

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Campuran bahan *solubilizing agent* dengan proporsi Tween 80 sebesar 45,1% dan solutio hidroalkohol PVP K30 sebesar 54,9% memberikan hasil optimal pada sifat fisik granul dan menghasilkan tablet deksametason yang memenuhi persyaratan.

Formula optimum terbukti memiliki kecepatan disolusi yang lebih cepat dibanding tablet generik yang beredar di pasaran.

B. Saran

Perlu dilakukan penelitian lebih lanjut dalam optimasi formula tablet deksametason dengan menggunakan bahan *solubilizing agent* lain untuk mengetahui pengaruhnya.

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Lampiran 1. Gambar granul dan tablet deksametason yang dibuat secara granulasi basah



Granul Formula 1



Tablet Formula 1



Granul Formula 2



Tablet Formula 2



Granul Formula 3



Tablet Formula 3



Granul Formula Optimum



Tablet Formula Optimum

Lampiran 2. Uji sifat fisik granul dan tablet deksametason

a. Kecepatan alir

Rep	Berat Granul	Waktu alir				Kecepatan alir (gram/detik)			
		Form 1	Form 2	Form 3	Form Opt	Formula 1	Formula 2	Formula 3	Form Opt
1	10	0,77	0,75	1	0,76	12,987013	13,33333	10	13,15789
2	10	0,78	0,75	0,8	0,74	12,820513	13,33333	12,5	13,51351
3	10	0,76	0,75	0,9	0,77	13,157895	13,33333	11,11111	12,98701
		X				12,988474	13,33333	11,2037	13,21947
		SD				0,1686957	0	1,252569	0,268598

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

Contoh Perhitungan Kecepatan Alir :

$$\begin{aligned}
 \text{Kecepatan alir} &= \frac{\text{Berat granul (gram)}}{\text{Waktu alir (detik)}} \\
 &= \frac{10 \text{ gram}}{0,77 \text{ detik}} \\
 &= 12,987013 \text{ gram/detik}
 \end{aligned}$$

b. Kekerasan (Kg)

Replikasi	Formula 1	Formula 2	Formula 3	Form Opt
1	5,65	5	6,5	5,85
2	5,2	5,6	6,6	5,65
3	5,5	6,5	6,55	5,8
X	5,45	5,7	6,55	5,766666667
SD	0,229128785	0,754983444	0,05	0,1040833

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

c. Kerapuhan

Replikasi	Formula 1			Formula 2		
	Berat	Berat	%	Berat	Berat	%
	Awal	Akhir	Kerapuhan	Awal	Akhir	Kerapuhan
1	4,0864	4,0582	0,69061597	4,0579	4,0301	0,685346652
2	4,0874	4,0592	0,68979767	4,0464	4,0187	0,685335811
3	4,0859	4,0577	0,69047048	4,0671	4,0392	0,685337851
4	4,0875	4,0593	0,68996399	4,0542	4,0264	0,685326697
5	4,0848	4,0566	0,68962174	4,0564	4,0286	0,685336752
	X		0,69009397			0,685336752
	SD		0,000430678			7,09238E-06
Replikasi	Formula 3			Form Opt		
	Berat	Berat	%	Berat	Berat	%
	Awal	Akhir	Kerapuhan	Awal	Akhir	Kerapuhan
1	3,9408	3,9140	0,680064961	4,0725	4,0446	0,684662
2	3,8457	3,8195	0,680055105	4,0856	4,0576	0,684862
3	3,9599	3,9330	0,680045087	4,0873	4,0593	0,684762
4	3,9584	3,9315	0,680084693	4,0897	4,0617	0,684462
5	3,9767	3,9497	0,680074955	4,0778	4,0499	0,684562
	X		0,680064961			0,684662
	SD		1,56632E-05			0,000158114

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

Contoh perhitungan % kerapuhan :

$$\begin{aligned}
 \% \text{ Kerapuhan} &= \frac{\text{Berat awal} - \text{Berat akhir (gram)}}{\text{Berat awal (gram)}} \times 100\% \\
 &= \frac{4,0864 - 4,0582 \text{ gram}}{4,0864} \times 100\% \\
 &= 0,69061597\%
 \end{aligned}$$

d. Waktu hancur (menit)

Replikasi	Formula 1	Formula 2	Formula 3	Form Opt
1	4,14	5,66	1,91	5,40
2	5,71	5,81	1,96	5,51
3	5,82	5,86	2,80	5,60
4	6,50	5,99	2,82	6,49
5	6,55	6,89	3,74	6,32
X	5,74	6,04	2,65	5,86
SD	0,974	0,488	0,752	0,505

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

e. Disolusi

Formula 1

Waktu	Rep	Y (Abs)	X (mg/L)	C (mg/ml)	dlm 500 ml	kadar (%)	X	SD
5'	1	0,12	0,43290	0,00043	0,2165	43,29	23,81	20,1504
	2	0,111	0,04329	0,00004	0,0216	4,33		
	3	0,112	0,08658	0,00009	0,0433	8,66		
	4	0,119	0,38961	0,00039	0,1948	38,96		
15'	1	0,123	0,56277	0,00056	0,2814	56,28	40,04	19,4805
	2	0,117	0,30303	0,00030	0,1515	30,30		
	3	0,114	0,17316	0,00017	0,0866	17,32		
	4	0,123	0,56277	0,00056	0,2814	56,28		
30'	1	0,123	0,56277	0,00056	0,2814	56,28	53,03	30,2773
	2	0,121	0,47619	0,00048	0,2381	47,62		
	3	0,114	0,17316	0,00017	0,0866	17,32		
	4	0,131	0,90909	0,00091	0,4545	90,91		
45'	1	0,129	0,82251	0,00082	0,4113	82,25	64,94	30,6107
	2	0,123	0,56277	0,00056	0,2814	56,28		
	3	0,116	0,25974	0,00026	0,1299	25,97		
	4	0,132	0,95238	0,00095	0,4762	95,24		

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

Formula 2

Wakt	Rep	Y (Abs)	X (mg/L)	C (mg/ml)	Dlm 500 ml	Kadar (%)	X	SD
5'	1	0,135	1,08225	0,00108	0,5411	108,23	99,57	9,9974
	2	0,131	0,90909	0,00091	0,4545	90,91		
	3	0,135	1,08225	0,00108	0,5411	108,23		
	4	0,131	0,90909	0,00091	0,4545	90,91		
15'	1	0,136	1,12554	0,00113	0,5628	112,55	108,2	4,9987
	2	0,134	1,03896	0,00104	0,5195	103,90		
	3	0,136	1,12554	0,00113	0,5628	112,55		
	4	0,134	1,03896	0,00104	0,5195	103,90		
30'	1	0,136	1,12554	0,00113	0,5628	112,55	109,3	4,1447
	2	0,134	1,03896	0,00104	0,5195	103,90		
	3	0,136	1,12554	0,00113	0,5628	112,55		
	4	0,135	1,08225	0,00108	0,5411	108,23		
45'	1	0,136	1,12554	0,00113	0,5628	112,55	110,3	2,4994
	2	0,135	1,08225	0,00108	0,5411	108,23		
	3	0,136	1,12554	0,00113	0,5628	112,55		
	4	0,135	1,08225	0,00108	0,5411	108,23		

Formula 3

Waktu	Rep	Y (Abs)	X (mg/L)	C (mg/ml)	Dlm 500 ml	kadar (%)	X	SD
5'	1	0,113	0,12987	0,00013	0,0649	12,99	16,23	12,43412
	2	0,112	0,08658	0,00009	0,0433	8,66		
	3	0,112	0,08658	0,00009	0,0433	8,66		
	4	0,118	0,34632	0,00035	0,1732	34,63		
15'	1	0,116	0,25974	0,00026	0,1299	25,97	25,97	15,40704
	2	0,113	0,12987	0,00013	0,0649	12,99		
	3	0,114	0,17316	0,00017	0,0866	17,32		
	4	0,121	0,47619	0,00048	0,2381	47,62		
30'	1	0,117	0,30303	0,00030	0,1515	30,30	33,55	12,43412
	2	0,116	0,25974	0,00026	0,1299	25,97		
	3	0,116	0,25974	0,00026	0,1299	25,97		
	4	0,122	0,51948	0,00052	0,2597	51,95		
45'	1	0,117	0,30303	0,00030	0,1515	30,30	34,63	11,723
	2	0,116	0,25974	0,00026	0,1299	25,97		
	3	0,117	0,30303	0,00030	0,1515	30,30		
	4	0,122	0,51948	0,00052	0,2597	51,95		

Formula Optimum

Waktu	Rep	Y (Abs)	X (mg/L)	C (mg/ml)	Dlm 500 ml	kadar (%)	X	SD
5'	1	0,136	1,12554	0,00113	0,5628	102,32	98,39	4,5442
	2	0,134	1,03896	0,00104	0,5195	94,45		
	3	0,136	1,12554	0,00113	0,5628	102,32		
	4	0,134	1,03896	0,00104	0,5195	94,45		
15'	1	0,137	1,16883	0,00117	0,5844	106,26	100,3	6,8164
	2	0,134	1,03896	0,00104	0,5195	94,45		
	3	0,137	1,16883	0,00117	0,5844	106,26		
	4	0,134	1,03896	0,00104	0,5195	94,45		
30'	1	0,135	1,08225	0,00108	0,5411	98,39	104,2	6,8164
	2	0,138	1,21212	0,00121	0,6061	110,19		
	3	0,135	1,08225	0,00108	0,5411	98,39		
	4	0,138	1,21212	0,00121	0,6061	110,19		
45'	1	0,137	1,16883	0,00117	0,5844	106,26	108,2	2,2721
	2	0,138	1,21212	0,00121	0,6061	110,19		
	3	0,137	1,16883	0,00117	0,5844	106,26		
	4	0,138	1,21212	0,00121	0,6061	110,19		

Tablet Generik

Wakt	Rep	Y (Abs)	X (mg/L)	C (mg/ml)	dlm 500 ml	kadar (%)	X	SD
5'	1	0,133	0,99567	0,00100	0,4978	99,57	93,07	5,5887
	2	0,131	0,90909	0,00091	0,4545	90,91		
	3	0,132	0,95238	0,00095	0,4762	95,24		
	4	0,13	0,86580	0,00087	0,4329	86,58		
15'	1	0,134	1,03896	0,00104	0,5195	103,90	98,48	5,4472
	2	0,133	0,99567	0,00100	0,4978	99,57		
	3	0,133	0,99567	0,00100	0,4978	99,57		
	4	0,131	0,90909	0,00091	0,4545	90,91		
30'	1	0,134	1,03896	0,00104	0,5195	103,90	99,57	3,5346
	2	0,133	0,99567	0,00100	0,4978	99,57		
	3	0,133	0,99567	0,00100	0,4978	99,57		
	4	0,132	0,95238	0,00095	0,4762	95,24		
45'	1	0,135	1,08225	0,00108	0,5411	108,23	103,9	3,5346
	2	0,133	0,99567	0,00100	0,4978	99,57		
	3	0,134	1,03896	0,00104	0,5195	103,90		
	4	0,134	1,03896	0,00104	0,5195	103,90		

f. Keseragaman bobot

Berat Tablet (gram)			
Formula Optimum		Tablet Generik	
0,2056	0,2037	0,1881	0,1875
0,2046	0,2041	0,1952	0,1888
0,2045	0,2037	0,1892	0,1959
0,2033	0,2038	0,1964	0,1953
0,2055	0,2029	0,1973	0,1943
0,2021	0,2028	0,1895	0,1924
0,2051	0,204	0,1882	0,1883
0,2052	0,2043	0,1963	0,1871
0,2032	0,2053	0,1882	0,196
0,2063	0,2047	0,1964	0,187
Jumlah	4,0847	Jumlah	3,8374
X	0,204235	X	0,19187
SD	0,00108	SD	0,003934
CV	0,52861	CV	2,050595

Keterangan :

X = Purata Percobaan

SD = Simpangan Baku

CV = *Coefficient of Variation*

Perhitungan penyimpangan bobot tablet

a. Kolom A (7,5%)

$$\frac{7,5}{100} \times 0,204235 = 0,0153$$

Range bobot tablet = 0,1889 – 0,2195

b. Kolom B (15%)

$$\frac{15}{100} \times 0,204235 = 0,0306$$

Range bobot tablet = 0,2349 – 0,1736

Data uji keseragaman bobot tablet sesuai dengan range bobot tablet yang dipersyaratkan sehingga formula optimum memenuhi syarat uji keseragaman bobot.

Lampiran 3. One Way Anova sifat fisik granul dan tablet deksametason

a. Kecepatan alir

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Kecepatan alir tablet	9	12,5085035	1,17443766	10,00000	13,33333

One-Sample Kolmogorov-Smirnov Test

		Kecepatan alir tablet
N		9
Normal Parameters ^{a,b}	Mean	12,5085035
	Std. Deviation	1,17443766
Most Extreme Differences	Absolute	,275
	Positive	,241
	Negative	-,275
Kolmogorov-Smirnov Z		,825
Asymp. Sig. (2-tailed)		,505

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

Kecepatan alir tablet

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	3	12,9884735	,16869570	,09739651	12,5694102	13,4075369	12,82051	13,15789
Formula 2	3	13,3333333	,00000000	,00000000	13,3333333	13,3333333	13,33333	13,33333
Formula 3	3	11,2037037	1,25256938	,72317127	8,0921489	14,3152585	10,00000	12,50000
Total	9	12,5085035	1,17443766	,39147922	11,6057508	13,4112562	10,00000	13,33333

Test of Homogeneity of Variances

Kecepatan alir tablet

Levene Statistic	df1	df2	Sig.
4,336	2	6	,068

ANOVA

Kecepatan alir tablet

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7,840	2	3,920	7,362	,024
Within Groups	3,195	6	,532		
Total	11,034	8			

Post Hoc Tests

Multiple Comparisons

Kecepatan alir tablet

Tukey HSD

(I) Formula tablet	(J) Formula tablet	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-,34485981	,59579793	,836	-2,1729315	1,4832118
	Formula 3	1,78476981	,59579793	,055	-,0433018	3,6128415
Formula 2	Formula 1	,34485981	,59579793	,836	-1,4832118	2,1729315
	Formula 3	2,12962963*	,59579793	,027	,3015580	3,9577013
Formula 3	Formula 1	-1,78476981	,59579793	,055	-3,6128415	,0433018
	Formula 2	-2,12962963*	,59579793	,027	-3,9577013	-,3015580

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

Homogeneous Subsets

Kecepatan alir tablet

Tukey HSD^a

Formula tablet	N	Subset for alpha = 0.05	
		1	2
Formula 3	3	11,2037037	
Formula 1	3	12,9884735	12,9884735
Formula 2	3		13,3333333
Sig.		,055	,836

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

b. Kekerasan

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Kekerasan	9	5,9000	,63689	5,00	6,60

One-Sample Kolmogorov-Smirnov Test

		Kekerasan
N		9
Normal Parameters ^{a,b}	Mean	5,9000
	Std. Deviation	,63689
Most Extreme Differences	Absolute	,271
	Positive	,208
	Negative	-,271
Kolmogorov-Smirnov Z		,814
Asymp. Sig. (2-tailed)		,521

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

Kekerasan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Formula 1	3		
Formula 2	3	5,7000	,75498	,43589	3,8245	7,5755	5,00	6,50
Formula 3	3	6,5500	,05000	,02887	6,4258	6,6742	6,50	6,60
Total	9	5,9000	,63689	,21230	5,4104	6,3896	5,00	6,60

Test of Homogeneity of Variances

Kekerasan

Levene Statistic	df1	df2	Sig.
3,892	2	6	,082

ANOVA

Kekerasan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,995	2	,997	4,788	,057
Within Groups	1,250	6	,208		
Total	3,245	8			

c. Kerapuhan

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Kerapuhan	15	,685165228	,0042461442	,6800451	,6906160

One-Sample Kolmogorov-Smirnov Test

		Kerapuhan
N		15
Normal Parameters ^{a,b}	Mean	,685165228
	Std. Deviation	,0042461442
Most Extreme Differences	Absolute	,218
	Positive	,218
	Negative	-,186
Kolmogorov-Smirnov Z		,843
Asymp. Sig. (2-tailed)		,476

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

Kerapuhan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Formula 1	5		
Formula 2	5	,685336753	,0000070924	,0000031718	685327946	,685345559	,6853267	,6853467
Formula 3	5	,680064960	,0000156632	,0000070048	680045512	,680084409	,6800451	,6800847
Total	15	,685165228	,0042461442	,0010963497	682813791	,687516664	,6800451	,6906160

Test of Homogeneity of Variances

Kerapuhan

Levene Statistic	df1	df2	Sig.
25,592	2	12	,057

ANOVA

Kerapuhan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,000	2	,000	2032,037	,000
Within Groups	,000	12	,000		
Total	,000	14			

Post Hoc Tests

Multiple Comparisons

Kerapuhan

Tukey HSD

(I) Formula tablet	(J) Formula tablet	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	,0047572174*	,0001573866	,000	,004337331	,005177103
	Formula 3	,0100290098*	,0001573866	,000	,009609124	,010448896
Formula 2	Formula 1	-,0047572174*	,0001573866	,000	-,005177103	-,004337331
	Formula 3	,0052717924*	,0001573866	,000	,004851906	,005691678
Formula 3	Formula 1	-,0100290098*	,0001573866	,000	-,010448896	-,009609124
	Formula 2	-,0052717924*	,0001573866	,000	-,005691678	-,004851906

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

Homogeneous Subsets

Kerapuhan

Tukey HSD^a

Formula tablet	N	Subset for alpha = 0.05		
		1	2	3
Formula 3	5	,680064960		
Formula 2	5		,685336753	
Formula 1	5			,690093970
Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5,000.

d. Waktu hancur

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Waktu Hancur Tablet	15	4.8107	1.73995	1.91	6.89

One-Sample Kolmogorov-Smirnov Test

		Waktu Hancur Tablet
N		15
Normal Parameters ^a	Mean	4.8107
	Std. Deviation	1.73995
Most Extreme Differences	Absolute	.287
	Positive	.140
	Negative	-.287
Kolmogorov-Smirnov Z		1.113
Asymp. Sig. (2-tailed)		.168

a. Test distribution is Normal.

Oneway

Descriptives

Waktu Hancur

Tablet

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formula 1	5	5.7440	.97480	.43594	4.5336	6.9544	4.14	6.55
Formula 2	5	6.0420	.48854	.21848	5.4354	6.6486	5.66	6.89
Formula 3	5	2.6460	.75218	.33639	1.7120	3.5800	1.91	3.74
Total	15	4.8107	1.73995	.44925	3.8471	5.7742	1.91	6.89

Test of Homogeneity of Variances

Waktu Hancur Tablet

Levene Statistic	df1	df2	Sig.
.597	2	12	.566

ANOVA

Waktu Hancur Tablet

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	35.365	2	17.683	30.232	.000
Within Groups	7.019	12	.585		
Total	42.384	14			

Post Hoc Tests

Multiple Comparisons

Waktu Hancur Tablet

Tukey HSD

(I) Formula tablet	(J) Formula tablet	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-.29800	.48369	.814	-1.5884	.9924
	Formula 3	3.09800*	.48369	.000	1.8076	4.3884
Formula 2	Formula 1	.29800	.48369	.814	-.9924	1.5884
	Formula 3	3.39600*	.48369	.000	2.1056	4.6864
Formula 3	Formula 1	-3.09800*	.48369	.000	-4.3884	-1.8076
	Formula 2	-3.39600*	.48369	.000	-4.6864	-2.1056

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

Homogeneous Subsets

Waktu Hancur Tablet

Tukey HSD

Formula tablet	N	Subset for alpha = 0.05	
		1	2
Formula 3	5	2.6460	
Formula 1	5		5.7440
Formula 2	5		6.0420
Sig.		1.000	.814

Means for groups in homogeneous subsets are displayed.

e. Disolusi

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Disolusi	12	46,5367965	41,52747928	4,32900	108,22511

One-Sample Kolmogorov-Smirnov Test

		Disolusi
N		12
Normal Parameters ^{a,b}	Mean	46,5367965
	Std. Deviation	41,5274792
Most Extreme Differences	Absolute	,207
	Positive	,207
	Negative	-,191
Kolmogorov-Smirnov Z		,717
Asymp. Sig. (2-tailed)		,682

a. Test distribution is Normal.

b. Calculated from data.

Oneway

Descriptives

Disolusi

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Formul a 1	4	23,80952 38	20,150418 53	10,075209 27	- 8,254288 7	55,873336 3	4,32900	43,29004
Formul a 2	4	99,56709 96	9,9974072 4	4,9987036 2	83,65899 37	115,47520 54	90,9090 9	108,2251 1
Formul a 3	4	16,23376 62	12,434118 28	6,2170591 4	- 3,551690 7	36,019223 1	8,65801	34,63203
Total	1 2	46,53679 65	41,527479 28	11,987950 67	20,15149 50	72,922098 1	4,32900	108,2251 1

Test of Homogeneity of Variances

Disolusi

Levene Statistic	df1	df2	Sig.
5,878	2	9	,053

ANOVA

Disolusi

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16988,062	2	8494,031	38,574	,000
Within Groups	1981,784	9	220,198		
Total	18969,847	11			

Post Hoc Tests

Multiple Comparisons

Disolusi

Tukey HSD

(I) Formula tablet	(J) Formula tablet	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Formula 1	Formula 2	-75,75757575 [*]	10,49281354	,000	-105,0535702	-46,4615813
	Formula 3	7,57575758	10,49281354	,757	-21,7202368	36,8717520
Formula 2	Formula 1	75,75757575 [*]	10,49281354	,000	46,4615813	105,0535702
	Formula 3	83,33333332 [*]	10,49281354	,000	54,0373389	112,6293277
Formula 3	Formula 1	-7,57575758	10,49281354	,757	-36,8717520	21,7202368
	Formula 2	-83,33333332 [*]	10,49281354	,000	-112,6293277	-54,0373389

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

Homogeneous Subsets

Disolusi

Tukey HSD^a

Formula tablet	N	Subset for alpha = 0.05	
		1	2
Formula 3	4	16,2337662	
Formula 1	4	23,8095238	
Formula 2	4		99,5670996
Sig.		,757	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 4,000.

Lampiran 4. Data analisis uji t granul dan tablet deksametason prediksi dan percobaan

a. Uji t (*t-test*) kecepatan alir

Descriptives

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
kecepatanalir	10	12,9870	13,5135	13,226987	,1268656
Valid N (listwise)	10				

NPar Tests

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Kecepatanalir	10	13,226987	,1268656	12,9870	13,5135

One-Sample Kolmogorov-Smirnov Test

		kecepatanalir
N		10
Normal Parameters ^{a,b}	Mean	13,226987
	Std. Deviation	,1268656
Most Extreme Differences	Absolute	,376
	Positive	,376
	Negative	-,276
Kolmogorov-Smirnov Z		1,190
Asymp. Sig. (2-tailed)		,118

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics				
Kelompok	N	Mean	Std. Deviation	Std. Error Mean
kecepatanalir _ prediksi	5	13,234500	,0000000	,0000000
_ praktek	5	13,219474	,1899272	,0849380

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kecepatanalir	Equal variances assumed	3,683	,091	,177	8	,864	,0150263	,0849380	- ,2108937	,1808412
	Equal variances not assumed			,177	4,000	,868	,0150263	,0849380	- ,2207995	,2508520

b. Uji t (*t-test*) kekerasan

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Kekerasan	10	5,65000	5,85000	5,7615883	,04935648
Valid N (listwise)	10				

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
kekerasan	10	5,7615883	,04935648	5,65000	5,85000

One-Sample Kolmogorov-Smirnov Test

		kekerasan
N		10
Normal Parameters ^{a,b}	Mean	5,7615883
	Std. Deviation	,04935648
Most Extreme Differences	Absolute	,359
	Positive	,259
	Negative	-,359
Kolmogorov-Smirnov Z		1,135
Asymp. Sig. (2-tailed)		,152

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

Kelompok	N	Mean	Std. Deviation	Std. Error Mean
kekerasan _ prediksi	5	5,7565100	,00000000	,00000000
_ praktek	5	5,7666667	,07359801	,03291403

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kekerasan	Equal variances assumed	4,041	,079	-,309	8	,766	-,01015667	,03291403	-,08605655	,06574322
	Equal variances not assumed			-,309	4,000	,773	-,01015667	,03291403	-,10154066	,08122733

c. Uji t (*t-test*) kerapuhan

Descriptives

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Kerapuhan	10	,684462	,684862	,68475331	,000143015
Valid N (listwise)	10				

NPar Tests

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
kerapuhan	10	,68475331	,000143015	,684462	,684862

One-Sample Kolmogorov-Smirnov Test		
		kerapuhan
N		10
Normal Parameters ^{a,b}	Mean	,68475331
	Std. Deviation	,000143015
Most Extreme Differences	Absolute	,339
	Positive	,224
	Negative	-,339
Kolmogorov-Smirnov Z		1,073
Asymp. Sig. (2-tailed)		,200

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics				
Kelompok	N	Mean	Std. Deviation	Std. Error Mean
kerapuhan _ prediksi	5	,68484500	,000000000	,000000000
_ praktek	5	,68466161	,000158114	,000070711

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
kerapuhan	Equal variances assumed	10,286	,012	2,594	8	,032	,000183390	,000070711	,000020331	,000346449
	Equal variances not assumed			2,594	4,000	,060	,000183390	,000070711	-,000012934	,000379714

d. Uji t (*t-test*) waktu hancur

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
waktuhancur	10	5.4000	6.4900	5.867000E0	.3350307
Valid N (listwise)	10				

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
waktuhancur	10	5.867000E0	.3350307	5.4000	6.4900

One-Sample Kolmogorov-Smirnov Test

		waktuhancur
N		10
Normal Parameters ^a	Mean	5.867000
	Std. Deviation	.3350307
Most Extreme Differences	Absolute	.296
	Positive	.296
	Negative	-.204
Kolmogorov-Smirnov Z		.937
Asymp. Sig. (2-tailed)		.343

a. Test distribution is Normal.

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
waktuhancur	prediksi	5	5.870000E0	.0000000	.0000000
	praktek	5	5.864000E0	.5025236	.2247354

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
waktuhancur Equal variances assumed	50.942	.000	.027	8	.979	.0060000	.2247354	-.5122408	.5242408
Equal variances not assumed			.027	4.000	.980	.0060000	.2247354	-.6179655	.6299655

e. Uji t (*t-test*) disolusi

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
disolusi	10	95,1069	101,6660	98,531595	2,2165961
Valid N (listwise)	10				

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
disolusi	10	98,531595	2,2165961	95,1069	101,6660

One-Sample Kolmogorov-Smirnov Test

		disolusi
N		10
Normal Parameters ^{a,b}	Mean	98,531595
	Std. Deviation	2,2165961
Most Extreme Differences	Absolute	,284
	Positive	,216
	Negative	-,284
Kolmogorov-Smirnov Z		,897
Asymp. Sig. (2-tailed)		,397

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

Kelompok	N	Mean	Std. Deviation	Std. Error Mean
disolusi _ prediksi	5	98,440600	,0000000	,0000000
praktek	5	98,622590	3,3217798	1,4855451

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
disolu si	Equal variance s assume d	34,50 6	,00 0	- ,12 3	8	,906	- ,1819895	1,485545 1	- 3,607662 7	3,243683 6
	Equal variance s not assume d			- ,12 3	4,0 00	,908	- ,1819895	1,485545 1	- 4,306523 9	3,942544 8

Lampiran 5. Gambar alat yang digunakan

Timbangan Digital



Pencetak tablet Single Punch



Hardness tester



Disintegration tester



Friabilitas tester



Disolution tester



Spektrofotometer UV-Vis



Plant Bandung

LAPORAN ANALISA BAHAN BAKU

Nama Bahan Baku : DEXAMETHASONUM	No. Batch :ND 120705 Exp. Date :06-07-2017	Kode Dokumen : FQC-01-0080/02 Tgl. Berlaku Dokumen : 16 Mei 2012
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Kode Bahan :3012175 Origin :Tianjin Tianyao - China	Supplier :PT. Cipta Prima Chemindo	Jumlah :3.000 g Pemeriksa :Saehudin
No. LA :B121039 No. SP :P123441	Tgl. Sampling :17-12-2012 Tgl. Selesai :18-12-2012	No. BTBS :B121039

No.	PEMERIKSAAN	PERSYARATAN	HASIL
1	Pemerian (R)	Serbuk kristal, warna putih sampai hampir putih, tidak berbau, stabil di udara	Serbuk, warna hampir putih, tidak berbau, stabil di udara
2	Kelarutan	Praktis tidak larut dalam air, agak sukar larut dalam alkohol	Sesuai
3	Identifikasi (R)	Spektrum serapan ultraviolet larutan uji menunjukkan maksimum dan minimum hanya pada panjang gelombang yang sama seperti pada Dexamethasonum baku	Sesuai
4	Titik Leleh	$\pm 250^{\circ}\text{C}$ disertai penguraian	$248,3^{\circ}\text{C}$
5	Rotasi Jenis	Antara $+72^{\circ}$ dan $+80^{\circ}$, dihitung terhadap berat kering	$+78,9^{\circ}$
6	Susut Pengerinan (R)	Tidak lebih dari 0,5%	0,14%
7	Sisa Pemijaran	Tidak lebih dari 0,2%	0
8	Kadar (R)	Antara 97,0% - 102,0%, dihitung terhadap berat kering	99,28%

Pustaka : USP 34

Kesimpulan : Memenuhi Syarat

Bandung, 18 Desember 2012

Penanggung Jawab :

AMQC



(Diah Sofiyanti, S.Si, Apt)

Halaman 1 dari 1

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