

POLITEKNIK KESEHATAN TANJUNG KARANG
JURUSAN ANALIS KESEHATAN
PRODI TEKNOLOGI LABORATORIUM MEDIS PROGRAM SARJANA
TERAPAN
SKRIPSI, JUNI 2021

Muhamad Firstra Lucky Nando

Optimalisasi Pembuatan Sabun Lunak Berbahan Baku Minyak
Jelantah dengan Menggunakan KOH

xvi + 45 halaman, 11 tabel, 12 gambar, dan 11 lampiran

ABSTRAK

Penggunaan minyak goreng berulang, membuat kualitas minyak menurun atau disebut minyak goreng jelantah. Minyak goreng jelantah dapat mengendapkan lemak dalam pembuluh darah dan kanker hati. Banyak penelitian yang berhasil membuat minyak jelantah menjadi biodiesel serta sabun. Penambahan konsentrasi KOH dalam proses pembuatan sabun dapat menurunkan bilangan asam dan bilangan penyabunan pada minyak jelantah. Penelitian bersifat eksperimental yang bertujuan untuk melihat perbedaan setelah penambahan konsentrasi KOH dengan variasi konsentrasi 10%-50% terhadap bilangan asam dan bilangan penyabunan. Hasil analisa statistik uji Univariat didapatkan hasil konsentrasi 40% dan 50% mampu menurunkan bilangan asam sesuai SNI, sedangkan pada bilangan penyabunan hanya konsentrasi 50% yang dapat memenuhi standar SNI. Uji *Paired T-Test* dan ANOVA juga membuktikan perbedaan dalam pemberian konsentrasi KOH. Dalam penelitian ini dilakukan proses pembuatan sabun menggunakan minyak jelantah hasil pemurnian dengan konsentrasi KOH pada konsentrasi 50% dengan kadar air 0,64%, jumlah asam lemak 0,29%, alkali bebas 0,008% dan minyak mineral didapatkan positif. Lalu dilakukan pemeriksaan FT-IR, didapatkan terbentuknya sabun lunak ditandai dengan adanya gugus pada daerah bilangan gelombang (a) $3347,1 \text{ cm}^{-1}$ yang merupakan gugus O-H. Pada bilangan gelombang (b) 2922 cm^{-1} yang menunjukkan *stretching* CH sp^3 . Nilai gelombang (c) $3117,4 \text{ cm}^{-1}$ *bending* CH sp^3 Pada bilangan gelombang (d) $1647,5 \text{ cm}^{-1}$ gugus garam karboksilat

Kata Kunci : Minyak Jelantah, Konsentrasi KOH, Bilangan Asam,
Bilangan Penyabunan, Sabun, FT-IR

Daftar Bacaan : 15 (1994-2020)

TANJUNG CORAL HEALTH POLYTECHNIC
DEPARTMENT OF HEALTH ANALYSIS
MEDICAL LABORATORY TECHNOLOGY PROGRAM APPLIED
GRADUATE PROGRAM
Thesis, JUNE 2021

Muhammad Firstra Lucky Nando

Optimizing the Making of Soft Soap Made from Cooking Oil by Using KOH

xvi + 45 pages, 11 tables, 12 images and 11 attachments

ABSTRACT

Repeated use of cooking oil causes the quality of the oil to decrease or it is called used cooking oil. Used cooking oil can deposit fat in blood vessels and liver cancer. Many studies have succeeded in making used cooking oil into biodiesel and soap. The addition of KOH concentration in the soap making process can reduce the acid number and saponification number in used cooking oil. This research is an experimental study that aims to see the difference after the addition of KOH concentration with a concentration variation of 10%-50% on the acid number and saponification number. The results of statistical analysis of the Univariate test showed that concentrations of 40% and 50% were able to reduce the acid number according to SNI, while the saponification number was only 50% concentration that could meet the SNI standard. Paired T-Test and ANOVA test also proved differences in the administration of KOH concentrations. In this study, the process of making soap using purified used cooking oil with a concentration of KOH at a concentration of 50% with a water content of 0.64%, the amount of fatty acids 0.29%, free alkali 0.008% and mineral oil were found to be positive. Then the FT-IR examination was carried out, it was found that the formation of soft soap was indicated by the presence of a group in the wave number region (a) 3347.1 cm⁻¹ which was an O-H group. At wave number (b) 2922 cm⁻¹ which shows stretching CH sp³. Wave value (c) 3117.4 cm⁻¹ bending CH sp³ At wave number (d) 1647.5 cm⁻¹ carboxylate salt group

Keywords: Cooking Oil, Concentration of KOH, Acid Number,
Saponification Number, Soap, FT-IR
Reading List : 15 (1994-2020)