LAMPIRAN A

HASIL UJI STANDARISASI

Hasil Perhitungan Penetapan Susut Pengeringan Simplisia

Replikasi	Hasil Susut Pengeringan
1	8,2 %
2	7,8%
3	7,7%

Rata – rata : $\frac{8,2\ \%+7,8\%+7,7\%}{3} = 7,9\%$

Hasil Perhitungan Penetapan Susut Pengeringan Ekstrak Kering

Replikasi	Hasil susut pengeringan
1	8,7%
2	8,5%
3	8,3%

Rata – rata : $\frac{8,7\%+8,5\%+8,3\%}{3} = 8,5\%$

Hasil Perhitungan Penetapan Kadar Abu Simplisia

No.	W (krus kosong) (gram)	W (bahan) (gram)	W (krus + abu) (gram)	% Kadar Abu	Rata – rata (%)
1	27,311	1,9983	27,4012	4,51	
2	21,551	2,0045	21,6442	4,66	4,60
3	24,735	2,0012	24,876	4,62	

1. Kadar abu : $\frac{(Berat\ kurs+serbuk)-berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{27,4012-27,3110}{1,9983}$ x 100% = 4,51%

2. Kadar abu : $\frac{(berat\ kurs+serbuk)-\ berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{21,6442-21,5507}{2,0045}$ x 100% = 4,66%

3. Kadar abu : $\frac{(berat\ kurs+serbuk)-\ berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{24,8276-24,7351}{2,0012}$ x 100% = 4,62%

Rata – rata kadar abu = 4,60%

Hasil Perhitungan Penetapan Kadar Abu Ekstrak Jahe Merah

No.	W (krus kosong) (gram)	W (bahan) (gram)	W (krus + abu) (gram)	% Kadar Abu	Rata – rata (%)
1	28,4210	2,0121	28,5160	4,72	
2	22,5342	2,0015	22,6280	4,68	4,74
3	23,4498	2,0101	23,5459	4,83	

1. Kadar abu : $\frac{(berat\ kurs+serbuk)-\ berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{28,5160-28,4210}{2,0121}$ x 100% = 4,72%

2. Kadar abu : $\frac{(berat\ kurs+serbuk)-\ berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{22,628-22,5342}{2.0015}$ x 100% = 4,68%

3. Kadar abu : $\frac{(berat\ kurs+serbuk)-\ berat\ kurs\ kosong}{berat\ serbuk}$ x 100%

$\frac{23,5459-23,4489}{2.0101}$ x 100% = 4,83%

Hasil perhitungan Rf pada pemeriksaan secara KLT dengan pelarut = Toluen : etil asetat : aseton (6:3:1)

No.	Sampel yang diamati	UV 254			UV 366		
		Noda	Rf	Warna	Noda	Rf	Warna
1	Ekstrak kering	a	0,60	Lembayung	a	0,60	Ungu
		b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,8125	Ungu
2	Ekstrak kental	a	0,60	Lembayung	a	0,60	Ungu
		b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,6875	Ungu
3	Formula I	a	0,60	Lembayung	a	0,60	Ungu
		b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,8125	Ungu
4	Formula II	a	0,60	Lembayung	a	0,60	Ungu
		b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,8125	Ungu
5	Formula III	a	0,60	Lembayung	a	0,60	Ungu
		b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,8125	Ungu
6	Formula	a	0,60	Lembayung	a	0,60	Ungu

	IV	b	0,6875	Biru lembayung	b	0,6875	Ungu
		c	0,8125	Biru lembayung	c	0,8125	Ungu
7	Eugenol	c	0,8125	Biru lembayung	c	0,8125	Biru

Contoh perhitungan : Rf = $\frac{jarak\ yang\ ditempuh\ oleh\ zat}{jarak\ yang\ ditempuh\ oleh\ fase\ gerak}$

Pada λ 254 =

1. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
2. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
3. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
4. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
5. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
6. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
7. Rf c = $\frac{6,5}{8}$ = 0,8125

Pada λ 366 =

1. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
2. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
3. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125
4. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125

5. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125

6. Rf a = $\frac{4,8}{8}$ = 0,6 Rf b = $\frac{5,5}{8}$ = 0,6875 Rf c = $\frac{6,5}{8}$ = 0,8125

7. Rf c = $\frac{6,5}{8}$ = 0,8125

LAMPIRAN B

HASIL UJI MUTU FISIK GRANUL

Mutu fisik yang diuji	*Batch*	Replikasi	Formula Tablet Effervesen Ekstrak Rimpang Jahe Merah				Syarat
			FI	FII	FIII	FIV	
Kadar air (persen)	I	1	3,20	3,23	3,25	3,31	3-5 % (Voigt, 1995)
	II	2	3,05	3,27	3,32	3,40	
	III	3	3,10	3,10	3,20	3,35	
	$\overline{X}$		3,12	3,20	3,25	3,35	
	SD		0,076	0,088	0,060	0,045	
Waktu alir (detik)	I	1	8,32	8,54	9,27	9,51	Tidak lebih dari 10 detik (Parrott, 1971)
		2	8,40	8,51	9,31	9,46	
		3	8.30	8,48	9,26	9,55	
	II	1	8,42	8,52	9,36	9,55	
		2	8,36	8,56	9,43	9,46	
		3	8,26	8,58	9,32	9,59	
	III	1	8,41	8,55	9,14	9,49	
		2	8,36	8,51	9,28	9,56	
		3	8,24	8,58	9,37	9,59	
	$\overline{X}$		8,34	8,54	9,30	9,53	
	SD		0.065	0,034	0,082	0,052	

Sudut diam (derajat)	I	1	25,52	28,46	28,60	29,40	25° - 30° Baik (Wells, 1988)
		2	26,00	28,20	28,58	29,25	
		3	25,58	28,14	28,46	29,44	
	II	1	26,20	28,32	28,88	29,56	
		2	26,40	28,26	28,66	29,38	
		3	26,18	28,14	28,52	29,28	
	III	1	26,34	28,42	28,48	29,32	
		2	26,30	28,36	28,50	29,48	
		3	26,26	28,22	28,64	29,50	
	$\bar{x}$		26,08	28,28	28,59	29,40	
	SD		0,325	0,117	0,123	0,104	

Indeks kompresibilitas (%)	I	1	14,99	8,997	15,002	12,998	5-15% Baik sekali (Fiese dan Hagen, 1986)
		2	15,01	8,998	15,003	12,997	
		3	14,97	8,998	15,003	12,999	
	II	1	13,97	9,006	12,996	12,992	
		2	13,98	9,006	12,996	12,992	
		3	14,02	9,006	12,996	12,992	
	III	1	13,49	8,997	13,999	12,996	
		2	13,49	8,997	13,999	12,996	
		3	14,02	8,997	13,999	12,996	
	$\bar{x}$		14,15	9,001	13,999	12,995	
	SD		0.665	0,004	0,8688	0,0027	

LAMPIRAN C

HASIL UJI KEKERASAN TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

Batch I

No	Kekerasan Tablet Effervesen Ekstrak Rimpang Jahe Merah (kgf)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	6,2	6,7	6,1	7,6
2	6,5	6,3	6,3	6,2
3	6,5	7,5	6,8	7,6
4	6,4	6,1	6,7	7,6
5	6,1	7,5	6,9	7,5
6	6,4	7,4	6,1	7,3
7	6,6	6,7	6,5	6,2
8	6,2	6,2	7,1	6,2
9	6,6	6,0	6,7	7,3
10	6,6	6,7	6,7	7,5
$\overline{X} \pm SD$	6,41 ± 0,185	6,71 ± 0,580	6,59 ± 0,335	7,1 ± 0,631

Batch II

No	Kekerasan Tablet Effervesen Ekstrak Rimpang Jahe Merah (kgf)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	8,6	10,4	12,9	8,0
2	8,6	10,6	12,8	8,0
3	8,7	10,5	12,8	8,1
4	8,6	10,5	12,9	8,0
5	8,6	10,6	12,7	7,9
6	8,9	10,5	13,1	7,9
7	8,7	10,6	12,8	8,0
8	8,6	10,8	12,8	7,9
9	8,7	10,5	12,8	7,9
10	8,6	10,7	12,7	8,0
$\overline{X}$ ± SD	8,66 ± 0,0966	10,57 ± 0,1159	12,83 ± 0,1159	7,97 ± 0,1315

Batch III

No	Kekerasan Tablet Effervesen Ekstrak Rimpang Jahe Merah (kgf)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	6,8	7,2	6,4	7,5
2	6,5	6,3	6,4	6,1
3	6,8	6,6	6,4	6,4
4	6,6	6,4	6,9	6,2
5	6,4	7,2	7,0	7,6
6	6,6	6,0	6,3	7,2
7	6,8	6,0	6,5	7,4
8	6,4	6,8	6,8	6,6
9	6,9	6,8	6,5	6,2
10	6,4	6,4	6,2	6,8
$\overline{X}$ ± SD	6,62 ± 0,193	6,50 ± 0,452	6,55 ± 0,265	6,8 ± 0,583

LAMPIRAN D

HASIL UJI KERAPUHAN TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

Batch I

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\overline{X}$ ±SD
I	1	15,70	15,68	0,1273	0,1272
	2	15,69	15,67	0,1274	±
	3	15,75	15,73	0,1269	0,0003
II	1	16,32	16,30	0,1225	0,1228
	2	16,26	16,24	0,1230	±
	3	16,28	16,26	0,1228	0,0004
III	1	16,64	16,60	0,2403	0,2408
	2	16,58	16,54	0,2412	±
	3	16,60	16,56	0,2409	0,0004
IV	1	17,28	17,25	0,1736	0,1733
	2	17,35	17,32	0,1730	±
	3	17,30	17,27	0,1735	0,0003

Batch II

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\overline{X}$ ± SD
I	1	15,80	15,78	0,1266	0,1270
	2	15,70	15,68	0,1273	±
	3	15,75	15,73	0,1270	0,0003

II	1	16,36	16,34	0,1222	0,1220
	2	16,40	16,38	0,1220	±
	3	16,46	16,44	0,1216	0,0003
	1	16,78	16,75	0,1787	0,1788
III	2	16,74	16,71	0,1792	±
	3	16,76	16,73	0,1787	0,0002
	1	17,59	17,56	0,1705	0,1707
IV	2	17,55	17,52	0,1709	±
	3	17,57	17,54	0,1707	0,0002

Batch III

Formula	Replikasi	Berat awal (gram)	Berat akhir (gram)	Kerapuhan (%)	$\overline{X}$ ±SD
	1	15,73	15,71	0,1271	0,1271
I	2	15,70	15,68	0,1273	±
	3	15,75	15,73	0,1269	0,0002
	1	16,26	16,24	0,1230	0,1225
II	2	16,40	16,38	0,1220	±
	3	16,30	16,28	0,1227	0,0005
	1	16,70	16,66	0,2395	0,2399
III	2	16,68	16,64	0,2398	±
	3	16,62	16,58	0,2406	0,0005
	1	17,40	17,37	0,1724	0,1730
IV	2	17,33	17,30	0,1731	±
	3	17,30	17,27	0,1735	0,0005

LAMPIRAN E

HASIL UJI WAKTU HANCUR TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

Batch I

Replikasi	Waktu Hancur (menit)			
	Formula I	Formula II	Formula III	Formula IV
1	6,02	5,38	5,50	5,33
2	6,00	5,19	5,42	5,23
3	6,03	5,33	5,48	5,27
$\overline{X}$	6,01	5,30	5,46	5,27
±	±	±	±	±
SD	0,015	0,098	0,041	0,05

Batch II

Replikasi	Waktu Hancur (menit)			
	Formula I	Formula II	Formula III	Formula IV
1	6,28	5,40	6,20	5,54
2	6,13	5,52	5,58	5,30
3	6,21	5,43	6,30	5,38
$\overline{X}$	6,20	5,45	6,02	5,40
±	±	±	±	±
SD	0,075	0,062	0,390	0,122

Batch III

Replikasi	Waktu Hancur (menit)			
	Formula I	**Formula II**	**Formula III**	**Formula IV**
1	6,14	5,57	5,20	5,43
2	6,03	5,47	6,00	5,32
3	6,05	5,36	5,50	5,39
$\overline{X}$ ± SD	6,07 ± 0,058	5,50 ± 0,105	5,56 ± 0,404	5,38 ± 0,055

LAMPIRAN F

CONTOH PERHITUNGAN SUDUT DIAM

Formula (I):

W persegi panjang = 3,48 gram

W lingkaran = 0,90 gram

Luas persegi panjang = 21,5 cm x 29,6 cm

= 636,4 cm^2

Luas lingkaran = $\frac{0,90}{4,65}$ x 636,4

= 123,17 cm^2

A = л x r^2

r^2 = $\frac{A}{л}$

= $\frac{123,17}{3,14}$

r = 6,26 cm

tg α = $\frac{t}{r}$ = $\frac{3,0}{6,83}$

α = 25,59°

LAMPIRAN G

CONTOH PERHITUNGAN INDEKS KOMPRESIBILITAS

Formula (I) :

Berat gelas = 145,13 g (W_1)

Berat gelas + granul = 213,45 g (W_2)

V_1 = 100 ml

V_2 = 91 ml

Bj nyata = $\frac{(W_2 - W_1)}{V_1} = \frac{(213{,}45-145{,}13)}{100} = 0{,}6832$

Bj mampat = $\frac{(W_2 - W_1)}{V_2} = \frac{(213{,}45-145{,}13)}{91} = 0{,}4873$

%Kompresibilitas = $\left(1 - \frac{Bj\ nyata}{Bj\ mampat}\right)$ x 100% = $\left(1 - \frac{0{,}6832}{0{,}7507}\right)$x 100%

= 8,99%

LAMPIRAN H

HASIL UJI KESERAGAMAN BOBOT TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

Formula I

No.	Bobot Tablet (mg)		
	Replikasi 1	Replikasi 2	Replikasi 3
1	790	800	800
2	790	780	800
3	790	790	790
4	800	800	790
5	790	780	800
6	800	790	790
7	790	790	780
8	800	800	800
9	790	800	800
10	810	800	790
$\overline{X}$	795	793	794
SD	7,071	8,233	6,992

Formula II

No.	Bobot Tablet (mg)		
	Replikasi 1	**Replikasi 2**	**Replikasi 3**
1	840	840	840
2	840	840	840
3	850	840	830
4	840	830	840
5	830	850	850
6	840	840	840
7	840	840	830
8	850	840	830
9	830	840	840
10	840	830	840
$\overline{X}$	840	839	838
SD	6,667	5,676	6,324

Formula III

No.	Bobot Tablet (mg)		
	Replikasi 1	**Replikasi 2**	**Replikasi 3**
1	830	840	850
2	830	850	840
3	840	840	830
4	840	830	830
5	840	840	840
6	830	840	840
7	840	840	840
8	840	840	830
9	830	840	840
10	840	850	840
$\overline{X}$	836	841	838
SD	5,164	5,676	6,325

Formula IV

No.	Bobot Tablet (mg)		
	Replikasi 1	**Replikasi 2**	**Replikasi 3**
1	880	880	890
2	870	880	880
3	870	870	880
4	880	880	880
5	880	880	880
6	890	880	870
7	880	880	870
8	880	880	880
9	890	870	890
10	880	870	880
$\overline{X}$	880	877	880
SD	6,667	4,830	6,667

LAMPIRAN I

DETERMINASI JAHE MERAH

DINAS KESEHATAN PROPINSI JAWA TIMUR

UPT MATERIA MEDICA

Jalan Lahor No.87 Telp. (0341) 593396 Batu (65313)

KOTA BATU

Nomor : 074 / 87/ 101.8 / 2010
Sifat : Biasa
Perihal : **Determinasi Tanaman Jahe Merah**

Memenuhi permohonan saudara :
Nama : HENY DWI ARINI
NIM : 2443007123
Fakultas : Fakultas Farmasi
Universitas Katolik Widya Mandala Surabaya

1. Perihal determinasi tanaman Jahe Merah :

Divisi	: Spermatophyta
Sub divisi	: Angiospermae
Kelas	: Monocotyledonae
Bangsa	: Zingiberales
Suku	: Zingiberaceae
Marga	: Zingiber
Jenis	: *Zingiber officinale var. rubrum*
Sinonim	: Jahe (Jawa), jahe sunthi (jawa), halia udang (aceh), red ginger (Inggris), khan jian (China)
Kunci determinasi	: 1b-2b -3b - 4b - 6b - 7b -9b -10b - 11b- 12b -13b -14a- 15a-109a-110b-111b-112a -113b-116a -119b -120b-128b-129a-130b-132a

2. Nama Simplisia : Zingiberis officinalis rubri Rhizoma / Rimpang jahe merah

3. Kandungan kimia : Gingerol, zingeron, 1-dehidrogingerdione, shogaol, karbohidrat, asam palmitat, asam oleat, asam cap[rilat, asam caprik, asam laurat, asam myristat, asam heptadecanoat, asam stearat, lesitin , gingerglycolipids (A,B,C,), asam amino (seperti arginin, glycin, sistein, isoleucin, leusin, serine, threonin, valine) protein, resin, diterpen, mineral dan Vitamin A. Minyak atsiri mengandung ; zingiberene, b-bisabolena, singiberol, ar-curcumene, geraniol, linalool, champenen, dan phellandrenen)

4. Penggunaan : Penelitian
5. . Daftar Pustaka :

- Anonim, http/www.tanaman obat .com / Jahe merah, Diakses tanggal 9 Januari 2009
- Steenis, CGGJ Van Dr , ***FLORA***, 2008, Pradnya Paramita , Jakarta.
- Syamsuhidayat, Sri sugati, Hutapea, Johny Ria.1991, ***Inventaris Tanaman Obat Indonesia I*** , Departemen Kesehatan Republik Indonesia : Badan Penelitian Dan Pengembangan Kesehatan.

Demikian determinasi ini kami buat untuk dipergunakan sebagaimana mestinya.

Batu , 25 Nopember 2010
Kepala UPT Materia Medica Batu

Drs. Husin RM., Apt., MKes.

LAMPIRAN J

TABEL UJI HSD (0,05)

d.k. \ k	2	3	4	5	6	7	8	9	10	11
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36
15	3.01	3.67	4.08	4.37	4.59	4.78	4.94	5.08	5.20	5.31
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26
17	2.98	3.63	4.02	4.30	4.52	4.71	4.86	4 99	5.11	5.21
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55

Catatan kaki: Dari *Annals of mathematical statistics.* Diulang cetak seizin penerbit, The Institute of Mathematical Statistics.

Sumber: Schefler (1987).

LAMPIRAN K

TABEL UJI F

TABEL DISTRIBUSI F UNTUK 5% DAN 1%

Baris atas untuk taraf signifikan 5%
Baris bawah untuk taraf signifikan 1%

V_2 = dk penyebut	V_1 = dk pembilang																						
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
1	161	200	216	225	230	234	237	239	241	242	243	244	245	246	248	249	250	251	252	253	253	254	254	254
	4052	4999	5403	5625	5764	5859	5928	5961	6022	6056	6082	6106	6142	61,69	6208	6234	6258	6286	6302	6323	6334	6352	6361	6366
2	18,51	19,00	19,16	19,25	19,30	19,33	19,36	19,37	19,38	19,39	19,40	19,41	19,42	19,43	19,44	19,45	19,46	19,47	19,47	19,48	19,49	19,49	19,50	19,50
	98,49	99,01	99,17	99,25	99,30	99,33	99,34	99,36	97,38	99,40	99,41	99,42	99,43	99,44	99,45	99,46	99,47	99,48	99,48	99,49	99,49	99,49	99,50	99,50
3	10,13	9,55	9,28	9,12	9,01	8,94	8,88	8,84	8,81	8,78	8,76	8,74	8,71	8,69	8,66	8,64	8,62	8,60	8,58	8,57	8,56	8,54	8,54	8,53
	34,12	30,81	29,46	28,71	28,24	27,91	27,67	27,49	27,34	27,23	27,13	27,05	26,92	26,83	26,69	26,60	26,50	26,41	26,30	26,27	26,23	26,18	26,14	26,12
4	7,71	6,94	6,59	6,39	6,26	6,16	6,09	6,04	6,00	5,96	5,93	5,91	5,87	5,84	5,80	5,77	5,74	5,71	5,70	5,68	5,66	5,65	5,64	5,53
	21,20	18,00	16,69	15,98	15,52	15,21	14,98	14,80	14,66	14,54	14,45	14,37	14,24	14,15	14,02	13,93	13,83	13,74	13,69	13,61	13,57	13,52	13,48	13,46
5	6,61	5,79	5,41	5,19	5,05	4,95	4,88	4,82	4,78	4,74	4,70	4,68	4,64	4,60	4,56	4,53	4,50	4,46	4,44	4,42	4,40	4,38	4,37	4,36
	16,26	13,27	12,06	11,39	10,97	10,67	10,45	10,27	10,15	10,05	9,96	9,89	9,77	9,68	9,55	9,47	9,38	9,29	9,24	9,17	9,13	9,07	9,04	9,02
6	5,99	5,14	4,76	4,53	4,39	4,28	4,21	4,15	4,10	4,06	4,03	4,00	3,96	3,92	3,87	3,84	3,81	3,77	3,75	3,72	3,71	3,69	3,68	3,67
	13,74	10,92	9,78	9,15	8,75	8,47	8,26	8,10	7,98	7,87	7,79	7,72	7,60	7,52	7,39	7,31	7,23	7,14	7,09	7,02	6,99	6,94	6,90	6,88
7	5,59	4,74	4,35	4,12	3,97	3,87	3,79	3,73	3,68	3,63	3,60	3,57	3,52	3,49	3,44	3,41	3,38	3,34	3,32	3,29	3,28	3,25	3,24	3,23
	12,25	9,55	8,45	7,85	7,46	7,19	7,00	6,84	6,71	6,62	6,54	6,47	6,35	6,27	6,15	6,07	5,98	5,90	5,85	5,78	5,75	5,70	5,67	5,65
8	5,32	4,46	4,07	3,84	3,69	3,58	3,50	3,44	3,39	3,34	3,31	3,28	3,23	3,20	3,15	3,12	3,08	3,05	3,03	3,00	2,98	2,96	2,94	2,93
	11,26	8,65	7,59	7,01	6,63	6,37	6,19	6,03	5,91	5,82	5,74	5,67	5,56	5,48	5,36	5,28	5,20	5,11	5,06	5,00	4,96	4,91	4,88	4,86
9	5,12	4,26	3,86	3,63	3,48	3,37	3,29	3,23	3,18	3,13	3,10	3,07	3,02	2,98	2,93	2,90	2,86	2,82	2,80	2,77	2,76	2,73	2,72	2,71
	10,56	8,02	6,99	6,42	6,06	5,80	5,62	5,47	5,35	5,26	5,18	5,11	5,00	4,92	4,80	4,73	4,61	4,56	4,51	4,45	4,41	4,36	4,33	4,34

V_2 = dk penyebut	V_1 = dk pembilang																					
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
10	4,96	4,10	3,71	3,48	3,33	3,22	3,14	3,07	3,02	2,97	2,94	2,91	2,86	2,82	2,77	2,74	2,70	2,67	2,64	2,61	2,59	2,56	2,55	2,54
	10,04	7,56	6,55	5,99	5,64	5,39	5,21	5,06	4,95	4,85	4,78	4,71	4,60	4,52	4,41	4,33	4,25	4,17	4,12	4,05	4,01	3,96	3,93	3,91
11	4,84	3,98	3,59	3,36	3,20	3,09	3,01	2,95	2,90	2,86	2,82	2,79	2,74	2,70	2,65	2,61	2,57	2,53	2,50	2,47	2,45	2,42	2,41	2,40
	9,65	7,20	6,22	5,67	5,32	5,07	4,88	4,74	4,63	4,54	4,46	4,40	4,29	4,21	4,10	4,02	3,94	3,86	3,80	3,74	3,70	3,66	3,62	3,60
12	4,75	3,88	3,49	3,26	3,11	3,00	2,92	2,85	2,80	2,76	2,72	2,69	2,64	2,60	2,54	2,50	2,46	2,42	2,40	2,36	2,35	2,32	2,31	2,30
	9,33	6,93	5,95	5,41	5,06	4,82	4,65	4,50	4,39	4,30	4,22	4,16	4,05	3,98	3,86	3,78	3,70	3,61	3,56	3,49	3,46	3,41	3,38	3,36
13	4,67	3,80	3,41	3,18	3,02	2,92	2,84	2,77	2,72	2,67	2,63	2,60	2,55	2,51	2,46	2,42	2,38	2,34	2,32	2,28	2,26	2,24	2,22	2,21
	9,07	6,70	5,74	5,20	4,86	4,62	4,44	4,30	4,19	4,10	4,02	3,96	3,85	3,78	3,67	3,59	3,51	3,42	3,37	3,30	3,27	3,21	3,18	3,16
14	4,60	3,74	3,34	3,11	2,96	2,85	2,77	2,70	2,65	2,60	2,56	2,53	2,48	2,44	2,39	2,35	2,31	2,27	2,24	2,21	2,19	2,16	2,14	2,13
	8,86	6,51	5,56	5,03	4,69	4,46	4,28	4,14	4,03	3,94	3,86	3,80	3,70	3,62	3,51	3,43	3,34	3,26	3,21	3,14	3,11	3,06	3,02	3,00
15	4,54	3,68	3,29	3,06	2,90	2,79	2,70	2,64	2,59	2,55	2,51	2,48	2,43	2,39	2,33	2,29	2,25	2,21	2,18	2,15	2,12	2,10	2,08	2,07
	8,68	6,36	5,42	4,89	4,56	4,32	4,14	4,00	3,89	3,80	3,73	3,67	3,56	3,48	3,36	3,29	3,20	3,12	3,07	3,00	2,97	2,92	2,89	2,87
16	4,49	3,63	3,24	3,01	2,85	2,74	2,66	2,59	2,54	2,49	2,45	2,42	2,37	2,33	2,28	2,24	2,20	2,16	2,13	2,09	2,07	2,04	2,02	2,01
	8,53	6,23	5,29	4,77	4,44	4,20	4,03	3,89	3,78	3,69	3,61	3,55	3,45	3,37	3,25	3,18	3,10	3,01	2,96	2,89	2,86	2,80	2,77	2,75
17	4,45	3,59	3,20	2,96	2,81	2,70	2,62	2,55	2,50	2,45	2,41	2,38	2,33	2,29	2,23	2,19	2,15	2,11	2,08	2,04	2,02	1,99	1,97	1,96
	8,40	6,11	5,18	4,67	4,34	4,10	3,93	3,79	3,68	3,59	3,52	3,45	3,35	3,27	3,16	3,08	3,00	2,92	2,86	2,79	2,76	2,70	2,67	2,65
18	4,41	3,55	3,16	2,93	2,77	2,66	2,58	2,51	2,46	2,41	2,37	2,34	2,29	2,25	2,19	2,15	2,11	2,07	2,04	2,00	1,98	1,95	1,93	1,92
	8,28	6,01	5,09	4,58	4,25	4,01	3,85	3,71	3,60	3,51	3,44	3,37	3,27	3,19	3,07	3,00	2,91	2,83	2,78	2,71	2,68	2,62	2,59	2,57
19	4,38	3,52	3,13	2,90	2,74	2,63	2,55	2,48	2,43	2,38	2,34	2,31	2,26	2,21	2,15	2,11	2,07	2,02	2,00	1,96	1,94	1,91	1,90	1,88
	8,18	5,93	5,01	4,50	4,17	3,94	3,77	3,63	3,52	3,43	3,36	3,30	3,19	3,12	3,00	2,92	2,84	2,76	2,70	2,63	2,60	2,54	2,51	2,49
20	4,35	3,49	3,10	2,87	2,71	2,60	2,52	2,45	2,40	2,35	2,31	2,26	2,23	2,18	2,12	2,08	2,04	1,99	1,96	1,92	1,90	1,87	1,85	1,84
	8,10	5,85	4,94	4,43	4,10	3,87	3,71	3,56	3,45	3,37	3,30	3,23	3,13	3,05	2,94	2,86	2,77	2,69	2,63	2,56	2,53	2,47	2,44	2,42
21	4,32	3,47	3,07	2,84	2,68	2,57	2,49	2,42	2,37	2,32	2,28	2,25	2,20	2,15	2,09	2,05	2,00	1,96	1,93	1,89	1,87	1,84	1,82	1,81
	8,02	5,78	4,87	4,37	4,04	3,81	3,65	3,51	3,40	3,31	3,24	3,17	3,07	2,99	2,88	2,80	2,72	2,63	2,58	2,51	2,47	2,42	2,38	2,36
22	4,30	3,44	3,05	2,82	2,66	2,55	2,47	2,40	2,35	2,30	2,26	2,23	2,18	2,13	2,07	2,03	1,98	1,93	1,91	1,87	1,84	1,81	1,80	1,78
	7,94	5,72	4,82	4,31	3,99	3,76	3,59	3,45	3,35	3,26	3,18	3,12	3,02	2,94	2,83	2,75	2,67	2,58	2,53	2,46	2,42	2,37	2,33	2,31
23	4,28	3,42	3,03	2,80	2,64	2,53	2,45	2,38	2,32	2,28	2,24	2,20	2,14	2,10	2,04	2,00	1,96	1,91	1,88	1,84	1,82	1,79	1,77	1,76
	7,88	5,66	4,76	4,26	3,94	3,71	3,54	3,41	3,30	3,21	3,14	3,07	2,97	2,89	2,78	2,70	2,62	2,53	2,48	2,41	2,37	2,32	2,28	2,26

V_2 = dk penyebut	V_1 = dk pembilang																					
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
24	4,26	3,40	3,01	2,78	2,62	2,51	2,43	2,36	2,30	2,26	2,22	2,18	2,13	2,09	2,02	1,98	1,94	1,89	1,86	1,82	1,80	1,76	1,74	1,73
	7,82	5,61	4,72	4,22	3,90	3,67	3,50	3,36	3,25	3,17	3,09	3,03	2,93	2,85	2,74	2,66	2,58	2,49	2,44	2,36	2,33	2,27	2,23	2,21
25	4,24	3,38	2,99	2,76	2,60	2,49	2,41	2,34	2,28	2,24	2,20	2,16	2,11	2,06	2,00	1,96	1,92	1,87	1,84	1,80	1,77	1,74	1,72	1,71
	7,77	5,57	4,68	4,18	3,86	3,63	3,46	3,32	3,21	3,13	3,05	2,99	2,89	2,81	2,70	2,62	2,54	2,45	2,40	2,32	2,29	2,23	2,19	2,17
26	4,22	3,37	2,89	2,74	2,59	2,47	2,39	2,32	2,27	2,22	2,18	2,15	2,10	2,05	1,99	1,95	1,90	1,85	1,82	1,78	1,76	1,72	1,70	1,69
	7,72	5,53	4,64	4,14	3,82	3,59	3,42	3,29	3,17	3,09	3,02	2,96	2,86	2,77	2,66	2,58	2,50	2,41	2,36	2,28	2,25	2,19	2,15	2,13
27	4,21	3,35	2,96	2,73	2,57	2,46	2,37	2,30	2,25	2,20	2,16	2,13	2,08	2,03	1,97	1,93	1,88	1,84	1,80	1,76	1,74	1,71	1,68	1,67
	7,68	5,49	4,60	4,11	3,79	3,56	3,39	3,26	3,14	3,06	2,98	2,93	2,83	2,74	2,63	2,55	2,47	2,38	2,33	2,25	2,21	2,16	2,12	2,10
28	4,20	3,34	2,95	2,71	2,56	2,44	2,36	2,29	3,24	2,19	2,15	2,12	2,06	2,02	1,96	1,91	1,87	1,81	1,78	1,75	,72	1,69	1,67	1,65
	7,64	5,45	4,57	4,07	3,76	3,53	3,36	3,23	3,11	3,03	2,95	2,90	2,80	2,71	2,60	2,52	2,44	2,35	2,30	2,22	2,18	2,13	2,09	2,06
29	4,18	3,33	2,93	2,70	2,54	2,43	2,35	2,28	2,22	2,18	2,14	2,10	2,05	2,00	1,94	1,90	1,85	1,80	1,77	1,73	1,71	1,68	1,65	1,64
	7,60	5,52	4,54	4,04	3,73	3,50	3,33	3,20	3,08	3,00	2,92	2,87	2,77	2,68	2,57	2,49	2,41	2,32	2,27	2,19	2,15	2,10	2,06	2,03
30	4,17	3,32	2,92	2,69	2,53	2,42	2,34	2,27	2,21	2,16	2,12	2,09	2,04	1,99	1,93	1,89	1,84	1,79	1,76	1,72	1,69	1,66	1,64	1,62
	7,56	5,39	4,51	4,02	3,70	3,47	3,30	3,17	3,06	2,98	2,90	2,84	2,74	2,66	2,55	2,47	2,38	2,29	2,24	2,16	2,13	2,07	2,03	2,01
32	4,15	3,30	2,90	2,67	2,51	2,40	2,32	2,25	2,19	2,14	2,10	2,07	2,02	1,97	1,91	1,86	1,82	1,76	1,74	1,69	1,67	1,64	1,61	1,59
	7,50	5,34	4,46	3,97	3,66	3,42	3,25	3,12	3,01	2,94	2,86	2,80	2,70	2,62	2,51	2,42	2,34	2,25	2,20	2,12	2,08	2,02	1,98	1,96
34	4,13	3,28	2,88	2,65	2,49	2,38	2,30	2,23	2,17	2,12	2,08	2,05	2,00	1,95	1,89	1,84	1,80	1,74	1,71	1,67	1,64	1,61	1,59	1,57
	7,44	5,29	4,42	3,93	3,61	3,38	3,21	3,08	2,97	2,89	2,82	2,76	2,66	2,58	2,47	2,38	2,30	2,21	2,15	2,08	2,04	1,98	1,94	1,91
36	4,11	3,26	2,80	2,63	2,48	2,36	2,28	2,21	2,15	2,10	2,06	2,03	1,89	1,93	1,87	1,82	1,78	1,72	1,69	1,65	1,62	1,59	1,56	1,55
	7,39	5,25	4,38	3,89	3,58	3,35	3,18	3,04	2,94	2,86	2,78	2,72	2,62	2,54	2,43	2,35	2,26	2,17	2,12	2,04	2,00	1,94	1,90	1,87
38	4,10	3,25	2,85	2,62	2,46	2,35	2,26	2,19	2,14	2,09	2,05	2,02	1,96	1,92	1,85	1,80	1,76	1,71	1,67	1,63	1,60	1,57	1,54	1,53
	7,35	5,21	4,34	3,86	3,54	3,32	3,15	3,02	2,91	2,82	2,75	3,69	2,59	2,51	2,40	2,32	2,22	2,14	2,08	2,00	1,97	1,90	1,86	1,84
40	4,08	3,23	2,84	2,61	2,45	2,34	2,25	2,18	2,12	2,07	2,04	2,00	1,95	1,90	1,84	1,79	1,74	1,69	1,66	1,61	1,59	1,55	1,53	1,51
	7,31	5,18	4,31	3,83	3,51	3,29	3,12	2,99	2,88	2,80	2,73	2,66	2,56	2,49	2,37	2,29	2,20	2,11	2,05	1,97	1,94	1,88	1,84	1,81
42	4,07	3,22	2,83	2,59	2,44	2,32	2,24	2,17	2,11	2,06	2,02	1,99	1,94	1,89	1,82	1,78	1,73	1,68	1,64	1,60	1,57	1,54	1,51	1,49
	7,27	5,15	4,29	3,80	3,49	3,26	3,10	2,96	2,86	2,77	2,70	2,64	2,54	2,46	2,35	2,26	2,17	2,08	2,02	1,94	1,91	1,85	1,80	1,78
44	4,06	3,21	2,82	2,58	2,43	2,31	2,23	2,16	2,10	2,05	2,01	1,98	1,92	1,88	1,81	1,76	1,72	1,66	1,63	1,58	1,56	1,52	1,50	1,48
	7,24	5,12	4,26	3,78	3,46	3,24	3,07	2,94	2,84	2,75	2,68	2,62	2,52	2,44	2,32	2,24	2,15	2,06	2,00	1,92	1,88	1,82	1,78	1,75

LAMPIRAN L

HASIL UJI STATISTIK KEKERASAN TABLET ANTAR FORMULA TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

KEKERASAN

FORM	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
1	3	6.5167	.10504	.06064	6.2557	6.7776	6.41	6.62
2	3	6.6033	.10504	.06064	6.3424	6.8643	6.50	6.71
3	3	6.5333	.06658	.03844	6.3679	6.6987	6.46	6.59
4	3	6.8333	.25166	.14530	6.2082	7.4585	6.60	7.10
Total	12	6.6217	.18379	.05306	6.5049	6.7384	6.41	7.10

ANOVA

KEKERASAN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.192	3	.064	2.848	.105
Within Groups	.180	8	.022		
Total	.372	11			

Hipotesa penelitian:

F hitung < F tabel (0,05) sehingga H diterima dan tidak ada perbedaan yang bermakna antar formula.

KEKERASAN

LSD

(I) FORM	(J) FORM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.08667	.12236	.499	-.3688	.1955
	3	-.01667	.12236	.895	-.2988	.2655
	4	-.31667*	.12236	.032	-.5988	-.0345
2	1	.08667	.12236	.499	-.1955	.3688
	3	.07000	.12236	.583	-.2122	.3522
	4	-.23000	.12236	.097	-.5122	.0522
3	1	.01667	.12236	.895	-.2655	.2988
	2	-.07000	.12236	.583	-.3522	.2122
	4	-.30000*	.12236	.040	-.5822	-.0178
4	1	.31667*	.12236	.032	.0345	.5988
	2	.23000	.12236	.097	-.0522	.5122
	3	.30000*	.12236	.040	.0178	.5822

Keterangan :

Simbol * : Perbedaan signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

.

LAMPIRAN M

HASIL UJI STATISTIK KERAPUHAN TABLET ANTAR FORMULA TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

Descriptives

KERAPUHAN

FORM	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
1	3	.12700	.000000	.000000	.12700	.12700	.1270	.1272
2	3	.12233	5,773503E-4	3,333333E-4	.12090	.12377	.1220	.1228
3	3	.21900	.035511	.020502	.13079	.30721	.1788	.2408
4	2	.17213	.001501	8,666667E-4	.16840	.17586	.1707	.1733
Total	11	.16012	.043625	.012594	.13240	.18783	.1220	.2408

ANOVA

KERAPUHAN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.018	3	.006	19.424	.000
Within Groups	.003	8	.000		
Total	.021	11			

Hipotesa penelitian:

F hitung > F tabel (0,05) sehingga H ditolak dan ada perbedaan yang bermakna antar formula.

Multiple Comparisons

KERAPUHAN

LSD

(I) FORM	(J) FORM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.004667	.014512	.756	-.02880	.03813
	3	-.092000*	.014512	.000	-.12546	-.05854
	4	-.045133*	.014512	.014	-.07860	-.01167
2	1	-.004667	.014512	.756	-.03813	.02880
	3	-.096667*	.014512	.000	-.13013	-.06320
	4	-.049800*	.014512	.009	-.08326	-.01634
3	1	.092000*	.014512	.000	.05854	.12546
	2	.096667*	.014512	.000	.06320	.13013
	4	.046867*	.014512	.012	.01340	.08033
4	1	.045133*	.014512	.014	.01167	.07860
	2	.049800*	.014512	.009	.01634	.08326
	3	-.046867*	.014512	.012	-.08033	-.01340

Multiple Comparisons

KERAPUHAN

LSD

(I) FORM	(J) FORM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.004667	.014512	.756	-.02880	.03813
	3	-.092000*	.014512	.000	-.12546	-.05854
	4	-.045133*	.014512	.014	-.07860	-.01167
2	1	-.004667	.014512	.756	-.03813	.02880
	3	-.096667*	.014512	.000	-.13013	-.06320
	4	-.049800*	.014512	.009	-.08326	-.01634
3	1	.092000*	.014512	.000	.05854	.12546
	2	.096667*	.014512	.000	.06320	.13013
	4	.046867*	.014512	.012	.01340	.08033
4	1	.045133*	.014512	.014	.01167	.07860
	2	.049800*	.014512	.009	.01634	.08326
	3	-.046867*	.014512	.012	-.08033	-.01340

Keterangan :

Simbol * : Perbedaannya signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

LAMPIRAN N

HASIL UJI WAKTU LARUT TABLET ANTAR FORMULA TABLET EFFERVESEN EKSTRAK RIMPANG JAHE MERAH

WAKTU LARUT

FORM	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
1	3	6.0933	.09713	.05608	5.8521	6.3346	6.01	6.20
2	3	5.4167	.10408	.06009	5.1581	5.6752	5.30	5.50
3	3	5.6800	.29866	.17243	4.9381	6.4219	5.46	6.02
4	2	5.3350	.09192	.06500	4.5091	6.1609	5.27	5.40
Total	11	5.6582	.34362	.10361	5.4273	5.8890	5.27	6.20

ANOVA

WAKTU LARUT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.953	3	.318	9.783	.007
Within Groups	.227	7	.032		
Total	1.181	10			

Hipotesa pengujian :

F hitung > F tabel (5%) sehingga H ditolak dan ada perbedaan yang bermakna antar formula.

WAKTU
LARUT
LSD

(I) FORM	(J) FORM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.67667*	.14716	.002	.3287	1.0246
	3	.41333*	.14716	.026	.0654	.7613
	4	.75833*	.16453	.002	.3693	1.1474
2	1	-.67667*	.14716	.002	-1.0246	-.3287
	3	-.26333	.14716	.117	-.6113	.0846
	4	.08167	.16453	.635	-.3074	.4707
3	1	-.41333*	.14716	.026	-.7613	-.0654
	2	.26333	.14716	.117	-.0846	.6113
	4	.34500	.16453	.074	-.0440	.7340
4	1	-.75833*	.16453	.002	-1.1474	-.3693
	2	-.08167	.16453	.635	-.4707	.3074
	3	-.34500	.16453	.074	-.7340	.0440

Keterangan :

Simbol * : Perbedaannya signifikan, karena selisihnya > HSD (5%)

Tanpa simbol : Perbedaannya tidak signifikan, karena selisihnya < HSD (5%)

LAMPIRAN O

HASIL ANOVA UJI KEKERASAN PADA PROGRAM DESIGN EXPERT

Response 1 Kekerasan

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	Prob > F	p-value
Model	0.19	3	0.064	2.85	0.1051	not significant
A-Konst.Na sitrat	0.046	1	0.046	2.03		0.1919
B-Konst.Asam fumarat	0.11	1	0.11	4.99		0.0559
AB	0.034	1	0.034	1.52		0.2526
Pure Error	0.18	8				0.022
Cor Total	0.37	11				

The "Model F-value" of 2.85 implies the model is not significant relative to the noise. There is a 10.51 % chance that a "Model F-value" this large could occur due to noise.
Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case there are no significant model terms. Values greater than 0.1000 indicate the model terms are not significant. If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.15	R-Squared	0.5165
Mean	6.62	Adj R-Squared	0.3351
C.V. %	2.26	Pred R-Squared	-0.0880
PRESS	0.40	Adeq Precision	3.660

A negative "Pred R-Squared" implies that the overall mean is a better predictor of your response than the current model. "Adeq Precision" measures the signal to noise ratio. A ratio of 3.66 indicates an inadequate signal and we should not use this model to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	6.62	1	0.043	6.52	6.72	
A-Konst. Na sitrat	0.062	1	0.043	-0.038	0.16	1.00
B-Konst. Asam fumarat	0.097	1	0.043	-3.094E-003	0.20	1.00
AB	0.053	1	0.043	-0.046	0.15	1.00

Final Equation in Terms of Coded Factors:

Kekerasan =
+6.62
+0.062 * A
+0.097 * B
+0.053 * A * B

Final Equation in Terms of Actual Factors:

Kekerasan =
+6.62167
+0.061667 * Konst. Na sitrat
+0.096667 * Konst. Asam fumarat
+0.053333 * Konst. Na sitrat * Konst. Asam fumarat

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu. Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.

2) Studentized residuals versus predicted values to check for constant error.

3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN P

HASIL ANOVA UJI KERAPUHAN PADA DESIGN EXPERT

Response 2 Kerapuhan
ANOVA for selected factorial model
Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	pvalue Prob >F	
Model	0.019	3	6.225E-003	19.68	0.0005	significant
A-Konst.Na sitrat	0.015	1	0.015	48.24	0.0001	
B-Konst.Asam fumarat	2.041E-003	1	2.041E-003	6.45	0.0347	
AB	1.376E-003	1	1.376E-003	4.35	0.0705	
Pure Error	2.530E-003	8	3.163E-004			
Cor Total	0.021	11				

The Model F-value of 19.68 implies the model is significant. There is only a 0.05% chance that a "Model F-Value" this large could occur due to noise. Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case A, B are significant model terms. Values greater than 0.1000 indicate the model terms are not significant. If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.018	R-Squared	0.8807
Mean	0.16	Adj R-Squared	0.8359
C.V. %	11.09	Pred R-Squared	0.7315
PRESS	5.693E-003	Adeq Precision	9.486

The "Pred R-Squared" of 0.7315 is in reasonable agreement with the "Adj R-Squared" of 0.8359. "Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 9.486 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	0.16	1	5.134E-003	0.15	0.17	
A-Konst.Na sitrat	0.036	1	5.134E-003	0.024	0.047	1.00
B-Konst.Asam fumarat	-0.013	1	5.134E-003	-0.025	-1.203E-003	1.00
AB	-0.011	1	5.134E-003	-0.023	1.131E-003	1.00

Final Equation in Terms of Coded Factors:

Kerapuhan =
+0.16
+0.036 * A
-0.013 * B
-0.011 * A * B

Final Equation in Terms of Actual Factors:

Kerapuhan =
+0.16043
+0.035658 * Konst. Na sitrat
-0.013042 * Konst. Asam fumarat
-0.010708 * Konst. Na sitrat * Konst. Asam fumarat

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.In the Diagnostics Node, Select Case Statistics from the View Menu.

Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.

2) Studentized residuals versus predicted values to check for constant error.

3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN Q
HASIL ANOVA UJI WAKTU LARUT DESIGN EXPERT

Response 3 Waktu larut
ANOVA for selected factorial model
Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	1.02	3	0.34	11.93	0.0025	significant
A-Konst.Na sitrat	0.17	1	0.17	6.04	0.0394	
B-Konst.Asam fumarat	0.76	1	0.76	26.58	0.0009	
AB	0.090	1	0.090	3.15	0.1137	
Pure Error	0.23	8				0.029
Cor Total	1.25	11				

The Model F-value of 11.93 implies the model is significant. There is only a 0.25% chance that a "Model F-Value" this large could occur due to noise. Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case A, B are significant model terms. Values greater than 0.1000 indicate the model terms are not significant. If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.17	R-Squared	0.8173
Mean	5.64	Adj R-Squared	0.7487
C.V. %	3.00	Pred R-Squared	0.5888
PRESS	0.51	Adeq Precision	7.614

The "Pred R-Squared" of 0.5888 is in reasonable agreement with the "Adj R-Squared" of 0.7487.
"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 7.614 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	5.63	1	0.049	5.52	5.75	
A-Konst.Na sitrat	-0.12	1	0.049	-0.23	-7.439E-003	1.00
B-Konst.Asam fumarat	-0.25	1	0.049	-0.36	-0.14	1.00
AB	0.087	1	0.049	-0.026	0.20	

Final Equation in Terms of Coded Factors:

Waktu larut =
+5.63
-0.12 * A
-0.25 * B
+0.087 * A * B

Final Equation in Terms of Actual Factors:

Waktu larut =
+5.63500
-0.12000 * Konst. Na sitrat
-0.25167 * Konst. Asam fumarat
+0.086667 * Konst. Na sitrat * Konst. Asam fumarat

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu.

Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.

2) Studentized residuals versus predicted values to check for constant error.

3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

LAMPIRAN R

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASIL TEORITIS PADA UJI KEKERASAN

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PERCOBAAN	6.6225[a]	4	.14408	.07204
	TEORITIS	6.6225[a]	4	.14408	.07204

Hipotesa pengujian :

Koefisien korelasi dan nilai t tidak dapat dihitung karena Standart Error dari perbedaannya adalah 0 yang berarti ytidak ada perbedaan antara formula

LAMPIRAN S

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASIL TEORITIS PADA UJI KERAPUHAN

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PERCOBAAN	.1575[a]	4	.04787	.02394
	TEORITIS	.1575[a]	4	.04787	.02394

Hipotesa pengujian :

Koefisien korelasi dan nilai t tidak dapat dihitung karena Standard Error adalah 0 yang berarti tidak ada perbedaan antara formula

LAMPIRAN T

HASIL UJI STATISTIK HASIL PERCOBAAN DAN HASIL TEORITIS PADA UJI WAKTU LARUT

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PERCOBAAN	5.7300	3	.33779	.19502
	TEORITIS	5.7233	3	.34312	.19810

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PERCOBAAN & TEORITIS	3	1.000	.004

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	PERCOBAAN - TEORITIS	.00667	.00577	.00333	-.00768	.02101	2.000	2	.184