

Lampiran 1

Lampiran : 2 lembar
Perihal : Penggunaan Laboratorium Kimia dan Fasilitasnya

Kepada
Yth. Koordinator Laboratorium
D3 Analis Kesehatan UM Surabaya
Di Tempat

Dengan hormat,

Sehubungan dengan pelaksanaan penelitian untuk menyusun Karya Tulis Ilmiah (KTI) 2014 – 2015, maka dengan ini yang bertanda tangan di bawah ini :

Nama : ANDINA DWI PRASETYO
NIM : 20120662009
Semester : 6 (Enam)
Tingkat : III (tiga)
Judul KTI : Perbandingan Kadar Alkohol Pada Buah Nangka Segar dan Buah Nangka yang Direbus

Mengajukan permohonan izin menggunakan Laboratorium Mikrobiologi untuk memeriksa sampel penelitian, kiranya Bapak/Ibu ditempat memberikan izin agar dapat mempermudah penelitian ini.

Dengan demikian surat permohonan izin ini saya buat atas izin Bapak / Ibu penanggung jawab, saya ucapkan terima kasih.

Surabaya, 09 April 2015

Dosen Pembimbing I

Pemohon

Ir. Nastiti Kartikorini, M Kes

Andina Dwi Prasetyo

Tembusan:

1. Yth. Penanggung Jawab Laboratorium
2. Arsip

Lampiran 2**DAFTAR ALAT DAN REAGEN**

NO	ALAT DAN REAGEN	JUMLAH / BANYAK
1	Alat :	
	a. Labu destilasi	1 buah
	b. Pendingin leizbig	1 buah
	c. Piknometer	1 buah
	d. Labu ukur 100 ml	2 buah
	e. Pepet volume 50 ml	1 buah
	f. Pipet pasteur	2 buah
	g. Corong	2 buah
	h. Selang kecil	4 buah
	i. Penjepit labu destilasi	4 buah
	j. Statif	4 buah
	k. Bunsen	2 buah
	l. Neraca analitik	1 buah
	m. reflux	1 buah
	n. petridisk	1 buah
	o. pengaduk	2 buah
2	Reagen :	
	a. Air (aquades)	2 liter

Surabaya, 09 April 2015

Pemohon

Andina Dwi Prasetyo

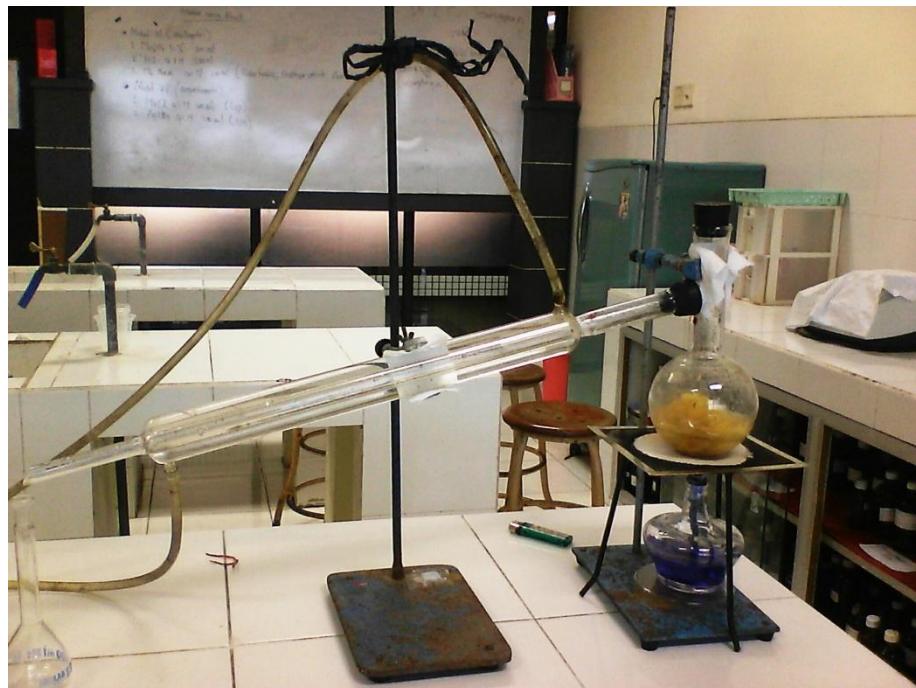
Tembusan:

1. Yth. PenanggungjawabLaboratorium Kimia Kesehatan
2. Arsip

Lampiran 3

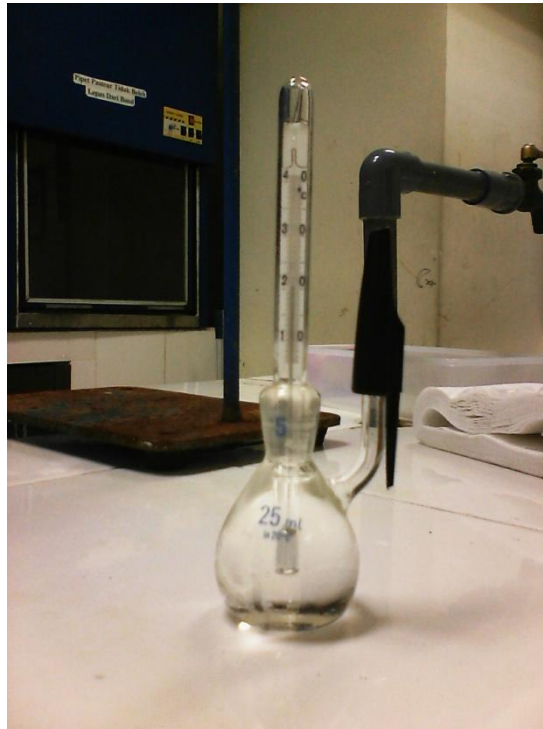


Gambar: 1 Foto nangka yang sudah dipisahkan dari bijinya



Gambar: 2 Foto proses destilasi alkohol nangka

Lampiran 4



Gambar: 3 Hasil titrasi dimasukkan ke dalam piknometer dan didinginkan sampai suhu 20°C



Gambar: 4 Hasil titrasi dalam piknometer kemudian di timbang

Lampiran 5

(i) Kalkulasi

Penaraan Piknometer

Bobot Pikno Kosong (A) = gram

Bobot Pikno + Aquadest 20°C (B) = gram

Bobot Pikno + destilat alkohol 20°C (C) = gram

Berat jenis Aquadest 20°C =

Volume piknometer (X) = $\frac{B-A}{\text{BJ Aquadest } 20^{\circ}\text{C}}$

BJ Alkohol = $\frac{C-A}{X}$

A. PERHITUNGAN

a. Hari 1

1. Pengulangan 1

Bobot Pikno Kosong = 27,1659 gram

Bobot Pikno + Aquadest 20°C = 51,7102 gram

Bobot Pikno + destilat alkohol 20°C = 51,7001 gram

Berat jenis Aquadest 20°C = 0,9890

Volume piknometer = $\frac{51,7102 - 27,1659}{0,9890} = 24,8173$

BJ Alkohol = $\frac{51,7001 - 27,1659}{24,8173} = 0,9886$

Dari Tabel

0,9880 = 7,0

0,9890 = 6,3

Selisih Kadar = 7,0 - 6,3 = 0,7

Selisih BJ = 0,9890 - 0,9880 = 0,001

Kadar Alkohol = $7,0 - \frac{[(0,9886 - 0,9880) \times 0,7]}{0,001} = 6,58 \%$

2. Pengulangan 2

$$\begin{aligned}\text{Bobot Pikno Kosong} &= 27,6078 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 52,2409 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 52,2402 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{52,2409 - 27,6078}{0,9890} = 24,9071 \\ \text{BJ Alkohol} &= \frac{52,2402 - 27,6078}{24,9071} = 0,9889\end{aligned}$$

Dari Tabel

$$0,9880 = 7,0$$

$$0,9890 = 6,3$$

$$\text{Selisih Kadar} = 7,0 - 6,3 = 0,7$$

$$\text{Selisih BJ} = 0,9890 - 0,9880 = 0,001$$

$$\text{Kadar Alkohol} = 7,0 - \frac{[(0,9889 - 0,9880) \times 0,7]}{0,001} = 6,37 \%$$

3. Pengulangan 3

$$\begin{aligned}\text{Bobot Pikno Kosong} &= 27,1666 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 51,7114 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 51,7103 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{51,7114 - 27,1666}{0,9890} = 24,8180 \\ \text{BJ Alkohol} &= \frac{51,7103 - 27,1666}{24,8180} = 0,9889\end{aligned}$$

Dari Tabel

$$0,9880 = 7,0$$

$$0,9890 = 6,3$$

$$\text{Selisih Kadar} = 7,0 - 6,3 = 0,7$$

$$\text{Selisih BJ} = 0,9890 - 0,9880 = 0,001$$

$$\text{Kadar Alkohol} = 7,0 - \frac{[(0,9889 - 0,9880) \times 0,7]}{0,001} = 6,37 \%$$

4. Pengulangan 4

Bobot Pikno Kosong	= 27,37,25 gram
Bobot Pikno + Aquadest 20°C	= 51,8170 gram
Bobot Pikno + destilat alkohol 20°C	= 51,8166 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{51,8170 - 27,3725}{0,9890} = 24,7163$
BJ Alkohol	= $\frac{51,8166 - 27,3725}{24,7163} = 0,9889$

Dari Tabel

$$0,9880 = 7,0$$

$$0,9890 = 6,3$$

$$\text{Selisih Kadar} = 7,0 - 6,3 = 0,7$$

$$\text{Selisih BJ} = 0,9890 - 0,9880 = 0,001$$

$$\text{Kadar Alkohol} = 7,0 - \frac{[(0,9889 - 0,9880) \times 0,7]}{0,001} = 6,37 \%$$

5. Pengulangan 5

Bobot Pikno Kosong	= 27,5265 gram
Bobot Pikno + Aquadest 20°C	= 52,2372 gram
Bobot Pikno + destilat alkohol 20°C	= 52,2368 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{52,2372 - 27,5265}{0,9890} = 24,9855$
BJ Alkohol	= $\frac{52,2368 - 27,5265}{24,9855} = 0,9890$

Dari Tabel

$$0,9890 = 6,3$$

$$0,9900 = 5,7$$

$$\text{Selisih Kadar} = 6,3 - 5,7 = 0,6$$

$$\text{Selisih BJ} = 0,9900 - 0,9890 = 0,001$$

$$\text{Kadar Alkohol} = 6,3 - \frac{[(0,9890 - 0,9890) \times 0,6]}{0,001} = 6,3 \%$$

$$\text{Rata - rata} = \frac{6,58 + 6,37 + 6,37 + 6,37 + 6,3}{5} = 6,398 \%$$

b. Hari 2

1. Pengulangan 1

$$\text{Bobot Pikno Kosong} = 27,7056 \text{ gram}$$

$$\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} = 52,6735 \text{ gram}$$

$$\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} = 52,6235 \text{ gram}$$

$$\text{Berat jenis Aquadest } 20^{\circ}\text{C} = 0,9890$$

$$\text{Volume piknometer} = \frac{52,6735 - 27,7056}{0,9890} = 25,2456$$

$$\text{BJ Alkohol} = \frac{52,6535 - 27,7056}{25,2456} = 0,9882$$

Dari Tabel

$$0,9880 = 7,0$$

$$0,9890 = 6,3$$

$$\text{Selisih Kadar} = 7,0 - 6,3 = 0,7$$

$$\text{Selisih BJ} = 0,9890 - 0,9880 = 0,001$$

$$\text{Kadar Alkohol} = 7,0 - \frac{[(0,9882 - 0,9880) \times 0,7]}{0,001} = 6,86 \%$$

2. Pengulangan 2

Bobot Pikno Kosong	= 27,4615 gram
Bobot Pikno + Aquadest 20°C	= 52,3850 gram
Bobot Pikno + destilat alkohol 20°C	= 52,3646 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{52,3850 - 27,4615}{0,9890} = 25,2007$
BJ Alkohol	= $\frac{52,3646 - 27,4615}{25,2007} = 0,9881$

Dari Tabel

$$0,9880 = 7,0$$

$$0,9890 = 6,3$$

$$\text{Selisih Kadar} = 7,0 - 6,3 = 0,7$$

$$\text{Selisih BJ} = 0,9890 - 0,9880 = 0,001$$

$$\text{Kadar Alkohol} = 7,0 - \frac{[(0,9881 - 0,9880) \times 0,7]}{0,001} = 6,93 \%$$

3. Pengulangan 3

Bobot Pikno Kosong	= 27,6735 gram
Bobot Pikno + Aquadest 20°C	= 52,4187 gram
Bobot Pikno + destilat alkohol 20°C	= 52,3898 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{52,4187 - 27,6735}{0,9890} = 25,0204$
BJ Alkohol	= $\frac{52,3898 - 27,6735}{25,0204} = 0,9878$

Dari Tabel

$$0,9870 = 7,7$$

$$0,9880 = 7,0$$

$$\text{Selisih Kadar} = 7,7 - 7,0 = 0,7$$

$$\text{Selisih BJ} = 0,9880 - 0,9870 = 0,001$$

$$\text{Kadar Alkohol} = 7,7 - \frac{[(0,9878 - 0,9870) \times 0,7]}{0,001} = 6,44 \%$$

4. Pengulangan 4

Bobot Pikno Kosong	= 27,5940 gram
Bobot Pikno + Aquadest 20°C	= 52,2981 gram
Bobot Pikno + destilat alkohol 20°C	= 52,1991 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{52,2981 - 27,5940}{0,9890} = 24,9788$
BJ Alkohol	= $\frac{52,1991 - 27,5940}{24,9788} = 0,9851$

Dari Tabel

$$0,9850 = 9,0$$

$$0,9860 = 8,3$$

$$\text{Selisih Kadar} = 9,0 - 8,3 = 0,7$$

$$\text{Selisih BJ} = 0,9860 - 0,9850 = 0,001$$

$$\text{Kadar Alkohol} = 9,0 - \frac{[(0,9851 - 0,9850) \times 0,7]}{0,001} = 8,93 \%$$

5. Pengulangan 5

Bobot Pikno Kosong	= 27,5836 gram
Bobot Pikno + Aquadest 20°C	= 52,6415 gram
Bobot Pikno + destilat alkohol 20°C	= 52,6016 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{52,6415 - 27,5836}{0,9890} = 25,3366$
BJ Alkohol	= $\frac{52,6415 - 27,5836}{25,3366} = 0,9876$

Dari Tabel

$$0,9870 = 7,7$$

$$0,9880 = 7,0$$

$$\text{Selisih Kadar} = 7,7 - 7,0 = 0,7$$

$$\text{Selisih BJ} = 0,9880 - 0,9870 = 0,001$$

$$\text{Kadar Alkohol} = 7,7 - \frac{[(0,9876 - 0,9870) \times 0,7]}{0,001} = 6,58 \%$$

$$\text{Rata - rata} = \frac{6,86 + 6,93 + 6,44 + 8,93 + 6,58}{5} = 7,148 \%$$

c. Hari 3

1. Pengulangan 1

$$\text{Bobot Pikno Kosong} = 27,0038 \text{ gram}$$

$$\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} = 49,9626 \text{ gram}$$

$$\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} = 49,3035 \text{ gram}$$

$$\text{Berat jenis Aquadest } 20^{\circ}\text{C} = 0,9890$$

$$\text{Volume piknometer} = \frac{49,9626 - 27,0038}{0,9890} = 23,2142$$

$$\text{BJ Alkohol} = \frac{49,5035 - 27,0038}{23,2142} = 0,9692$$

Dari Tabel

$$0,9690 = 21,0$$

$$0,9700 = 20,3$$

$$\text{Selisih Kadar} = 21,0 - 20,3 = 0,7$$

$$\text{Selisih BJ} = 0,9700 - 0,9690 = 0,001$$

$$\text{Kadar Alkohol} = 21,0 - \frac{[(0,9692 - 0,9690) \times 0,7]}{0,001} = 20,86 \%$$

2. Pengulangan 2

$$\begin{aligned}\text{Bobot Pikno Kosong} &= 26,2817 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 50,0507 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 48,7629 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{50,0507 - 26,2817}{0,9890} = 24,0333 \\ \text{BJ Alkohol} &= \frac{49,5035 - 26,2817}{24,0333} = 0,9354\end{aligned}$$

Dari Tabel

$$0,9350 = 40,9$$

$$0,9360 = 40,4$$

$$\text{Selisih Kadar} = 40,9 - 40,4 = 0,5$$

$$\text{Selisih BJ} = 0,9360 - 0,9350 = 0,001$$

$$\text{Kadar Alkohol} = 40,9 - \frac{[(0,9692 - 0,9690) \times 0,7]}{0,001} = 40,7 \%$$

3. Pengulangan 3

$$\begin{aligned}\text{Bobot Pikno Kosong} &= 27,1120 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 49,1766 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 48,7698 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{49,1766 - 27,1120}{0,9890} = 22,3100 \\ \text{BJ Alkohol} &= \frac{48,7698 - 27,1120}{22,3100} = 0,9707\end{aligned}$$

Dari Tabel

$$0,9700 = 20,3$$

$$0,9710 = 19,5$$

$$\text{Selisih Kadar} = 20,3 - 19,5 = 0,8$$

$$\text{Selisih BJ} = 0,9710 - 0,9700 = 0,001$$

$$\text{Kadar Alkohol} = 20,3 - \frac{[(0,9707 - 0,9700) \times 0,8]}{0,001} = 19,74 \%$$

4. Pengulangan 4

Bobot Pikno Kosong	= 27,1095 gram
Bobot Pikno + Aquadest 20°C	= 49,1777 gram
Bobot Pikno + destilat alkohol 20°C	= 48,7719 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{49,1777 - 27,1095}{0,9890} = 22,3136$
BJ Alkohol	= $\frac{48,7719 - 27,1095}{22,3136} = 0,9708$

Dari Tabel

$$0,9700 = 20,3$$

$$0,9710 = 19,5$$

$$\text{Selisih Kadar} = 20,3 - 19,5 = 0,8$$

$$\text{Selisih BJ} = 0,9710 - 0,9700 = 0,001$$

$$\text{Kadar Alkohol} = 20,3 - \frac{[(0,9708 - 0,9700) \times 0,8]}{0,001} = 19,66 \%$$

5. Pengulangan 5

Bobot Pikno Kosong	= 27,0726 gram
Bobot Pikno + Aquadest 20°C	= 49,2106 gram
Bobot Pikno + destilat alkohol 20°C	= 48,7751 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	= $\frac{49,2106 - 27,0726}{0,9890} = 22,3842$
BJ Alkohol	= $\frac{48,7751 - 27,0726}{22,3842} = 0,9695$

Dari Tabel

$$0,9690 = 21,0$$

$$0,9700 = 20,3$$

$$\text{Selisih Kadar} = 21,0 - 20,3 = 0,7$$

$$\text{Selisih BJ} = 0,9700 - 0,9690 = 0,001$$

$$\text{Kadar Alkohol} = 21,0 - \frac{[(0,9695 - 0,9690) \times 0,7]}{0,001} = 20,65 \%$$

$$\text{Rata - rata} = \frac{20,86 + 40,7 + 19,74 + 19,66 + 20,65}{5} = 24,322 \%$$

d. Hari 4

1. Pengulangan 1

$$\text{Bobot Pikno Kosong} = 27,2622 \text{ gram}$$

$$\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} = 49,7037 \text{ gram}$$

$$\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} = 49,1318 \text{ gram}$$

$$\text{Berat jenis Aquadest } 20^{\circ}\text{C} = 0,9890$$

$$\text{Volume piknometer} = \frac{49,7037 - 27,2622}{0,9890} = 22,6911$$

$$\text{BJ Alkohol} = \frac{49,1318 - 27,2622}{22,6911} = 0,9637$$

Dari Tabel

$$0,9630 = 25,3$$

$$0,9640 = 24,6$$

$$\text{Selisih Kadar} = 25,3 - 24,6 = 0,7$$

$$\text{Selisih BJ} = 0,9640 - 0,9630 = 0,001$$

$$\text{Kadar Alkohol} = 25,3 - \frac{[(0,9637 - 0,9630) \times 0,7]}{0,001} = 24,81 \%$$

2. Pengulangan 2

$$\text{Bobot Pikno Kosong} = 27,2613 \text{ gram}$$

$$\begin{aligned}
\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 49,7067 \text{ gram} \\
\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 49,1303 \text{ gram} \\
\text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\
\text{Volume piknometer} &= \frac{49,7076 - 27,2613}{0,9890} = 22,6950 \\
\text{BJ Alkohol} &= \frac{49,1303 - 27,2613}{22,6950} = 0,9636
\end{aligned}$$

Dari Tabel

$$0,9630 = 25,3$$

$$0,9640 = 24,6$$

$$\text{Selisih Kadar} = 25,3 - 24,6 = 0,7$$

$$\text{Selisih BJ} = 0,9640 - 0,9630 = 0,001$$

$$\text{Kadar Alkohol} = 25,3 - \frac{[(0,9636 - 0,9630) \times 0,7]}{0,001} = 24,88 \%$$

3. Pengulangan 3

$$\begin{aligned}
\text{Bobot Pikno Kosong} &= 27,6821 \text{ gram} \\
\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 50,5411 \text{ gram} \\
\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 50,3085 \text{ gram} \\
\text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\
\text{Volume piknometer} &= \frac{50,5411 - 27,6821}{0,9890} = 23,1132 \\
\text{BJ Alkohol} &= \frac{50,3085 - 27,6821}{23,1132} = 0,9789
\end{aligned}$$

Dari Tabel

$$0,9780 = 14,1$$

$$0,9790 = 13,4$$

$$\text{Selisih Kadar} = 14,1 - 13,4 = 0,7$$

$$\text{Selisih BJ} = 0,9780 - 0,9790 = 0,001$$

$$\text{Kadar Alkohol} = 14,1 - \frac{[(0,9789 - 0,9790) \times 0,7]}{0,001} = 13,47 \%$$

4. Pengulangan 4

$$\begin{aligned} \text{Bobot Pikno Kosong} &= 27,6631 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 49,0007 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 48,9230 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{49,0007 - 27,6631}{0,9890} = 21,5749 \\ \text{BJ Alkohol} &= \frac{48,9230 - 27,6631}{21,5749} = 0,9850 \end{aligned}$$

Dari Tabel

$$0,9850 = 9,0$$

$$0,9860 = 8,3$$

$$\text{Selisih Kadar} = 9,0 - 8,3 = 0,7$$

$$\text{Selisih BJ} = 0,9860 - 0,9850 = 0,001$$

$$\text{Kadar Alkohol} = 9,0 - \frac{[(0,9850 - 0,9850) \times 0,7]}{0,001} = 9,0 \%$$

5. Pengulangan 5

$$\begin{aligned} \text{Bobot Pikno Kosong} &= 27,6617 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 48,9981 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 48,7113 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{48,9981 - 27,6617}{0,9890} = 21,5737 \\ \text{BJ Alkohol} &= \frac{48,7113 - 27,6617}{21,5737} = 0,9757 \end{aligned}$$

Dari Tabel

$$0,9750 = 16,4$$

$$0,9760 = 15,7$$

$$\begin{aligned} \text{Selisih Kadar} &= 16,4 - 15,7 = 0,7 \\ \text{Selisih BJ} &= 0,9760 - 0,9750 = 0,001 \\ \text{Kadar Alkohol} &= 16,4 - \frac{[(0,9757 - 0,9750) \times 0,7]}{0,001} = 15,91 \% \end{aligned}$$

$$\text{Rata - rata} = \frac{24,81 + 24,88 + 13,47 + 9,0 + 15,91}{5} = 17,614 \%$$

e. Hari 5

1. Pengulangan 1

$$\begin{aligned} \text{Bobot Pikno Kosong} &= 27,8951 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 47,8517 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 46,8107 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \\ \text{Volume piknometer} &= \frac{47,8517 - 27,8951}{0,9890} = 20,1786 \\ \text{BJ Alkohol} &= \frac{46,8107 - 27,8951}{20,1786} = 0,9374 \end{aligned}$$

Dari Tabel

$$\begin{aligned} 0,9370 &= 39,3 \\ 0,9380 &= 39,4 \\ \text{Selisih Kadar} &= 39,4 - 39,3 = 0,1 \\ \text{Selisih BJ} &= 0,9380 - 0,9370 = 0,001 \\ \text{Kadar Alkohol} &= 39,3 - \frac{[(0,9374 - 0,9370) \times 0,1]}{0,001} = 39,34 \% \end{aligned}$$

2. Pengulangan 2

$$\begin{aligned} \text{Bobot Pikno Kosong} &= 28,0660 \text{ gram} \\ \text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} &= 47,8560 \text{ gram} \\ \text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} &= 46,8189 \text{ gram} \\ \text{Berat jenis Aquadest } 20^{\circ}\text{C} &= 0,9890 \end{aligned}$$

$$\text{Volume piknometer} = \frac{47,8560 - 28,0660}{0,9890} = 20,1786$$

$$\text{BJ Alkohol} = \frac{46,8189 - 28,0660}{20,1786} = 0,9371$$

Dari Tabel

$$0,9370 = 39,3$$

$$0,9380 = 39,4$$

$$\text{Selisih Kadar} = 39,4 - 39,3 = 0,1$$

$$\text{Selisih BJ} = 0,9380 - 0,9370 = 0,001$$

$$\text{Kadar Alkohol} = 39,3 - \frac{[(0,9371 - 0,9370) \times 0,1]}{0,001} = 39,31 \%$$

3. Pengulangan 3

$$\text{Bobot Pikno Kosong} = 26,9420 \text{ gram}$$

$$\text{Bobot Pikno + Aquadest } 20^{\circ}\text{C} = 46,1103 \text{ gram}$$

$$\text{Bobot Pikno + destilat alkohol } 20^{\circ}\text{C} = 45,9879 \text{ gram}$$

$$\text{Berat jenis Aquadest } 20^{\circ}\text{C} = 0,9890$$

$$\text{Volume piknometer} = \frac{46,1103 - 26,9420}{0,9890} = 19,3814$$

$$\text{BJ Alkohol} = \frac{45,9879 - 26,9420}{19,3814} = 0,9826$$

Dari Tabel

$$0,9820 = 11,0$$

$$0,9830 = 10,3$$

$$\text{Selisih Kadar} = 11,0 - 10,3 = 0,7$$

$$\text{Selisih BJ} = 0,9830 - 0,9820 = 0,001$$

$$\text{Kadar Alkohol} = 11,0 - \frac{[(0,9826 - 0,9820) \times 0,7]}{0,001} = 10,58 \%$$

4. Pengulangan 4

Bobot Pikno Kosong	= 28,0618 gram
Bobot Pikno + Aquadest 20°C	= 47,8603 gram
Bobot Pikno + destilat alkohol 20°C	= 47,7104 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	$= \frac{47,8603 - 28,0681}{0,9890} = 20,0187$
BJ Alkohol	$= \frac{47,7104 - 28,0681}{20,0187} = 0,9815$

Dari Tabel

$$0,9810 = 11,8$$

$$0,9820 = 11,0$$

$$\text{Selisih Kadar} = 11,8 - 11,0 = 0,8$$

$$\text{Selisih BJ} = 0,9820 - 0,9810 = 0,001$$

$$\text{Kadar Alkohol} = 11,8 - \frac{[(0,9815 - 0,9810) \times 0,8]}{0,001} = 11,4 \%$$

5. Pengulangan 5

Bobot Pikno Kosong	= 26,8024 gram
Bobot Pikno + Aquadest 20°C	= 46,1172 gram
Bobot Pikno + destilat alkohol 20°C	= 45,9872 gram
Berat jenis Aquadest 20°C	= 0,9890
Volume piknometer	$= \frac{46,1172 - 26,8024}{0,9890} = 19,5296$
BJ Alkohol	$= \frac{45,9872 - 26,8024}{19,5296} = 0,9823$

Dari Tabel

$$0,9820 = 11,0$$

$$0,9830 = 10,3$$

$$\text{Selisih Kadar} = 11,0 - 10,3 = 0,7$$

$$\text{Selisih BJ} = 0,9830 - 0,9820 = 0,001$$

$$\text{Kadar Alkohol} = 11,0 - \frac{[(0,9823 - 0,9820) \times 0,7]}{0,001} = 10,79 \%$$

$$\text{Rata - rata} = \frac{39,34 + 39,31 + 10,58 + 11,4 + 10,79}{5} = 22,284 \%$$

Lampiran 6

One-Sample Kolmogorov-Smirnov Test

		Kadar Alkohol
N		25
Normal Parameters ^{a,b}	Mean	15.5532
	Std. Deviation	11.01581
Most Extreme Differences	Absolute	.207
	Positive	.207
	Negative	-.200
Kolmogorov-Smirnov Z		1.035
Asymp. Sig. (2-tailed)		.235

a. Test distribution is Normal.

b. Calculated from data.

Test of Homogeneity of Variances

Kadar Alkohol

Levene Statistic	df1	df2	Sig.
15.405	4	20	.000

ANOVA

Kadar Alkohol

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1404.537	4	351.134	4.658	.008
Within Groups	1507.815	20	75.391		
Total	2912.353	24			

UJI LANJUTAN

LSD Test

Multiple Comparisons

Dependent Variable:kadar alkohol

	(I) lama penyimpanan	(J) lama penyimpanan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	1	2	-.75000	5.49148	.893	-12.2050	10.7050
		3	-17.92400*	5.49148	.004	-29.3790	-6.4690
		4	-11.21600	5.49148	.055	-22.6710	.2390
		5	-15.88600*	5.49148	.009	-27.3410	-4.4310
	2	1	.75000	5.49148	.893	-10.7050	12.2050
		3	-17.17400*	5.49148	.005	-28.6290	-5.7190
		4	-10.46600	5.49148	.071	-21.9210	.9890
		5	-15.13600*	5.49148	.012	-26.5910	-3.6810
	3	1	17.92400*	5.49148	.004	6.4690	29.3790
		2	17.17400*	5.49148	.005	5.7190	28.6290
		4	6.70800	5.49148	.236	-4.7470	18.1630
		5	2.03800	5.49148	.714	-9.4170	13.4930
	4	1	11.21600	5.49148	.055	-.2390	22.6710
		2	10.46600	5.49148	.071	-.9890	21.9210
		3	-6.70800	5.49148	.236	-18.1630	4.7470
		5	-4.67000	5.49148	.405	-16.1250	6.7850
	5	1	15.88600*	5.49148	.009	4.4310	27.3410
		2	15.13600*	5.49148	.012	3.6810	26.5910
		3	-2.03800	5.49148	.714	-13.4930	9.4170
		4	4.67000	5.49148	.405	-6.7850	16.1250

*. The mean difference is significant at the 0.05 level.