

## LAMPIRAN

### Lampiran 1.

Timeline penelitian.

Tanggal	Kegiatan
15 desember 2015	Pengerjaan proposal permohonan penelitian di PAU UGM
9 januari 2016	<i>Survey</i> tikus putih
15 januari 2016	Pengajuan proposal penelitian
16 januari 2016	Pembelian metformin dan streptozotocin
17 januari 2016	<i>Survey</i> daun kersen
15 februari 2016	Persiapan kandang di lab PAU
16 februari – 23 februari 2016	Adaptasi tikus
23 februari 2016	Pengambilan sampel GDP, SGOT, SGPT, HDL, LDL, TG, Kolesterol
24 februari 2016	Induksi STZ-NA
28 februari 2016	Pengambilan sampel GDP, SGOT, SGPT, HDL, LDL, TG, Kolesterol
29 februari 2016	Persiapan seduhan daun kersen
29 februari – 13 maret 2016	Intervensi seduhan daun kersen
14 maret 2016	Pengambilan sampel GDP, SGOT, SGPT, HDL, LDL, TG, Kolesterol, MDA, GPx, SOD

## Lampiran 2.

### Hasil uji analisis data SPSS.

a) Rerata berat badan tikus sebelum induksi STZ-NA dan sebelum perlakuan.

**Report**

Kelompok Perlakuan		Berat Badan sebelum STZ	Berat Badan Sebelum Perlakuan
Normal	Mean	171.83	178.67
	N	6	6
	Std. Deviation	10.304	11.219
negatif	Mean	168.50	171.50
	N	6	6
	Std. Deviation	21.998	21.998
positif	Mean	179.83	183.67
	N	6	6
	Std. Deviation	15.224	15.253
P1	Mean	169.50	173.17
	N	6	6
	Std. Deviation	16.121	15.804
P2	Mean	176.17	179.83
	N	6	6
	Std. Deviation	14.851	14.798
P3	Mean	184.00	188.50
	N	6	6
	Std. Deviation	10.640	11.606
Total	Mean	174.97	179.22
	N	36	36
	Std. Deviation	15.313	15.534

b) Normalitas data GDP.

**Tests of Normality**

KP		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
GDP Sebelum STZ	Normal	.146	6	.200*	.979	6	.946
	Negatif	.161	6	.200*	.954	6	.773
	positif	.180	6	.200*	.957	6	.795
	P1(250 mg kersen)	.190	6	.200*	.956	6	.786
	P2(500 mg kersen)	.229	6	.200*	.864	6	.204
	P3(750 mg kersen)	.167	6	.200*	.949	6	.733
GDP Sesudah STZ	Normal	.199	6	.200*	.958	6	.802
	Negatif	.170	6	.200*	.946	6	.708
	positif	.227	6	.200*	.956	6	.787
	P1(250 mg kersen)	.209	6	.200*	.928	6	.568
	P2(500 mg kersen)	.165	6	.200*	.989	6	.986
	P3(750 mg kersen)	.200	6	.200*	.936	6	.626
GDP Sesudah Kersen	Normal	.163	6	.200*	.957	6	.795
	Negatif	.178	6	.200*	.946	6	.707
	positif	.151	6	.200*	.980	6	.953
	P1(250 mg kersen)	.181	6	.200*	.941	6	.669
	P2(500 mg kersen)	.139	6	.200*	.963	6	.839
	P3(750 mg kersen)	.212	6	.200*	.912	6	.449

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

## c) Homogenitas data GDP.

Test of Homogeneity of Variance

		Levene Statistic	df 1	df 2	Sig.
GDP Sebelum STZ	Based on Mean	.308	5	30	.905
	Based on Median	.295	5	30	.912
	Based on Median and with adjusted df	.295	5	26.373	.911
	Based on trimmed mean	.307	5	30	.905
GDP Sesudah STZ	Based on Mean	3.129	5	30	.022
	Based on Median	2.924	5	30	.029
	Based on Median and with adjusted df	2.924	5	19.170	.040
	Based on trimmed mean	3.123	5	30	.022
GDP Sesudah Kersen	Based on Mean	4.641	5	30	.003
	Based on Median	4.073	5	30	.006
	Based on Median and with adjusted df	4.073	5	17.466	.012
	Based on trimmed mean	4.603	5	30	.003

## d) Rerata kadar GDP 6 kelompok.

Report

KP		GDP Sebelum STZ	GDP Sesudah STZ	GDP Sesudah Kersen
Normal	Mean	58.5233	58.8167	59.2150
	N	6	6	6
	Std. Deviation	1.53022	1.71887	1.84952
Negatif	Mean	60.7333	213.3200	214.2283
	N	6	6	6
	Std. Deviation	2.26798	5.71214	5.26715
positif	Mean	59.4700	206.8217	99.2550
	N	6	6	6
	Std. Deviation	1.62443	1.91776	1.57444
P1(250 mg kersen)	Mean	62.2467	211.0050	157.6567
	N	6	6	6
	Std. Deviation	1.72179	4.26886	1.88026
P2(500 mg kersen)	Mean	59.9750	207.5283	136.9917
	N	6	6	6
	Std. Deviation	1.91065	2.22048	2.35347
P3(750 mg kersen)	Mean	58.8383	211.8400	103.1150
	N	6	6	6
	Std. Deviation	2.08355	3.18844	2.42234
Total	Mean	59.9644	184.8886	128.4103
	N	36	36	36
	Std. Deviation	2.14967	57.31869	50.04926

e) *Paired t-test* GDP pada kelompok normal, negatif, positif, P1, P2 dan P3.

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP Minggu 1 (Normal) - GDP Minggu 2(Normal)	-.29333	.30467	.12438	-.61307	.02640	-2.358	5	.065
Pair 2	GDP Minggu 2(Normal) - GDP Minggu 4(Normal)	-.39833	.24095	.09837	-.65119	-.14547	-4.049	5	.010

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP Sebelum STZ(Negatif) - GDP Sesudah STZ(Negatif)	-152.587	5.70807	2.33031	-158.577	-146.596	-65.479	5	.000
Pair 2	GDP Sesudah STZ(Negatif) - GDP akhir(tanpa perlakuan)	-.90833	.73262	.29909	-1.67717	-.13949	-3.037	5	.029

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP sebelum STZ(positif) - GDP sesudah STZ(positif)	-147.352	2.09253	.85427	-149.548	-145.156	-172.488	5	.000
Pair 2	GDP sesudah STZ(positif) - GDP Sesudah Mef ormin	107.56667	.53772	.21952	107.00236	108.13097	489.998	5	.000

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP Sebelum STZ(P1) - GDP Sesudah STZ(P1)	-148.758	4.67916	1.91026	-153.669	-143.848	-77.873	5	.000
Pair 2	GDP Sesudah STZ(P1) - GDP Sesudah kersen(P1)	53.34833	3.33242	1.36045	49.85117	56.84549	39.214	5	.000

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP Sebelum STZ(P2) - GDP Sesudah STZ(P2)	-147.553	2.84999	1.16351	-150.544	-144.562	-126.818	5	.000
Pair 2	GDP Sesudah STZ(P2) - GDP Sesudah Kersen(P2)	70.53667	.75277	.30732	69.74668	71.32665	229.523	5	.000

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	GDP Sebelum STZ(P3) - GDP Sesudah STZ(P3)	-153.002	2.19411	.89574	-155.304	-150.699	-170.810	5	.000
Pair 2	GDP Sesudah STZ(P3) - GDP Sesudah Kersen(P3)	108.72500	1.82749	.74607	106.80717	110.64283	145.731	5	.000

f) Uji beda *One way ANOVA* GDP.

#### Test of Homogeneity of Variances

GDP sebelum -GDP sesudah perlakuan

Levene Statistic	df 1	df 2	Sig.
3.699	5	30	.010

#### ANOVA

GDP sebelum -GDP sesudah perlakuan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72447.843	5	14489.569	5464.348	.000
Within Groups	79.550	30	2.652		
Total	72527.392	35			

#### Descriptives

GDP sebelum -GDP sesudah perlakuan

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Normal	6	-.3983	.23651	.09655	-.6465	-.1501	-.74	-.13
Negatif	6	-.9067	.72943	.29779	-1.6722	-.1412	-2.07	-.21
Positif	6	107.5650	.53810	.21968	107.0003	108.1297	106.95	108.41
P1	6	53.3483	3.33637	1.36207	49.8470	56.8496	51.44	60.00
P2	6	70.5367	.75277	.30732	69.7467	71.3267	69.86	71.99
P3	6	108.7217	1.82603	.74547	106.8054	110.6380	106.70	111.03
Total	36	56.4778	45.52155	7.58692	41.0755	71.8801	-2.07	111.03

g) Post-hoc Tuckey HSD GDP

## Multiple Comparisons

Dependent Variable: GDP sebelum -GDP sesudah perlakuan  
Tukey HSD

(I) Kelompok perlakuan	(J) Kelompok perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Normal	Negatif	.50833	.94015	.994	-2.3512	3.3679
	Positif	-107.96333*	.94015	.000	-110.8229	-105.1038
	P1	-53.74667*	.94015	.000	-56.6062	-50.8871
	P2	-70.93500*	.94015	.000	-73.7946	-68.0754
Negatif	Normal	-.50833	.94015	.994	-3.3679	2.3512
	Positif	-108.47167*	.94015	.000	-111.3312	-105.6121
	P1	-54.25500*	.94015	.000	-57.1146	-51.3954
	P2	-71.44333*	.94015	.000	-74.3029	-68.5838
Positif	Normal	107.96333*	.94015	.000	105.1038	110.8229
	Negatif	108.47167*	.94015	.000	105.6121	111.3312
	P1	54.21667*	.94015	.000	51.3571	57.0762
	P2	37.02833*	.94015	.000	34.1688	39.8879
P1	Normal	53.74667*	.94015	.000	50.8871	56.6062
	Negatif	54.25500*	.94015	.000	51.3954	57.1146
	Positif	-54.21667*	.94015	.000	-57.0762	-51.3571
	P2	-17.18833*	.94015	.000	-20.0479	-14.3288
P2	Normal	-55.37333*	.94015	.000	-58.2329	-52.5138
	Normal	70.93500*	.94015	.000	68.0754	73.7946
	Negatif	71.44333*	.94015	.000	68.5838	74.3029
	Positif	-37.02833*	.94015	.000	-39.8879	-34.1688
P3	P1	17.18833*	.94015	.000	14.3288	20.0479
	P3	-38.18500*	.94015	.000	-41.0446	-35.3254
	Normal	109.12000*	.94015	.000	106.2604	111.9796
	Negatif	109.62833*	.94015	.000	106.7688	112.4879
P3	Positif	1.15667	.94015	.819	-1.7029	4.0162
	P1	55.37333*	.94015	.000	52.5138	58.2329
	P2	38.18500*	.94015	.000	35.3254	41.0446

\*. The mean difference is significant at the .05 level.

## h) Normalitas data kadar MDA

Kelompok Perlakuan	Kolmogorov- Smirnov(a)			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Kadar MDA Sesudah Seduhan Daun Kersen	Normal	.176	6	.200(*)	.909	6	.430
	Negatif	.148	6	.200(*)	.989	6	.988
	Positif	.155	6	.200(*)	.962	6	.837
	P1 (250mg daun kersen)	.284	6	.143	.906	6	.413
	P2 (500mg daun kersen)	.222	6	.200(*)	.970	6	.891
	P3 (750mg daun kersen)	.127	6	.200(*)	.982	6	.960

i) *One way Anova* antar kelompok**Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
.250	5	30	.936

**ANOVA**

## Kadar MDA Sesudah Seduhan Daun Kersen

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	220.907	5	44.181	1128.453	.000
Within Groups	1.175	30	.039		
Total	222.082	35			

## Multiple Comparisons

Dependent Variable: Kadar MDA Sesudah Seduhan Daun Kersen

Tukey HSD

(I) Kelompok Perlakuan	(J) Kelompok Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Normal	Negatif	-7.31167*	.11424	.000	-7.6591	-6.9642
	Positif	-1.03000*	.11424	.000	-1.3775	-.6825
	P1 (250mg daun kersen)	-4.71333*	.11424	.000	-5.0608	-4.3659
	P2 (500mg daun kersen)	-2.96667*	.11424	.000	-3.3141	-2.6192
	P3 (750mg daun kersen)	-1.43167*	.11424	.000	-1.7791	-1.0842
Negatif	Normal	7.31167*	.11424	.000	6.9642	7.6591
	Positif	6.28167*	.11424	.000	5.9342	6.6291
	P1 (250mg daun kersen)	2.59833*	.11424	.000	2.2509	2.9458
	P2 (500mg daun kersen)	4.34500*	.11424	.000	3.9975	4.6925
	P3 (750mg daun kersen)	5.88000*	.11424	.000	5.5325	6.2275
Positif	Normal	1.03000*	.11424	.000	.6825	1.3775
	Negatif	-6.28167*	.11424	.000	-6.6291	-5.9342
	P1 (250mg daun kersen)	-3.68333*	.11424	.000	-4.0308	-3.3359
	P2 (500mg daun kersen)	-1.93667*	.11424	.000	-2.2841	-1.5892
	P3 (750mg daun kersen)	-.40167*	.11424	.016	-.7491	-.0542
P1 (250mg daun kersen)	Normal	4.71333*	.11424	.000	4.3659	5.0608
	Negatif	-2.59833*	.11424	.000	-2.9458	-2.2509
	Positif	3.68333*	.11424	.000	3.3359	4.0308
	P2 (500mg daun kersen)	1.74667*	.11424	.000	1.3992	2.0941
	P3 (750mg daun kersen)	3.28167*	.11424	.000	2.9342	3.6291
P2 (500mg daun kersen)	Normal	2.96667*	.11424	.000	2.6192	3.3141
	Negatif	-4.34500*	.11424	.000	-4.6925	-3.9975
	Positif	1.93667*	.11424	.000	1.5892	2.2841
	P1 (250mg daun kersen)	-1.74667*	.11424	.000	-2.0941	-1.3992
	P3 (750mg daun kersen)	1.53500*	.11424	.000	1.1875	1.8825
P3 (750mg daun kersen)	Normal	1.43167*	.11424	.000	1.0842	1.7791
	Negatif	-5.88000*	.11424	.000	-6.2275	-5.5325
	Positif	.40167*	.11424	.016	.0542	.7491
	P1 (250mg daun kersen)	-3.28167*	.11424	.000	-3.6291	-2.9342
	P2 (500mg daun kersen)	-1.53500*	.11424	.000	-1.8825	-1.1875

\*. The mean difference is significant at the .05 level.



### Lampiran 3.

Tabel 9. Konversi dosis berbagai senyawa bioaktif pada hewan dan manusia (Lawrence & Banach, 1964) dalam Suhardinata (2015).

	Mencit	Tikus	Marmot	Kelinci	Kera	Anjing	Manusia
Mencit (20g)	1,0	7,0	12,25	27,8	64,1	124,2	387,9
Tikus (200g)	1,14	1,0	1,74	3,9	9,2	17,8	56,0
Marmot (400g)	0,08	0,57	1,0	2,25	5,2	10,2	31,15
Kelinci (1,5kg)	0,04	0,25	0,44	1,0	2,4	4,5	14,2
Kera (4kg)	0,016	0,11	0,19	0,42	1,0	1,9	6,1
Anjing (12kg)	0,008	0,06	0,10	0,22	0,521	1,0	3,1
Manusia (70kg)	0,0026	0,018	0,031	0,07	0,161	0,31	1,0

#### 1. Metformin

Dosis metformin pada manusia adalah 50mg/kgBB, dosis ini kemudian dikonversi untuk tikus putih seperti pada tabel diatas, maka didapatkan dosis untuk tikus putih sebagai berikut:  $50\text{mg} \times 0,018 = 0,9\text{mg}/200\text{gramBB}$ . Maka dosis yang digunakan pada tikus yaitu 0,9mg/200gramBB/hari.

#### 2. Streptozotocin

Dosis yang digunakan adalah 65mg/kgBB secara intraperitoneal untuk membuat tikus menjadi DM tipe 2 (Massiello *et al.*, 2006).

#### 3. Nicotinamide

Dosis yang digunakan adalah 230mg/kgBB secara intraperitoneal untuk membuat tikus menjadi DM tipe 2 (Massiello *et al.*, 2006).