



Lampiran 1. Hasil Determinasi Tanaman Ganyong



KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS DIPONEGORO
FAKULTAS SAINS DAN MATEMATIKA
LAB. EKOLOGI & BIOSISTEMATIK DEPARTEMEN BIOLOGI
Jl. Prof. H Soedarto, SH Tembalang Semarang, 024 7474754, 024 76480923

SURAT KETERANGAN

Yang bertanda tangan dibawah ini, menyatakan bahwa mahasiswa sbb :

Nama	: Devi Yuliana Sumardiyani
NIM	: 125010807
Fakultas	: Farmasi
Perguruan Tinggi	: UNIVERSITAS WAHID HASYIM SEMARANG
Judul Penelitian	: Pengaruh Penambahan Amilum Ganyong (<i>Canna edulis</i> Kerr) Sebagai Bahan Penghancur Terhadap Sifat Fisik dan Pelepasan Tablet Dexamethason

Telah mendeterminasikan/mengidentifikasi sampel tumbuhan (satu jenis) di Laboratorium Ekologi dan Biosistematika Departemen Biologi FSM UNDIP. Hasil determinasi/identifikasi terlampir.

Demikian surat keterangan ini dibuat untuk dapat digunakan seperlunya.

Semarang, 31 Mei 2016
Laboratorium Ekologi & Biosistematik



Dr. Jaffron Wasig Hidayat, MSc
NIP. 19640325 199003 1001

Lanjutan Lampiran 1.



KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
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HASIL DETERMINASI

Klasifikasi:

Kingdom	: Plantae
SubKingdom	: Tracheobionta (Tumbuhan vaskuler)
Super Divisi	: Spermatophyta (Tumbuhan Berbiji)
Divisi	: Magnoliophyta (Tumbuhan berbunga)
Kelas	: Magnoliopsida (Dicotyledoneae)
Subkelas	: Zingiberideae
Ordo	: Zingiberales
Famili	: Cannaceae
Genus	: <i>Canna</i>
Species	: <i>Canna indica</i> L.
Sinonim	: <i>Canna edulis</i> Ker Gawl
Nama lokal	: Ganyong

Kunci Determinasi:

1b-2b-3b-4b-5b-7b-9b-10b-11a-(Gol. 5 Tumbuhan berkeping satu)-67b-69b-70b-71b-72b-73b-76b-77b-79b-81b-82b-83b-Fam 33. Cannaceae- Genus *Canna*-Species: *Canna indica* L.

Deskripsi:

Terna berimpang, tegak. Rimpang bercabang horizontal, panjangnya dapat mencapai 60 cm, dengan buku-buku yang berdaging menyerupai umbi, tertutup dengan sisik daun, dan serabut akar yang tebal. Batang berdaging, muncul dari rimpang, seringkali berwarna ungu. Daun tersusun secara spiral dengan pelepah besar terbuka, kadang-kadang bertangkai daun pendek; helaian daun membundar telur sempit sampai menjorong sempit. Perbungaan di ujung ranting, tandan, biasanya sederhana tetapi kadang-kadang bercabang, muncul tunggal atau berpasangan, tidak teratur, bunga biseksual. Kelopak membundar telur, mahkota memita, berwarna merah pucat sampai kuning, bibir bunga melonjong-membundar telur sempit, berbintik kuning dengan merah. Buah kapsul, membulat telur, merekah, bagian luar dengan duri-duri lunak. Biji banyak, membulat, halus dan keras, kehitaman sampai merah tua.

Lanjutan Lampiran 1.



Gambar: Tanaman dan umbi Ganyong (*Canna indica* L)

Pustaka:

1. Backer, C.A & Backuizen van den Brink. 1968. Flora of Java. Vol. I& Vol.II. Noordhof N.V. Gronigen. The Netherland
2. MBG [Missouri Botanical Garden]. 2010.
<http://www.theplantlist.org/tpl1.1/search?q=Canna> (31 Mei 2016)
3. Steenis, 1992. Flora Untuk Sekolah di Indonesia. Penerbit PT. Pradnya Paramita Jakarta
4. USDA Plant, 2016. Classification for Kingdom Plantae Down to Species *Canna indica* L.
<http://plants.usda.gov/core/profile?symbol=CAIN19> (31 Mei 2016)

Lampiran 2. Surat Keterangan Telah Selesai Melakukan Penelitian

 UNIVERSITAS WAHID HASYIM
FAKULTAS FARMASI
BAGIAN FARMASETIKA
Jl. Menoreh Tengah X / 22 Sampangan – Semarang 50236 Telp. (024) 8505680 – 8505681 fax. (024) 8505680

SURAT KETERANGAN
No. 02/Lab. Farmasetika/C.05/UWH/I/2017

Assalamu'alaikum Wr. Wb.

Yang bertanda tangan dibawah ini, Kepala Bagian Farmasi Fisika & Farmasetika Fakultas Farmasi Universitas Wahid Hasyim Semarang menerangkan bahwa :

Nama : Devi Yuliana S
NIM : 125010807
Fakultas : Farmasi

Telah melakukan formulasi di Laboratorium Teknologi Farmasi dalam rangka penelitian dengan judul :

“Pengaruh Penambahan Amilum Ganyong (*Canna edulis* Kerr.) sebagai Bahan Pengikat terhadap Sifat Fisik dan Pelepasan Tablet Dexamethaxon ”.

Demikian surat keterangan ini dibuat untuk dipergunakan semestinya.

Wassalamu'alaikum Wr. Wb.

Semarang, Januari 2017
Ka. Bag Farmasi Fisika & Farmasetika

Elva Zulfa, M.Sc, Apt

Lampiran 3. Sertifikat Analisis Dexamethason

86.14/0596 7/14

REVIEWED
 By Ila.aksari at 2:13 pm, Mar 22, 2016


天津天药药业股份有限公司
TIANJIN TIANYAO PHARMACEUTICALS CO., LTD.


CERTIFICATE OF ANALYSIS

Page: 1 / 1	
Product	Dexamethasone ✓
Batch No.	ND 160304 ✓
Test criteria	BP1993
Manufacturing date	2016.02.25 ✓
Report date	2016.03.08
Expiry date	2021.02.25 ✓
Test	Specifications
Results	
Appearance	A white or almost white, crystalline powder
White crystalline powder	
Melting point	About 255°C
259.0 ~ 260.0°C	
Identification	B: IR; C: TLC
Conforms	
Light absorption	380 ~ 410
389	
Specific optical rotation	+75° ~ +80°
+76°	
Related substances	1.0% < Only one impurity spot ≤ 2.0%
Conforms	
Loss on drying	≤ 0.5%
0.12%	
Assay*	98.0% ~ 104.0%
98.7%	
Particle size	Micronized
Conforms	
Batch size	67 kg
Quantity	25 kg
Conclusion	The above product conforms to BP1993.

*Storage conditions: Kept in a well-closed container and protected from light

*Calculated on the dried basis

Checked by: 3/8 2016. 3. 8

Approved by: 吴晓萍 2016. 3. 8


 天津市经济技术开发区西区群业九街19号 邮编: 300462
 No.19, JINYE 9th Street, West Area of Tianjin Economic-Technological Development Area, Tianjin 300462, China
 电话 (Telephone): 86 22 66321554 传真 (FAX): 86 22 66321556

Lampiran 4. Hasil Pemeriksaan Sifat Fisik Granul Dexamethason

a. Waktu Alir (detik)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	0,54	0,51	0,50	0,40
2	0,59	0,45	0,48	0,45
3	0,54	0,52	0,45	0,41
4	0,52	0,50	0,41	0,45
5	0,50	0,48	0,51	0,39
Rata-rata	0,54	0,49	0,47	0,42
SD	0,033	0,028	0,041	0,028

b. Sudut Diam ($^{\circ}$)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	12,529	11,889	7,962	7,800
2	13,829	10,437	10,929	7,853
3	11,309	12,875	8,366	5,932
4	13,335	11,634	8,130	5,932
5	13,335	11,717	10,304	5,819
Rata-rata	12,867	11,383	9,138	6,667
SD	0,988	1,133	1,375	1,059

c. Pengetapan (%)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	15,384	7,692	14,286	7,143
2	14,286	7,692	7,692	14,86
3	13,333	14,286	14,286	13,333
4	14,286	14,286	7,143	6,667
5	14,286	14,286	7,143	7,143
Rata-rata	2,886	11,648	10,110	9,714
SD	0,726	3,612	3,819	3,758

Lampiran 5. Hasil Pemeriksaan Sifat Fisik Tablet Dexamethason

a. Keseragaman Bobot Tablet

No	Bobot Rata-rata Tablet							
	F I	X	F II	X	F III	X	F IV	X
1	148	1,103	150	0,464	150	0,990	151	0,033
2	150	0,234	152	0,863	151	0,330	150	0,695
3	150	0,234	152	0,863	151	0,330	151	0,033
4	148	1,103	150	0,464	156	2,970	151	0,033
5	150	0,234	152	0,863	154	1,650	151	0,033
6	150	0,234	150	0,464	151	0,330	150	0,695
7	148	1,103	150	0,464	150	0,990	152	0,629
8	148	1,103	150	0,464	151	0,330	151	0,033
9	148	1,103	150	0,464	153	0,990	151	0,033
10	153	2,239	154	2,189	150	0,990	150	0,695
11	151	0,902	152	0,863	152	0,330	152	0,629
12	151	0,902	149	1,128	153	0,990	151	0,033
13	150	0,234	149	1,128	150	0,990	153	1,290
14	148	1,103	152	0,863	150	0,990	150	0,695
15	149	0,434	150	0,464	152	0,330	152	0,629
16	151	0,902	152	0,863	151	0,330	152	0,629
17	150	0,234	151	0,199	153	0,990	151	0,033
18	150	0,234	149	1,128	152	0,330	150	0,695
19	150	0,234	150	0,464	150	0,990	150	0,695
20	150	0,234	150	0,464	150	0,990	152	0,629
Rata-rata	149,65	0,705	150,7	0,756	151,5	0,858	151,05	0,443
SD	1,348	0,538	1,342	0,436	1,638	0,628	0,887	0,371
% CV	0,901		0,891		1,081		0,587	

Keterangan:

X= penyimpangan terhadap bobot rata-rata (%)

X= Rata-rata tablet (mg)

CV= Koefisien variasi (%)

$$X = \frac{x - \text{Berat tablet}}{x} \times 100\%$$

$$\%CV = \frac{SD}{X} \cdot 100\%$$

Lanjutan Lampiran 5.

b. Kekerasan Tablet (kg)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	60,7	73,2	76,9	82,7
2	67,3	78,5	77,9	81,6
3	65,8	79,0	78,3	87,8
4	67,7	71,6	74,1	79,6
5	66,3	74,1	76,1	81,9
Rata-rata	65,56	75,28	76,66	84,34
SD	2,821	3,296	1,669	3,061

c. Kerapuhan Tablet (%)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	0,515	0,441	0,402	0,299
2	0,508	0,447	0,410	0,333
3	0,481	0,453	0,435	0,433
Rata-rata	0,501	0,447	0,422	0,355
SD	0,018	0,006	0,017	0,069

d. Waktu Hancur Tablet (menit)

Replikasi	Formula I	Formula II	Formula III	Formula IV
1	3,11	6,04	8,06	9,37
2	3,02	5,56	8,11	9,54
3	3,03	6,54	8,27	9,50
Rata-rata	3,05	6,05	8,15	9,47
SD	0,049	0,490	0,109	0,089

Lampiran 6. Hasil Penetapan Kadar Obat dalam Tablet Dexamethason

replikasi	Kadar Dexamethason dalam Tablet (%)			
	Formula I	Formula II	Formula III	Formula IV
1	97,125	94,375	90,375	101,625
2	98,375	94,625	91,250	101,375
3	99,208	96,125	91,375	101,750
Rata-rata	98,208	95,041	91,000	101,583
SD	1,010	0,446	0,545	0,191



**Lampiran 7. Contoh Perhitungan Kadar Dexamethason Terlarut (mg) dalam
HCl 0,1 N pada Menit ke 45**

Tablet dexamethason 0,5 mg diuji disolusi, sampel diambil pada menit ke 45, dibaca serapannya dengan spektrofotometer UV diperoleh serapan sebesar 0,073. Hasil serapan dimasukkan ke persamaan $Y = 0,04051 x - 0,02709$ diperoleh kadar sebesar 2,569 µg/ml. Volume medium HCl 0,1 N sebanyak 500 ml.

$$Y = 0,040x - 0,023$$

Serapan 0,073

$$0,073 = 0,040x - 0,023$$

$$= 2,40 \mu\text{g/ml}$$

$$\text{Mg Zat Terlarut} = \frac{(\mu\text{g/ml}) \times \text{FP} \times \text{volume medium disolusi (ml)}}{1000}$$

$$= \frac{2,40 \mu\text{g/ml} \times 1 \times 500 \text{ ml}}{1000}$$

$$= 1,2 \mu\text{g/500 ml}$$

Kadar sesungguhnya dexamethason pada menit 45

$$= \frac{\text{Absorbansi}}{0,082} \times 0,5 \text{ mg}$$

$$= \frac{0,073}{0,082} \times 0,5 \text{ mg}$$

$$= 0,447 \text{ mg}$$

$$= 0,447 \text{ mg}$$

Lanjutan Lampiran 7.

$$= 0,445 \text{ mg}$$

% Kadar terlarut tablet Dexamethason pada menit 45

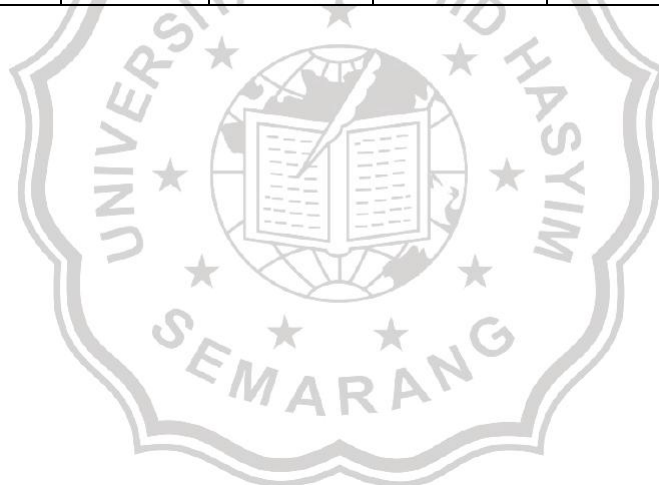
$$= \frac{0,445}{0,5} \times 100\%$$

$$= 89\%$$



Lampiran 8. Kadar Terlarut Tablet Dexamethason 0,5 mg pada Menit ke 45.

Replikasi	kadar terlarut tablet dexamethason 0,5 mg (%)			
	Formula I	Formula II	Formula III	Formula IV
1	97,561	91,463	89,024	96,341
2	98,780	92,683	90,243	97,561
3	100	93,902	90,243	95,122
4	96,341	91,463	92,683	98,780
5	97,561	92,683	87,805	96,341
6	100	95,122	91,463	97,561
Rata-rata	98,374	92,886	90,243	96,951
SD	0,00121	0,00116	0,00141	0,00105
%CV	0,00123	0,00126	0,00156	0,00108



Lampiran 9. Gambar Alat – Alat Penelitian



Pengering / Oven



Timbangan Analitik



Cube mixer



Pendular Granulator



Granul Flow Tester

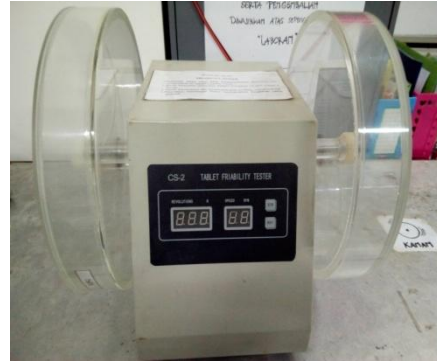


Tap Density Tester

Lanjutan Lampiran 9.



Mesin Tablet Single Punch



Freabilator



Hardness Tester



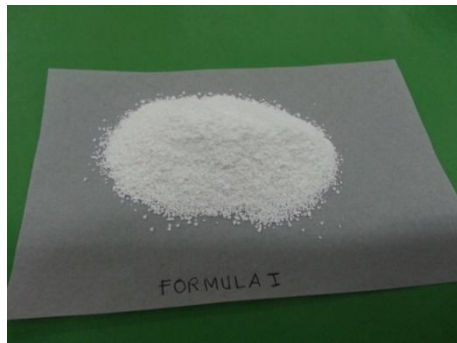
Disintegration Tester



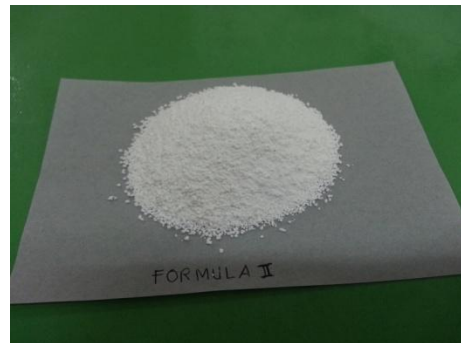
Dissolution Tester



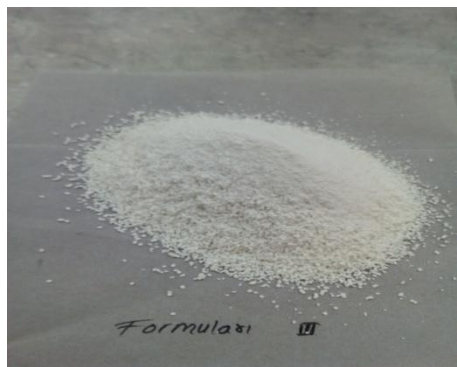
Alat – Alat Gelas

Lampiran 10. Gambar Serbuk Granul Semua Formula

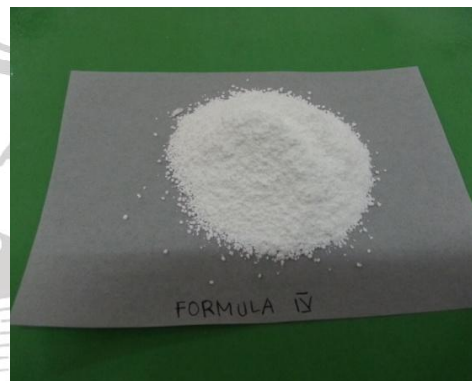
Granul Formula 1



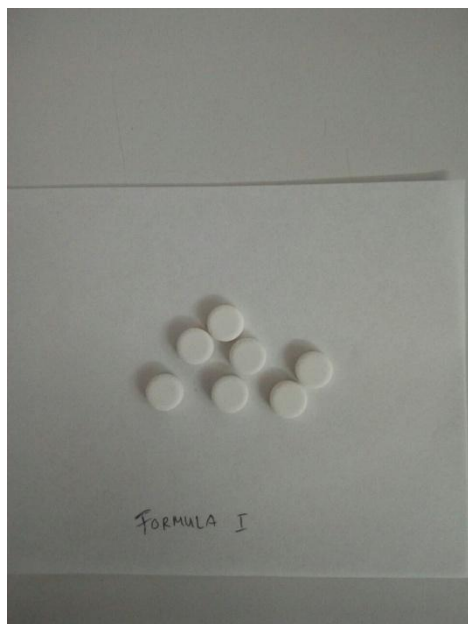
Granul Formula 2



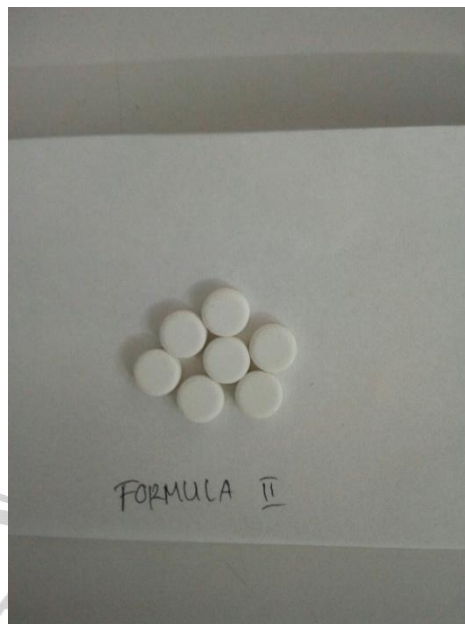
Granul Formula 3



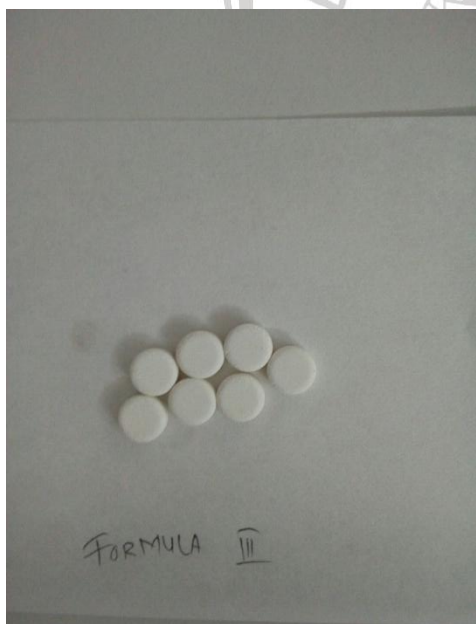
Granul Formula 4

Lampiran 11. Gambar Tablet Dexamethason

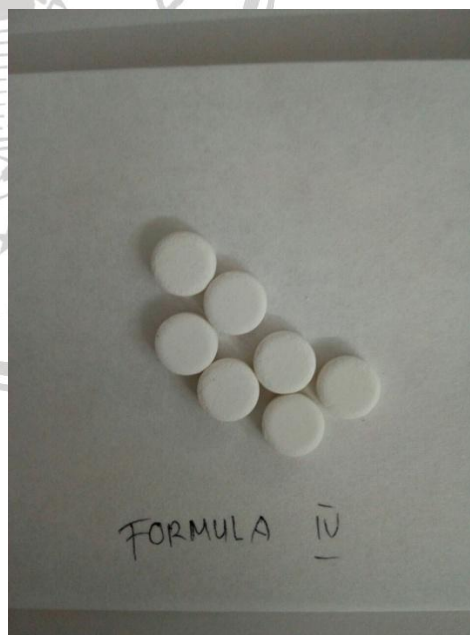
Tablet Formula 1



Tablet Formula 2



Tablet Formula 3



Tablet Formula 4

Lampiran 12. Hasil Analisis Statistik Regresi Linier Sederhana Pengaruh Penambahan Amilum Ganyong Sebagai Bahan Pengikat Terhadap Sifat Fisik dan Pelepasan Tablet Dexamethason.

UJI SIFAT FISIK GRANUL DEXAMETHASON

1. WAKTU ALIR

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		Enter

a. All requested variables entered.

b. Dependent Variable: waktualir

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.814 ^a	.662	.643	.03167

a. Predictors: (Constant), formula

b. Dependent Variable: waktualir

ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.035	1	.035	35.234	.000 ^a
	Residual	.018	18	.001		
	Total	.053	19			

a. Predictors: (Constant), formula

b. Dependent Variable: waktualir

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.574	.017		33.088	.000
Formula	-.038	.006	-.814	-5.936	.000

a. Dependent Variable: waktualir

2. SUDUT DIAM

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		. Enter

a. All requested variables entered.

b. Dependent Variable: sudutdiam

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901 ^a	.811	.801	1.268444

a. Predictors: (Constant), formula

b. Dependent Variable: sudutdiam

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	124.425	1	124.425	77.333	.000 ^a
	Residual	28.961	18	1.609		
	Total	153.386	19			

a. Predictors: (Constant), formula

b. Dependent Variable: sudutdiam

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.578	.695		22.423	.000
formula	-2.231	.254	-.901	-8.794	.000

a. Dependent Variable: sudutdiam

2. PENGETAPAN

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		Enter

a. All requested variables entered.

b. Dependent Variable: pengetapan

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.501 ^a	.251	.209	3.123112

a. Predictors: (Constant), formula

b. Dependent Variable: pengetapan

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.830	1	58.830	6.032	.024 ^a
	Residual	175.569	18	9.754		
	Total	234.399	19			

a. Predictors: (Constant), formula

a. Dependent Variable: pengetapan

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.282	1.711		8.934	.000
formula	-1.534	.625	-.501	-2.456	.024

a. Dependent Variable: penetapan

UJI SIFAT FISIK TABLET DEXAMETHASONE

1. KEKERASAN TABLET

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		. Enter

a. All requested variables entered.

b. Dependent Variable: kekerasantablet

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 ^a	.792	.781	3.1889

a. Predictors: (Constant), formula

b. Dependent Variable: kekerasantablet

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	698.545	1	698.545	68.693	.000 ^a
	Residual	183.045	18	10.169		
	Total	881.590	19			

a. Predictors: (Constant), formula

b. Dependent Variable: kekerasantablet

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	61.840	1.747		35.405	.000
	formula	5.286	.638	.890	8.288	.000

a. Dependent Variable: kekerasantablet

2. KERAPUHAN

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		Enter

a. All requested variables entered.

b. Dependent Variable: kerapuhan

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.862 ^a	.743	.718	.033844

a. Predictors: (Constant), formula

b. Dependent Variable: kerapuhan

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.033	1	.033	28.969	.000 ^a
	Residual	.011	10	.001		
	Total	.045	11			

a. Predictors: (Constant), formula

b. Dependent Variable: kerapuhan

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.547	.024		22.871	.000
	formula	-.047	.009	-.862	-5.382	.000

a. Dependent Variable: kerapuhan

3. WAKTU HANCUR

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formula ^a		Enter

a. All requested variables entered.

b. Dependent Variable: waktuhancur

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.981 ^a	.962	.958	32.208

a. Predictors: (Constant), formula

b. Dependent Variable: waktuhancur

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	262020.417	1	262020.417	252.578	.000 ^a
	Residual	10373.833	10	1037.383		
	Total	272394.250	11			

a. Predictors: (Constant), formula

b. Dependent Variable: waktuhancur

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	80.833	22.775		3.549	.005
	formula	132.167	8.316	.981	15.893	.000

a. Dependent Variable: waktuhancur

3. PENETAPAN KADAR

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formulasi ^a		. Enter

a. All requested variables entered.

b. Dependent Variable: penetapankadar

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.174 ^a	.030	-.067	4.138550

a. Predictors: (Constant), formulasi

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.174 ^a	.030	-.067	4.138550

b. Dependent Variable: penetapankadar

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.330	1	5.330	.311	.589 ^a
	Residual	171.276	10	17.128		
	Total	176.606	11			

a. Predictors: (Constant), formulasi

b. Dependent Variable: penetapankadar

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	94.399	2.926		32.258	.000
	formulasi	.596	1.069	.174	.558	.589

a. Dependent Variable: penetapankadar

4. DISOLUSI

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	formulasi ^a		. Enter

a. All requested variables entered.

b. Dependent Variable: penetapankadar

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.221 ^a	.049	.005	3.566925

a. Predictors: (Constant), formulasi

b. Dependent Variable: penetapankadar

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.329	1	14.329	1.126	.300 ^a
	Residual	279.905	22	12.723		
	Total	294.234	23			

a. Predictors: (Constant), formulasi

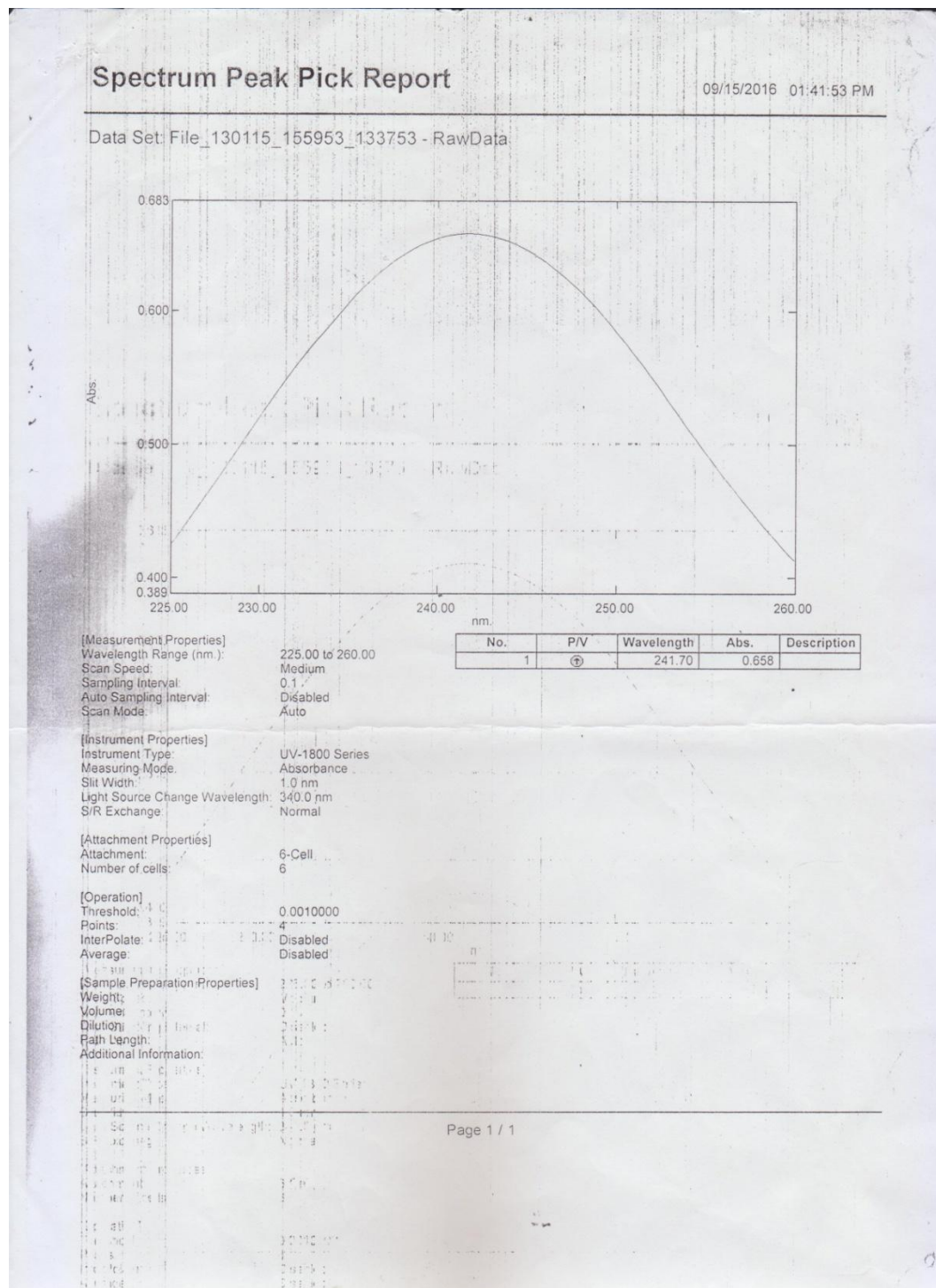
b. Dependent Variable: penetapankadar

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	96.341	1.783		54.019	.000
	formulasi	-.691	.651	-.221	-1.061	.300

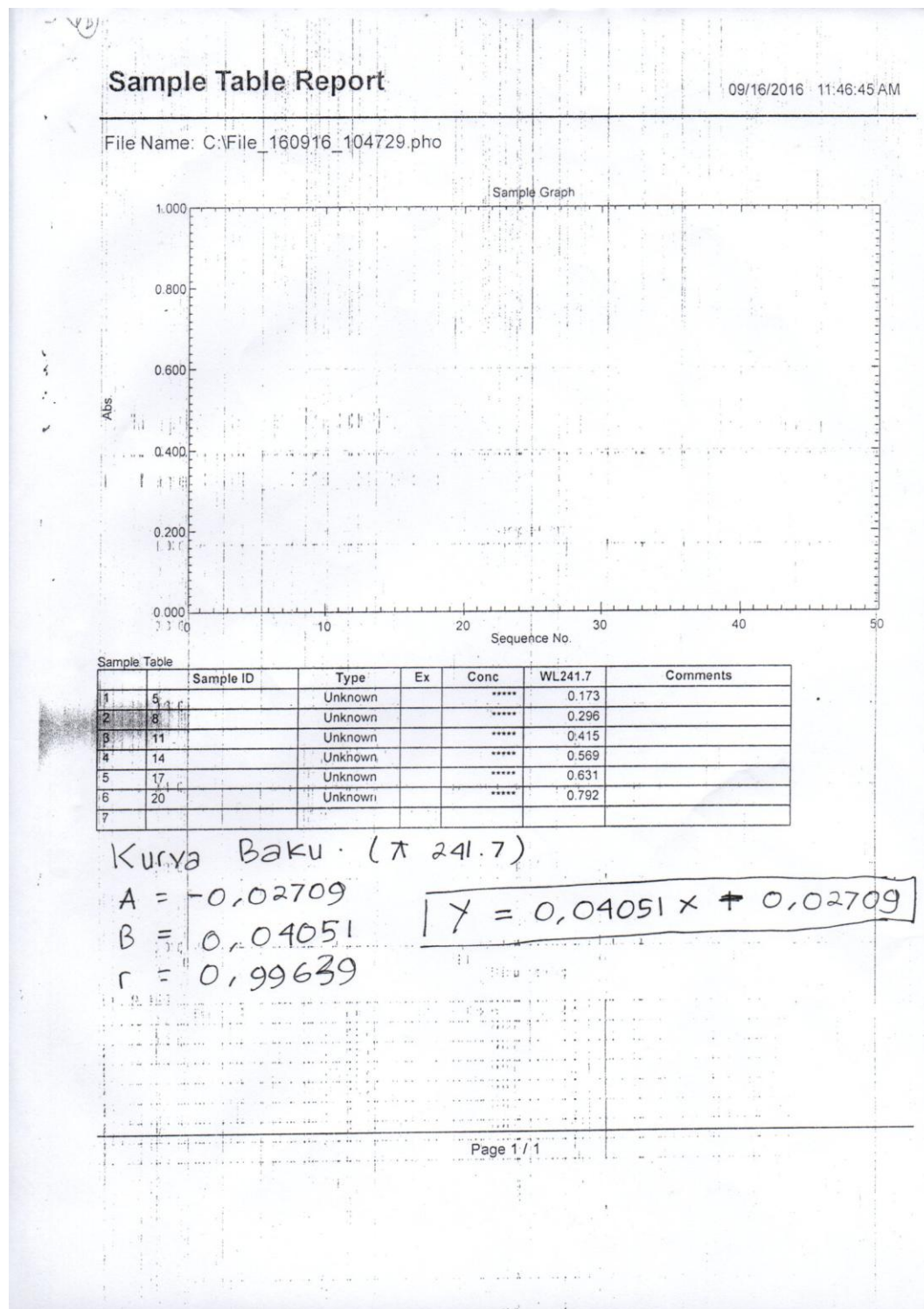
a. Dependent Variable: penetapankadar

Lampiran 12. Hasil Spektrofotometri UV Penentuan Panjang Gelombang

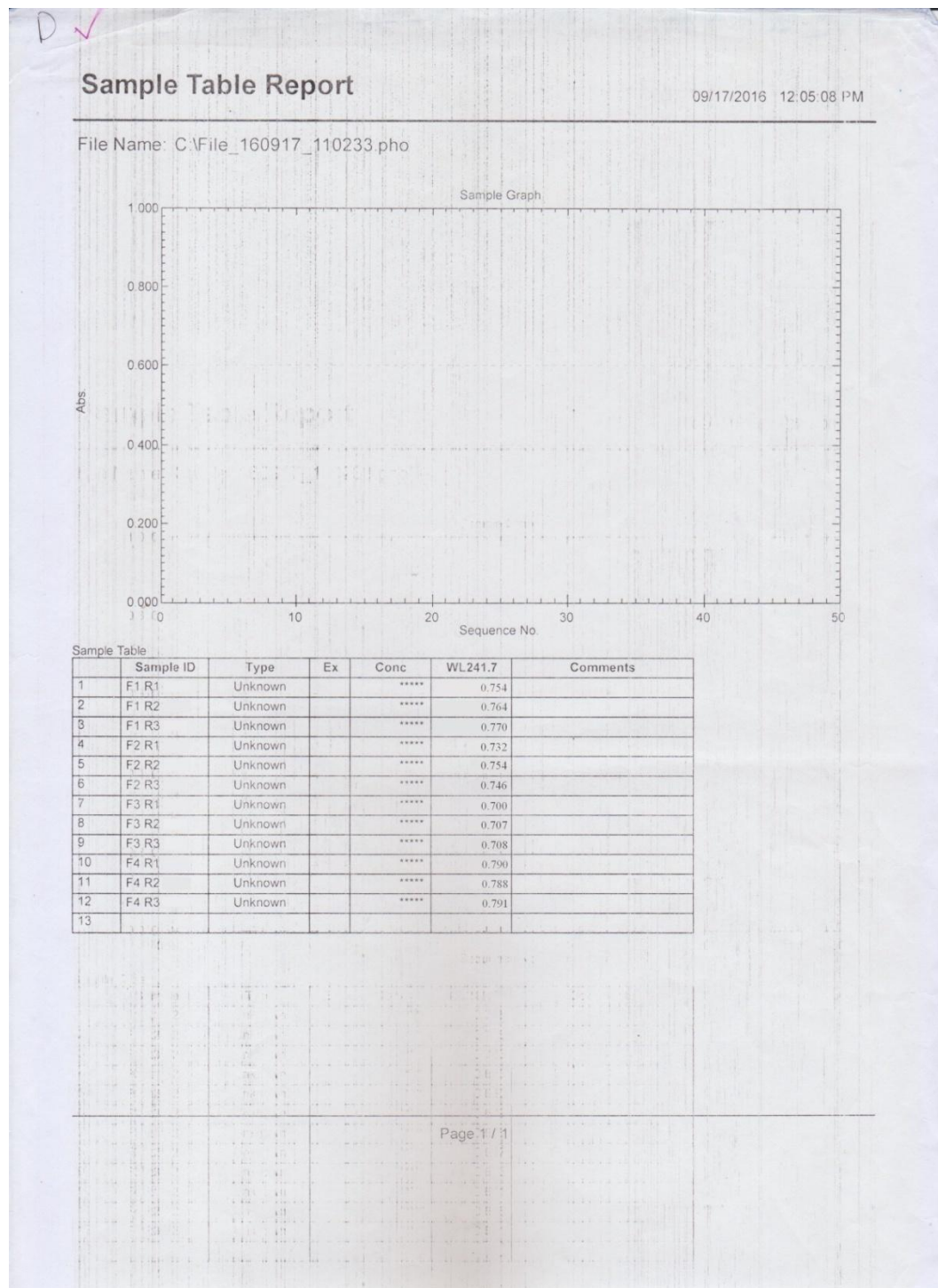




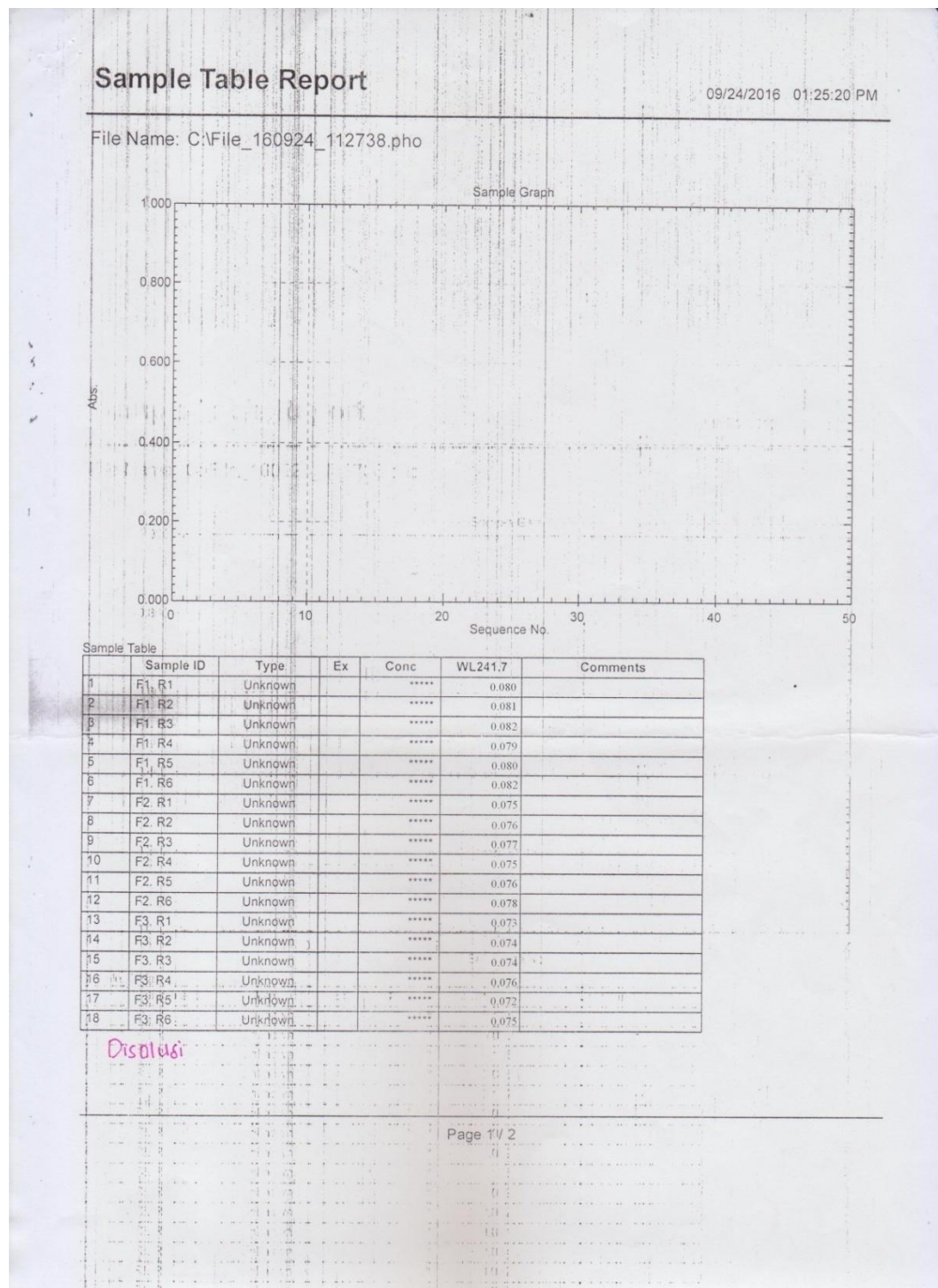
Lampiran 14. Hasil Spektrofotometri UV Penentuan Kurva Baku



Lampiran 15. Hasil Spektrofotometri UV Penetapan Kadar



Lampiran 16. Hasil Spektrofotometri UV Uji Disolusi



Lanjutan Lampiran 16.

