wuluh starfruit extract, saponins, surfactants, liquid bath soap, physical properties

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