

LAMPIRAN

Lampiran 1

Hasil determinasi amilum beras (*Oryza sativa*, L.)

UNIVERSITAS ISLAM INDONESIA
JURUSAN FARMASI FMIPA UII
BAGIAN BIOLOGI FARMASI

SURAT KETERANGAN

Nomor:97/UII/Jur Far/det/III/2012

Yang bertanda tangan di bawah ini, Kepala Laboratorium Biologi Farmasi Jurusan Farmasi FMIPA UII menerangkan bahwa:

Nama : Nailil Khilyah
NIM : 08613020
Pada tanggal : 1 Maret 2012

Telah mendeterminasi 1 (satu) species tanaman dengan bimbingan Dra.Iyok Budiarti, di Laboratorium Biologi Farmasi FMIPA UII.

Tanaman tersebut: *Oryza sativa*, Linn (beras)

Demikian surat keterangan ini di buat untuk dipergunakan semestinya.

Yogyakarta, 1 Maret 2012
Bagian Biologi Farmasi
Kepala,



Hady Anshory T.S.Si., Apt.
NIP.056130703

Lampiran 2

HASIL RENDEMEN

$$\begin{aligned}\text{Hasil rendemen} &= \frac{250 \text{ gram}}{6000 \text{ gram}} \times 100\% \\ &= 4,167 \%\end{aligned}$$

Lampiran 3

Tablet parasetamol dengan amilum beras delanggu 5% sebagai bahan pengikat pada suhu 40°C, 55°C, dan 70°C

Replikasi 1

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,300	4,28	4283,21	3,63	0,00023
	15	0,442	6,06	6062,66	3,78	0,00016
	30	0,339	4,77	4771,93	3,68	0,00021
	45	0,364	5,09	5085,21	3,71	0,00020
	60	0,489	6,65	6651,63	3,82	0,00015
	75	0,336	4,73	4734,34	3,68	0,00021
55	0	0,322	4,55	4553,88	3,66	0,00022
	15	0,384	5,33	5330,83	3,73	0,00019
	30	0,203	3,06	3062,66	3,49	0,00033
	45	0,412	5,68	5681,70	3,75	0,00018
	60	0,382	5,31	5305,76	3,72	0,00019
	75	0,314	4,45	4453,63	3,65	0,00022
70	0	0,345	4,85	4847,12	3,69	0,00021
	15	0,329	4,65	4646,62	3,67	0,00022
	30	0,349	4,90	4897,24	3,69	0,00020
	45	0,321	4,55	4546,37	3,66	0,00022
	60	0,367	5,12	5122,81	3,71	0,00020
	75	0,32	4,53	4533,83	3,66	0,00022

Keterangan :

A : Absorbansi

χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana $Ct = \chi \cdot \text{pengenceran}$

Lanjutan lampiran 3

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 123,8x + 4831$	0,25
	1	$y = 0,01x + 3,68$	0,29
	2	$y = -5 \cdot 10^{-6}x + 0,00$	0,27
55	0	$y = 58,36x + 4527$	0,11
	1	$y = 0,01x + 3,65$	0,12
	2	$y = -4 \cdot 10^{-6}x + 0,00$	0,11
70	0	$y = -13,96x + 4814$	0,11
	1	$y = -0,001x + 3,68$	0,14
	2	$y = 8 \cdot 10^{-7}x + 0,00$	0,13

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
I	40	313	$3,195 \cdot 10^{-3}$	0,02303	-1,64
	55	328	$3,049 \cdot 10^{-3}$	0,02303	-1,64
	70	343	$2,915 \cdot 10^{-3}$	0,002303	-2,63

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = 3540,89x - 12,85$$

$$\text{Harga koefisien korelasi } (r) = 0,94$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 3540,89x - 12,85$$

$$\text{Log } k = 3540,89 (1/298) - 12,85$$

$$= -3,891$$

$$k = 1,28 \cdot 10^{-7} \text{ menit}^{-1}$$

6. waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,28 \cdot 10^{-7}$$

$$t_{90} = 817120,623 \text{ menit} = 19 \text{ bulan} = 1 \text{ tahun } 7 \text{ bulan}$$

Lanjutan lampiran 3

Replikasi 2

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	X (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,303	4,32	4321,00	3,64	0,00023
	15	0,392	5,44	5436,00	3,74	0,00018
	30	0,297	4,25	4246,00	3,63	0,00024
	45	0,343	4,82	4822,00	3,68	0,00021
	60	0,411	5,67	5674,00	3,75	0,00018
	75	0,363	5,07	5073,00	3,71	0,00020
55	0	0,361	5,04	5042,61	3,70	0,00020
	15	0,336	4,73	4729,32	3,67	0,00021
	30	0,352	4,93	4929,82	3,69	0,00020
	45	0,541	7,30	7298,25	3,86	0,00014
	60	0,441	6,05	6045,11	3,78	0,00017
	75	0,357	4,99	4992,48	3,70	0,00020
70	0	0,344	4,83	4834,59	3,68	0,00021
	15	0,31	4,41	4408,52	3,64	0,00023
	30	0,351	4,92	4922,31	3,69	0,00020
	45	0,395	5,47	5473,68	3,74	0,00018
	60	0,367	5,12	5122,81	3,71	0,00020
	75	0,339	4,77	4771,93	3,68	0,00021

Keterangan :

A : Absorbansi

 χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana $Ct = \chi \cdot \text{pengenceran}$

Lanjutan lampiran 3

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 144,2x + 4423$	0,46
	1	$y = 0,013x + 3,64$	0,50
	2	$y = -6.10^{-6}x + 0,00$	0,47
55	0	$y = 173,2x + 4899$	0,33
	1	$y = 0,013x + 3,69$	0,36
	2	$y = -6.10^{-6}x + 0,00$	0,34
70	0	$y = 68,02x + 4684$	0,35
	1	$y = 0,01x + 3,67$	0,37
	2	$y = -3.10^{-6}x + 0,00$	0,30

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
II	40	313	$3,195.10^{-3}$	0,029939	-1,52
	55	328	$3,049.10^{-3}$	0,029939	-1,52
	70	343	$2,915.10^{-3}$	0,013818	-1,86

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = 1178,61 x - 5,23$$

Harga koefisien korelasi (r) = -0,08

5. Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 1178,61 x - 5,23$$

$$\text{Log } k = 1178,61 (1/298) - 5,23$$

$$= -3,837$$

$$k = 1,45.10^{-7} \text{ menit}^{-1}$$

6. waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,45.10^{-7}$$

$$t_{90} = 721649,48 \text{ menit} = 16,705 \text{ bulan} = 1 \text{ tahun } 5 \text{ bulan}$$

Lanjutan lampiran 3

Replikasi 3

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,309	4,40	4396,00	3,64	0,00023
	15	0,41	5,66	5662,00	3,75	0,00018
	30	0,429	5,90	5900,00	3,77	0,00017
	45	0,394	5,46	5461,00	3,74	0,00018
	60	0,475	6,48	6476,00	3,81	0,00015
	75	0,357	5,00	4997,00	3,70	0,00020
55	0	0,372	5,18	5180,00	3,71	0,00019
	15	0,307	4,37	4366,00	3,64	0,00023
	30	0,342	4,81	4805,00	3,68	0,00021
	45	0,542	7,31	7311,00	3,86	0,00014
	60	0,35	4,91	4905,00	3,69	0,00020
	75	0,432	5,93	5932,00	3,77	0,00017
70	0	0,44	6,04	6037,59	3,78	0,00017
	15	0,352	4,93	4934,84	3,69	0,00020
	30	0,385	5,35	5348,37	3,73	0,00019
	45	0,396	5,49	5486,22	3,74	0,00018
	60	0,421	5,80	5799,50	3,76	0,00017
	75	0,33	4,66	4659,15	3,67	0,00021

Keterangan :

A : Absorbansi

 χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana Ct = χ . pengenceran

Lanjutan lampiran 3

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 143,0x + 4981$	0,37
	1	$y = 0,01x + 3,69$	0,45
	2	$y = -8 \cdot 10^{-6}x + 0,00$	0,12
55	0	$y = 225,2x + 4628$	0,40
	1	$y = 0,02x + 3,66$	0,44
	2	$y = -8 \cdot 10^{-6}x + 0,00$	0,42
70	0	$y = -11,8x + 5793$	0,43
	1	$y = -0,01x + 3,76$	0,44
	2	$y = 4 \cdot 10^{-6}x + 0,00$	0,43

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
III	40	313	$3,195 \cdot 10^{-3}$	0,02303	-1,64
	55	328	$3,049 \cdot 10^{-3}$	0,04606	-1,34
	70	343	$2,915 \cdot 10^{-3}$	0,02303	-1,64

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = -30,59x - 1,45$$

Harga koefisien korelasi (r) = 0,02

5. Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -30,59x - 1,45$$

$$\text{Log } k = -30,59 (1/298) - 1,45$$

$$= -3,872$$

$$k = 1,34 \cdot 10^{-7} \text{ menit}^{-1}$$

6. waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,34 \cdot 10^{-7}$$

$$t_{90} = 781343,464 \text{ menit} = 18,087 \text{ bulan} = 1 \text{ tahun } 6 \text{ bulan}$$

Lampiran 4

Tablet parasetamol dengan amilum beras delanggu 10% sebagai bahan pengikat pada suhu 40°C, 55°C, dan 70°C

Replikasi 1

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	X (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,539	7,28	7278,20	3,86	0,00014
	15	0,342	4,81	4809,52	3,68	0,00021
	30	0,345	4,85	4847,12	3,69	0,00021
	45	0,492	6,69	6689,22	3,83	0,00015
	60	0,442	6,06	6062,66	3,78	0,00016
	75	0,524	7,09	7090,23	3,85	0,00014
55	0	0,364	5,09	5085,21	3,71	0,00020
	15	0,355	4,97	4972,43	3,70	0,00020
	30	0,418	5,76	5761,90	3,76	0,00017
	45	0,334	4,71	4709,27	3,67	0,00021
	60	0,417	5,75	5749,37	3,76	0,00017
	75	0,332	4,68	4684,21	3,67	0,00021
70	0	0,306	4,36	4358,40	3,64	0,00023
	15	0,268	3,88	3882,21	3,59	0,00026
	30	0,342	4,81	4809,52	3,68	0,00021
	45	0,298	4,26	4258,15	3,63	0,00023
	60	0,212	3,18	3180,45	3,50	0,00031
	75	0,262	3,81	3807,02	3,58	0,00026

Keterangan :

A : Absorbansi

χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana $Ct = \chi \cdot \text{pengenceran}$

Lanjutan lampiran 4

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 133,1x + 5663$	0,23
	1	$y = 0,011x + 3,74$	0,28
	2	$y = -5 \cdot 10^{-6}x + 0,00$	0,25
55	0	$y = -20,76x + 5233$	0,08
	1	$y = -0,002x + 3,72$	0,12
	2	$y = 1 \cdot 10^{-6}x + 0,00$	0,10
70	0	$y = -154,6x + 4590$	0,52
	1	$y = -0,02x + 3,66$	0,53
	2	$y = 1 \cdot 10^{-5}x + 0,00$	0,52

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
I	40	313	$3,195 \cdot 10^{-3}$	0,025333	-1,60
	55	328	$3,049 \cdot 10^{-3}$	0,004606	-2,34
	70	343	$2,915 \cdot 10^{-3}$	0,039151	-1,41

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = -589,38x - 0,02$$

$$\text{Harga koefisien korelasi } (r) = -0,17$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -589,38x - 0,02$$

$$\text{Log } k = -589,38 (1/298) - 0,02$$

$$= -3,993$$

$$k = 1,01 \cdot 10^{-7} \text{ menit}^{-1}$$

6. waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,01 \cdot 10^{-7}$$

$$t_{90} = 1034633,687 \text{ menit} = 23,950 \text{ bulan} = 2 \text{ tahun}$$

Lanjutan lampiran 4

Replikasi 2

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,551	7,43	7429,00	3,87	0,00013
	15	0,304	4,33	4333,00	3,64	0,00023
	30	0,342	4,81	4810,00	3,68	0,00021
	45	0,48	6,54	6539,00	3,82	0,00015
	60	0,438	6,01	6013,00	3,78	0,00017
	75	0,506	6,87	6865,00	3,84	0,00015
55	0	0,314	4,46	4458,65	3,65	0,00022
	15	0,338	4,76	4759,40	3,68	0,00021
	30	0,416	5,74	5736,84	3,76	0,00017
	45	0,386	5,36	5360,90	3,73	0,00019
	60	0,38	5,29	5285,71	3,72	0,00019
	75	0,385	5,35	5348,37	3,73	0,00019
70	0	0,476	6,49	6488,72	3,81	0,00015
	15	0,311	4,42	4421,05	3,65	0,00023
	30	0,349	4,90	4897,24	3,69	0,00020
	45	0,335	4,72	4721,80	3,67	0,00021
	60	0,311	4,42	4421,05	3,65	0,00023
	75	0,276	3,98	3982,46	3,60	0,00025

Keterangan :

A : Absorbansi

 χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana Ct = χ . pengenceran

Lanjutan lampiran 4

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 112,8x + 5603$	0,17
	1	$y = 0,01x + 3,73$	0,22
	2	$y = -6.10^{-6}x + 0,00$	0,19
55	0	$y = 161,4x + 4593$	0,65
	1	$y = 0,02x + 3,66$	0,69
	2	$y = -7.10^{-6}x + 0,00$	0,67
70	0	$y = -363,0x + 6092$	0,77
	1	$y = -0,03x + 3,78$	0,80
	2	$y = 1.10^{-3}x + 0,00$	0,79

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
II	40	313	$3,195.10^{-3}$	0,02303	-1,64
	55	328	$3,049.10^{-3}$	0,04606	-1,34
	70	343	$2,915.10^{-3}$	0,06909	-1,16

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = -1719,35x + 3,87$$

$$\text{Harga koefisien korelasi } (r) = -0,99$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -1719,35x + 3,87$$

$$\text{Log } k = -1719,35 (1/298) + 3,87$$

$$= -3,799$$

$$k = 1,59.10^{-7} \text{ menit}^{-1}$$

6. waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,59.10^{-7}$$

$$t_{90} = 661379,979 \text{ menit} = 15,309 \text{ bulan} = 1 \text{ tahun } 4 \text{ bulan}$$

Lanjutan lampiran 4

Replikasi 3

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,428	5,89	5887,00	3,77	0,00017
	15	0,322	4,56	4559,00	3,66	0,00022
	30	0,344	4,84	4835,00	3,68	0,00021
	45	0,498	6,76	6764,00	3,83	0,00015
	60	0,431	5,93	5925,00	3,77	0,00017
	75	0,419	5,77	5774,00	3,76	0,00017
55	0	0,423	5,83	5825,00	3,77	0,00017
	15	0,324	4,58	4584,00	3,66	0,00022
	30	0,364	5,09	5085,00	3,71	0,00020
	45	0,451	6,18	6175,00	3,79	0,00016
	60	0,396	5,49	5486,00	3,74	0,00018
	75	0,32	4,53	4534,00	3,66	0,00022
70	0	0,469	6,40	6401,00	3,81	0,00016
	15	0,307	4,37	4370,93	3,64	0,00023
	30	0,358	5,01	5010,03	3,70	0,00020
	45	0,332	4,68	4684,21	3,67	0,00021
	60	0,274	3,96	3957,39	3,60	0,00025
	75	0,286	4,11	4107,77	3,61	0,00024

Keterangan :

A : Absorbansi

χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana $Ct = \chi \cdot \text{pengenceran}$

Lanjutan lampiran 4

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 156,0x + 5077$	0,37
	1	$y = 0,01x + 3,70$	0,45
	2	$y = -6.10^{-6}x + 0,00$	0,12
55	0	$y = -75,97x + 5547$	0,40
	1	$y = -0,01x + 3,74$	0,44
	2	$y = 3.10^{-6}x + 0,00$	0,42
70	0	$y = -372,3x + 6058$	0,43
	1	$y = -0,03x + 3,78$	0,44
	2	$y = 1.10^{-5}x + 0,00$	0,43

3. Tabel hubungan 1/T vs Log k

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
III	40	313	$3,195.10^{-3}$	0,02303	-1,64
	55	328	$3,049.10^{-3}$	0,02303	-1,64
	70	343	$2,915.10^{-3}$	0,06909	-1,16

4. Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = -1464,46x + 2,95$$

$$\text{Harga koefisien korelasi } (r) = -0,56$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -1464,46x + 2,95$$

$$\text{Log } k = -1464,46 (1/298) + 2,95$$

$$= -3,920$$

$$k = 1,20.10^{-7} \text{ menit}^{-1}$$

6. Waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,20.10^{-7}$$

$$t_{90} = 873351,959 \text{ menit} = 20,216 \text{ bulan} = 1 \text{ tahun } 8 \text{ bulan}$$

Lampiran 5

Tablet parasetamol dengan amilum beras delanggu 15% sebagai bahan pengikat pada suhu 40°C, 55°C, dan 70°C

Replikasi 1

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	X (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,323	4,57	4571,43	3,66	0,00022
	15	0,324	4,58	4583,96	3,66	0,00022
	30	0,416	5,74	5736,84	3,76	0,00017
	45	0,467	6,38	6375,94	3,80	0,00016
	60	0,362	5,06	5060,15	3,70	0,00020
	75	0,455	6,23	6225,56	3,79	0,00016
55	0	0,343	4,82	4822,06	3,68	0,00021
	15	0,379	5,27	5273,18	3,72	0,00019
	30	0,422	5,81	5812,03	3,76	0,00017
	45	0,342	4,81	4809,52	3,68	0,00021
	60	0,407	5,62	5624,06	3,75	0,00018
	75	0,387	5,37	5373,43	3,73	0,00019
70	0	0,367	5,12	5122,81	3,71	0,00020
	15	0,376	5,24	5235,59	3,72	0,00019
	30	0,362	5,06	5060,15	3,70	0,00020
	45	0,347	4,87	4872,18	3,69	0,00021
	60	0,396	5,49	5486,22	3,74	0,00018
	75	0,316	4,48	4483,71	3,65	0,00022

Keterangan :

A : Absorbansi

χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana $Ct = \chi \cdot \text{pengenceran}$

Lanjutan lampiran 5

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = 295,3x + 4391$	0,69
	1	$y = 0,02x + 3,64$	0,71
	2	$y = -1.10^{-5}x + 0,00$	0,70
55	0	$y = 80,20x + 5005$	0,36
	1	$y = 0,01x + 3,70$	0,38
	2	$y = -3.10^{-6}x + 0,00$	0,37
70	0	$y = -75,18x + 5306$	0,41
	1	$y = -0,01x + 3,73$	0,46
	2	$y = 3.10^{-6}x + 0,00$	0,44

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
I	40	313	$3,195.10^{-3}$	0,04606	-1,34
	55	328	$3,049.10^{-3}$	0,02303	-1,64
	70	343	$2,915.10^{-3}$	0,04606	-1,34

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = 1943,66x - 7,57$$

$$\text{Harga koefisien korelasi } (r) = 0,82$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 1943,66x - 7,57$$

$$\text{Log } k = 1943,66 (1/298) - 7,57$$

$$= -3,670$$

$$k = 2,14.10^{-7} \text{menit}^{-1}$$

6. Waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/2,14.10^{-7}$$

$$t_{90} = 491436,968 \text{ menit} = 11,376 \text{ bulan} = 11 \text{ bulan } 12 \text{ hari}$$

Lanjutan lampiran 5

Replikasi 2

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,455	6,23	6226,00	3,79	0,00016
	15	0,444	6,09	6088,00	3,78	0,00016
	30	0,502	6,82	6815,00	3,83	0,00015
	45	0,49	6,66	6664,00	3,82	0,00015
	60	0,413	5,70	5699,00	3,76	0,00018
	75	0,391	5,42	5424,00	3,73	0,00018
55	0	0,42	5,79	5786,97	3,76	0,00017
	15	0,326	4,61	4609,02	3,66	0,00022
	30	0,388	5,39	5385,96	3,73	0,00019
	45	0,415	5,72	5724,31	3,76	0,00017
	60	0,464	6,34	6338,35	3,80	0,00016
	75	0,378	5,26	5260,65	3,72	0,00019
70	0	0,442	6,06	6062,66	3,78	0,00016
	15	0,311	4,42	4421,05	3,65	0,00023
	30	0,332	4,68	4684,21	3,67	0,00021
	45	0,324	4,58	4583,96	3,66	0,00022
	60	0,312	4,43	4433,58	3,65	0,00023
	75	0,304	4,33	4333,33	3,64	0,00023

Keterangan :

A : Absorbansi

 χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana Ct = χ . pengenceran

Lanjutan lampiran 5

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = -152,2x + 6685$	0,53
	1	$y = -0,01x + 3,83$	0,62
	2	$y = 4 \cdot 10^{-6}x + 0,00$	0,55
55	0	$y = 82,70x + 5228$	0,26
	1	$y = 0,01x + 3,72$	0,27
	2	$y = -3 \cdot 10^{-6}x + 0,00$	0,26
70	0	$y = -248,8x + 5624$	0,71
	1	$y = -0,02x + 3,75$	0,73
	2	$y = 9 \cdot 10^{-6}x + 0,00$	0,72

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
II	40	313	$3,195 \cdot 10^{-3}$	0,02303	-1,64
	55	328	$3,049 \cdot 10^{-3}$	0,02303	-1,64
	70	343	$2,915 \cdot 10^{-3}$	0,04606	-1,34

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = -1055,48x + 1,68$$

$$\text{Harga koefisien korelasi } (r) = -0,85$$

5. Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -1055,48x + 1,68$$

$$\text{Log } k = -1055,48 (1/298) + 1,68$$

$$= -3,72$$

$$k = 1,90 \cdot 10^{-7} \text{ menit}^{-1}$$

6. Waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,90 \cdot 10^{-7}$$

$$t_{90} = 552631,579 \text{ menit} = 13 \text{ bulan} = 1 \text{ tahun } 1 \text{ bulan}$$

Lanjutan lampiran 5

Replikasi 3

1. Data kadar parasetamol yang tersisa

Suhu (°C)	Waktu (menit)	A	χ (mcg/ml)	Ct (mcg/ml)	Log Ct	1/Ct (ml/mcg)
40	0	0,418	5,76	5762,00	3,76	0,00017
	15	0,474	6,46	6464,00	3,81	0,00015
	30	0,537	7,25	7253,00	3,86	0,00014
	45	0,412	5,69	5687,00	3,75	0,00018
	60	0,414	5,71	5712,00	3,76	0,00018
	75	0,418	5,76	5762,00	3,76	0,00017
55	0	0,338	4,76	4759,00	3,68	0,00021
	15	0,336	4,73	4734,00	3,68	0,00021
	30	0,319	4,52	4521,00	3,66	0,00022
	45	0,426	5,86	5862,00	3,77	0,00017
	60	0,4	5,54	5536,00	3,74	0,00018
	75	0,367	5,12	5123,00	3,71	0,00020
70	0	0,345	4,85	4847,12	3,69	0,00021
	15	0,263	3,82	3819,55	3,58	0,00026
	30	0,316	4,48	4483,71	3,65	0,00022
	45	0,364	5,09	5085,21	3,71	0,00020
	60	0,326	4,61	4609,02	3,66	0,00022
	75	0,247	3,62	3619,05	3,56	0,00028

Keterangan :

A : Absorbansi

 χ : Kadar parasetamol yang tersisa (mcg/ml)

Ct : Konsentrasi parasetamol yang terhitung (mcg/ml)

Dimana Ct = χ . pengenceran

Lanjutan lampiran 5

2. Tabel orde reaksi

Suhu ($^{\circ}\text{C}$)	Orde reaksi	Persamaan garis	r
40	0	$y = -109,2x + 6488$	0,32
	1	$y = -0,007x + 3,81$	0,42
	2	$y = 3 \cdot 10^{-6}x + 0,00$	0,33
55	0	$y = 159,0x + 4532$	0,57
	1	$y = 0,013x + 3,66$	0,58
	2	$y = -6 \cdot 10^{-6}x + 0,00$	0,52
70	0	$y = -90,58x + 4727$	0,32
	1	$y = -0,009x + 3,67$	0,72
	2	$y = 5 \cdot 10^{-6}x + 0,00$	0,30

3. Tabel hubungan $1/T$ vs $\text{Log } k$

Replikasi	Suhu ($^{\circ}\text{C}$)	T (K)	$1/T$ (1/K)	k	$\text{Log } k$
III	40	313	$3,195 \cdot 10^{-3}$	0,016121	-1,79
	55	328	$3,049 \cdot 10^{-3}$	0,029939	-1,52
	70	343	$2,915 \cdot 10^{-3}$	0,020727	-1,68

4. Dari regresi linier hubungan $1/T$ Vs $\text{Log } K$ didapatkan persamaan garis:

$$Y = -414,440x - 0,401$$

$$\text{Harga koefisien korelasi } (r) = -0,43$$

5. Pada suhu 25 :

$$\text{Suhu } (T) = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -414,440x - 0,401$$

$$\text{Log } k = -414,440 (1/298) - 0,401$$

$$= -3,584$$

$$k = 2,61 \cdot 10^{-7} \text{ menit}^{-1}$$

6. Waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/2,61 \cdot 10^{-7}$$

$$t_{90} = 402892,608 \text{ menit} = 9,326 \text{ bulan} = 9 \text{ bulan } 9 \text{ hari}$$

Lampiran lanjutan 5

Formulasi 1

Replikasi 1

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$6,65 \cdot 10^{-3}$	-2,18
55	328	$3,049 \cdot 10^{-3}$	$5,31 \cdot 10^{-3}$	-2,27
70	343	$2,915 \cdot 10^{-3}$	$5,12 \cdot 10^{-3}$	-2,30

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 431,37x - 3,57$$

Harga koefisien korelasi (r) = 0,96

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 431,37x - 3,57$$

$$\begin{aligned} \text{Log k} &= 431,37 (1/298) - 3,57 \\ &= -5,12 \end{aligned}$$

$$k = 7,54 \cdot 10^{-6} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/7,54 \cdot 10^{-6}$$

$$t_{90} = 19,22 \text{ bulan} = 1 \text{ tahun } 7 \text{ bulan}$$

Replikasi 2

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$5,67 \cdot 10^{-3}$	-2,25
55	328	$3,049 \cdot 10^{-3}$	$6,05 \cdot 10^{-3}$	-2,22
70	343	$2,915 \cdot 10^{-3}$	$5,12 \cdot 10^{-3}$	-2,30

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 172,85x - 2,78$$

Harga koefisien korelasi (r) = 0,60

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 172,85x - 2,78$$

$$\begin{aligned}\text{Log } k &= 172,85 (1/298) - 2,78 \\ &= -5,01\end{aligned}$$

$$k = 9,77 \cdot 10^{-6} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/9,77 \cdot 10^{-6}$$

$$t_{90} = 15 \text{ bulan} = 1 \text{ tahun } 3 \text{ bulan}$$

Replikasi 3

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$6,48 \cdot 10^{-3}$	-2,20
55	328	$3,049 \cdot 10^{-3}$	$4,91 \cdot 10^{-3}$	-2,31
70	343	$2,915 \cdot 10^{-3}$	$5,8 \cdot 10^{-3}$	-2,24

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 151,94x - 2,71$$

Harga koefisien korelasi (r) = 0,60

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 151,94x - 2,71$$

$$\begin{aligned}\text{Log } k &= 151,94 (1/298) - 2,71 \\ &= -4,78\end{aligned}$$

$$k = 1,66 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,66 \cdot 10^{-5}$$

$$t_{90} = 9 \text{ bulan}$$

Lanjutan lampiran 5

Formulasi 2

Replikasi 1

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$6,06 \cdot 10^{-3}$	-2,22
55	328	$3,049 \cdot 10^{-3}$	$5,75 \cdot 10^{-3}$	-2,24
70	343	$2,915 \cdot 10^{-3}$	$3,18 \cdot 10^{-3}$	-2,50

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 987,15x - 5,33$$

$$\text{Harga koefisien korelasi } (r) = 0,88$$

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 987,15x - 5,33$$

$$\text{Log k} = 987,15 (1/298) - 5,33$$

$$= -5,16$$

$$k = 6,92 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/6,92 \cdot 10^{-5}$$

$$t_{90} = 21,08 \text{ bulan} = 1 \text{ tahun } 10 \text{ bulan}$$

Replikasi 2

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$6,01 \cdot 10^{-3}$	-2,22
55	328	$3,049 \cdot 10^{-3}$	$5,29 \cdot 10^{-3}$	-2,28
70	343	$2,915 \cdot 10^{-3}$	$4,42 \cdot 10^{-3}$	-2,35

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 463,50x - 3,70$$

$$\text{Harga koefisien korelasi } (r) = 0,99$$

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 463,50x - 3,70$$

$$\text{Log k} = 463,50 (1/298) - 3,70$$

$$= -5,26$$

$$k = 5,50 \cdot 10^{-6} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/65,50 \cdot 10^{-6}$$

$$t_{90} = 26,54 \text{ bulan} = 2 \text{ tahun } 2 \text{ bulan}$$

Replikasi 3

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$5,93 \cdot 10^{-3}$	-2,23
55	328	$3,049 \cdot 10^{-3}$	$5,49 \cdot 10^{-3}$	-2,26
70	343	$2,915 \cdot 10^{-3}$	$3,96 \cdot 10^{-3}$	-2,40

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = -176,27x - 1,70$$

Harga koefisien korelasi (r) = -0,95

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -176,27x - 1,70$$

$$\text{Log k} = -176,27 (1/298) - 1,70$$

$$= -4,98$$

$$k = 1,05 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,05 \cdot 10^{-5}$$

$$t_{90} = 13,93 \text{ bulan} = 1 \text{ tahun } 2 \text{ bulan}$$

Lanjutan lampiran 5

Formulasi 3

Replikasi 1

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$5,06 \cdot 10^{-3}$	-2,30
55	328	$3,049 \cdot 10^{-3}$	$5,62 \cdot 10^{-3}$	-2,25
70	343	$2,915 \cdot 10^{-3}$	$5,49 \cdot 10^{-3}$	-2,26

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = -145,83x - 1,82$$

$$\text{Harga koefisien korelasi (r)} = -0,77$$

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = -145,83x - 1,82$$

$$\text{Log k} = -145,83 (1/298) - 1,82$$

$$= -4,85$$

$$k = 1,41 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,41 \cdot 10^{-5}$$

$$t_{90} = 10,32 \text{ bulan} = 10 \text{ bulan } 9 \text{ hari}$$

Replikasi 2

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$5,70 \cdot 10^{-3}$	-2,24
55	328	$3,049 \cdot 10^{-3}$	$6,34 \cdot 10^{-3}$	-2,19
70	343	$2,915 \cdot 10^{-3}$	$4,43 \cdot 10^{-3}$	-2,35

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 381,91x - 3,43$$

$$\text{Harga koefisien korelasi (r)} = 0,65$$

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 381,91x - 3,43$$

$$\begin{aligned}\text{Log } k &= 381,91 (1/298) - 3,43 \\ &= -4,94\end{aligned}$$

$$k = 1,14 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

$$t_{90} = 0,105/1,14 \cdot 10^{-5}$$

$$t_{90} = 12,74 \text{ bulan} = 1 \text{ tahun } 7 \text{ bulan}$$

Replikasi 3

Suhu ($^{\circ}\text{C}$)	T (K)	1/T (1/K)	k	Log k
40	313	$3,195 \cdot 10^{-3}$	$5,71 \cdot 10^{-3}$	-2,24
55	328	$3,049 \cdot 10^{-3}$	$5,54 \cdot 10^{-3}$	-2,26
70	343	$2,915 \cdot 10^{-3}$	$4,61 \cdot 10^{-3}$	-2,34

Dari regresi linier hubungan 1/T Vs Log K didapatkan persamaan garis:

$$Y = 426,27x - 3,57$$

$$\text{Harga koefisien korelasi } (r) = 0,98$$

Pada suhu 25 :

$$\text{Suhu (T)} = 25^{\circ}\text{C} = 298^{\circ}\text{K}$$

$$Y = 426,27x - 3,57$$

$$\begin{aligned}\text{Log } k &= 426,27 (1/298) - 3,57 \\ &= -4,82\end{aligned}$$

$$k = 1,51 \cdot 10^{-5} \text{ jam}^{-1}$$

waktu kadaluwarsa (t_{90}):

$$t_{90} = 0,105/k$$

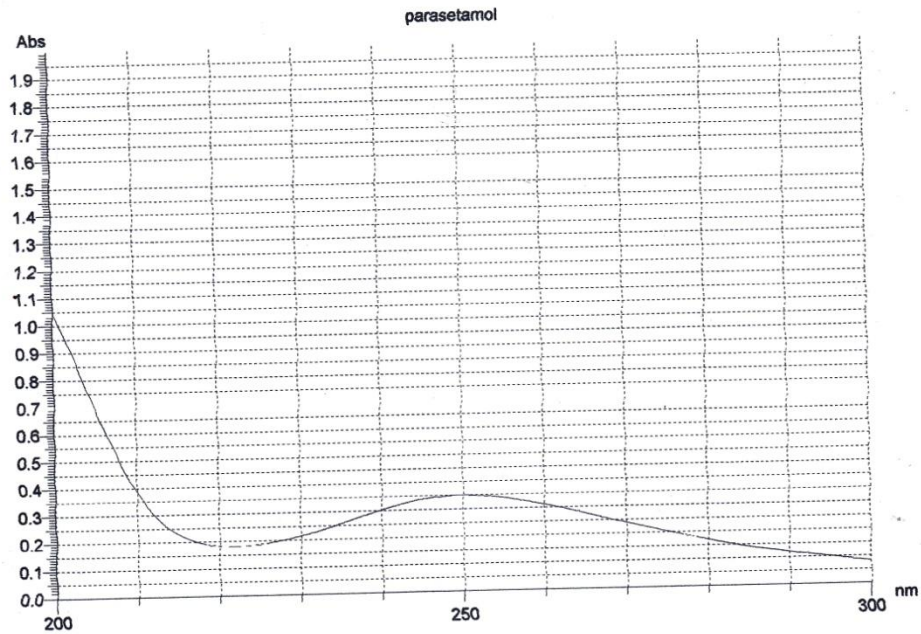
$$t_{90} = 0,105/1,05 \cdot 10^{-5}$$

$$t_{90} = 9,96 \text{ bulan} = 10 \text{ bulan}$$

Lampiran 6

Penetapan Panjang gelombang Serapan Maksimum Parasetamol

Report Date: 02:04:50, 01/04/1980



Sample: parasetamol
 File name: lamda max pct 249nm.UDS
 Run Date: 00:42:33, 01/04/1980
 Operator: Hartanto
 Comment: Herwina

Instrument Model: U-2800 Spectrophotometer
 Serial Number: 1
 ROM Version: 2501 11

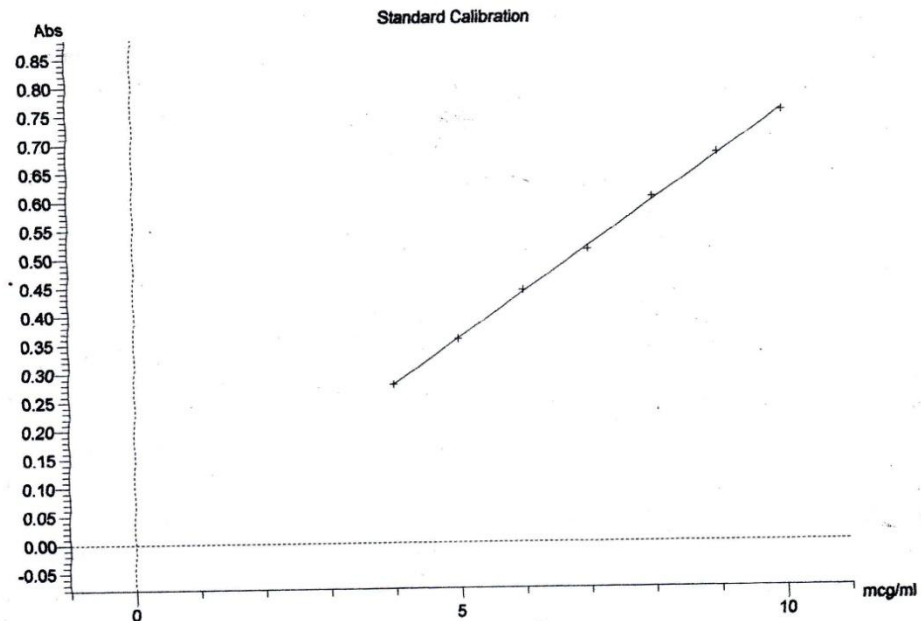
Instrument Parameters

Measurement Type:	Wavelength Scan
Data Mode:	Abs
Starting Wavelength:	300.0 nm
Ending Wavelength:	200.0 nm
Scan Speed:	400 nm/min
Sampling Interval:	0.5 nm
Slit Width:	1.50 nm
Lamp change mode:	Auto
Auto change wavelength:	340.0 nm
Baseline Correction:	User 1
Response:	Medium
Path Length:	10.0 mm
(Abs values are corrected to 10 mm path length)	

Lampiran 7

Kurva Baku Penetapan Kadar Parasetamol

Report Date: 02:03:53, 01/04/1980



Sample: parasetamol
 File Name: kurva baku pct uv bru.UDQ
 Run Date: 01:10:30, 01/04/1980
 Operator: Hartanto
 Comment: Herwina

Instrument
 Model: U-2800 Spectrophotometer
 Serial Number: 1
 ROM Version: 2501 11

Instrument Parameters
 Measurement Type: Photometry
 Data Mode: Abs
 Number of Wavelengths: 1
 Wavelength 1: 249.5 nm
 Slit Width: 1.50 nm
 Lamp source: Auto
 Lamp change wavelength: 340.0 nm
 Baseline Correction: User 1
 Path Length: 10.0 mm
 (Abs values are corrected to 10 mm path length)

Std No. / Name	Abs(249.5)	Conc(mcg/ml)	diff	RD	t
1 Std 1	0.277	4.000	-0.004	-0.7452	-0.0771
2 Std 2	0.358	5.000	-0.017	-3.3620	-0.3478
3 Std 3	0.440	6.000	0.036	6.8800	0.7117
4 Std 4	0.511	7.000	-0.068	-13.205	-1.3661
5 Std 5	0.602	8.000	0.066	12.807	1.3249
6 Std 6	0.679	9.000	0.040	7.7638	0.8032
7 Std 7	0.752	10.000	-0.052	-10.138	-1.0488

Lampiran 8

SPSS WAKTU KADALUARSA

Case Processing Summary

	persen _amil um	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
waktu_kadaluwarsa	5	3	100.0%	0	.0%	3	100.0%
	10	3	100.0%	0	.0%	3	100.0%
	15	3	100.0%	0	.0%	3	100.0%

Descriptives

persen_amilum		Statistic	Std. Error
waktu_kadaluwarsa	5	Mean	1.79307E1
		95% Confidence Interval for Mean	.667105
		Lower Bound	1.50603E1
		Upper Bound	2.08010E1
		5% Trimmed Mean	.
		Median	1.80870E1
		Variance	1.335
		Std. Deviation	1.155459E0
		Minimum	16.705
		Maximum	19.000
		Range	2.295
		Interquartile Range	.
		Skewness	-.598
		Kurtosis	1.225
	10	Mean	1.98250E1
		95% Confidence Interval for Mean	2.502091
		Lower Bound	9.05937
		Upper Bound	3.05906E1
		5% Trimmed Mean	.

	Median		2.02160E1	
	Variance		18.781	
	Std. Deviation		4.333749E0	
	Minimum		15.309	
	Maximum		23.950	
	Range		8.641	
	Interquartile Range		.	
	Skewness		-.403	1.225
	Kurtosis		.	.
15	Mean		1.12340E1	1.062966
	95% Confidence Interval for Mean	Lower Bound	6.66043	
		Upper Bound	1.58076E1	
	5% Trimmed Mean		.	
	Median		1.13760E1	
	Variance		3.390	
	Std. Deviation		1.841112E0	
	Minimum		9.326	
	Maximum		13.000	
	Range		3.674	
	Interquartile Range		.	
	Skewness		-.345	1.225
	Kurtosis		.	.

Tests of Normality

	persen_a milum	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
waktu_kadaluwa	5	.220	3	.	.986	3	.776
rsa	10	.203	3	.	.994	3	.851
	15	.197	3	.	.996	3	.872

Tests of Normality

persen_a milum	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
waktu_kadaluwa 5	.220	3	.	.986	3	.776
rsa 10	.203	3	.	.994	3	.851
15	.197	3	.	.996	3	.872

a. Lilliefors Significance Correction

Oneway

Descriptives

waktu_kadaluwarsa

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimu m	Maximu m
					Lower Bound	Upper Bound		
5	3	1.79307E 1	1.155459	.667105	15.06035	20.80099	16.705	19.000
10	3	1.98250E 1	4.333749	2.50209 1	9.05937	30.59063	15.309	23.950
15	3	1.12340E 1	1.841112	1.06296 6	6.66043	15.80757	9.326	13.000
Total	9	1.63299E 1	4.599612	1.53320 4	12.79431	19.86546	9.326	23.950

Test of Homogeneity of Variances

waktu_kadaluwarsa

Levene Statistic	df1	df2	Sig.
1.861	2	6	.235

Lanjutan lampiran 8

ANOVA

waktu_kadaluwarsa

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	122.239	2	61.120	7.800	.021
Within Groups	47.012	6	7.835		
Total	169.251	8			

Post Hoc Tests**Multiple Comparisons**

waktu_kadaluwarsa

Tukey HSD

(I) persen _amilu m	(J) persen _amilu m	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
5	10	-1.894333	2.285518	.700	-8.90693	5.11826
	15	6.696667	2.285518	.059	-.31593	13.70926
10	5	1.894333	2.285518	.700	-5.11826	8.90693
	15	8.591000*	2.285518	.022	1.57840	15.60360
15	5	-6.696667	2.285518	.059	-13.70926	.31593
	10	-8.591000*	2.285518	.022	-15.60360	-1.57840

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