

**LAMPIRAN 1. Kriteria kitosan yang dibeli dari PT BIOTECH SURINDO dan
Report of Analysis SUCOFINDO**



LAMPIRAN 2. Kuisisioner Survei Tingkat Konsumsi Kerang

Survei ini dilakukan untuk mengetahui tingkat konsumsi kerang masyarakat Semarang. Berikut ini ada beberapa pertanyaan yang diperlukan untuk kepentingan di atas. Diharapkan Anda dapat menjawab pertanyaan ini dengan baik.

Nama :

Jenis Kelamin : L / P

Usia :

Berat Badan :

Dalam 1 minggu, Anda mengonsumsi masakan kerang berapa kali?

1x 2x 3x > 3x

Berapa banyak kerang yang Anda konsumsi dalam sekali makan?

10 butir 20 butir 30 butir 40 butir > 40 butir

Terima kasih

The logo of Universitas Katolik Soegijapranata is a large, semi-transparent watermark in the background. It features a central shield with a white cross and a book, surrounded by a yellow border with the university's name in Indonesian: 'UNIVERSITAS KATOLIK SOEGIJAPRANATA'.

LAMPIRAN 3. Rata-rata Berat Kerang Darah

Berat kerang (gr)
7.414
7.741
6.456
6.885
6.597
4.715
5.158
4.950
5.170
5.041
4.615
4.645
6.184
4.762
4.888
5.714
5.263
6.180
5.909
5.925
6.046
6.185
6.233
5.065
6.293
Total : 144.034 gr
Rata-rata : 1.92 gr

Keterangan: masing-masing berat kerang di atas merupakan gabungan dari 3 kerang dalam 1 cawan.



LAMPIRAN 4. Hasil Survei Tingkat Konsumsi Kerang

No.	Nama	Jenis Kelamin	Usia	Berat Badan (kg)	Konsumsi Kerang (per minggu)	Banyak Konsumsi (ekor)
1	Maria A. C.	P	26	52	1	10
2	Nike L	P	24	55	1	10
3	Yuli	P	22	48	1	10
4	Natalia	P	21	44	1	10
5	Lala	P	25	50	1	10
6	Ina	P	21	60	1	10
7	Metta	P	23	48	1	10
8	Kartika	P	21	50	1	10
9	Ayu	P	35	72	1	10
10	Dian	P	22	51	1	10
11	Hany	P	25	58	1	10
12	Sylvia	P	26	51	1	10
13	Sri Erawati	P	33	60	1	10
14	Dina	P	24	50	1	10
15	Chusnul R. D	P	24	55	1	10
16	Triana K. D	P	20	43	1	10
17	Imaniar A	P	21	55	1	10
18	Novita	P	34	60	1	10
19	Trifosa K.	P	22	44	1	20
20	Melani P.	P	22	68	1	20
21	Marta R.	P	23	60	1	20
22	Kuntum R.	P	29	59	1	20
23	Felisia	P	28	45	1	20
24	Santi	P	24	57	1	20
25	Dewi	P	28	60	1	20
26	Donna	P	25	51	1	20
27	Yunita	P	22	40	1	20
28	Theresia	P	21	52	1	20
29	Marlinda	P	22	54	1	20
30	Ina	P	21	56	1	20
31	Linda	P	27	55	1	20
32	Stephanie	P	31	75	1	20
33	Agustina	P	24	52	1	20
34	Rina	P	20	53	1	20
35	Monica S.	P	21	40	1	30
36	Rida L. D.	P	24	45	1	40
37	Sarita	P	21	48	1	40
38	Lani	P	28	52	2	30
39	Iin	P	31	50	3	20
40	Keshia	P	30	67	4	30
Rata-rata				53,625	1,15	17,25

Dengan asumsi :

Kerang yang dikonsumsi adalah kerang berukuran sedang dengan berat rata-rata 1,9 gr.

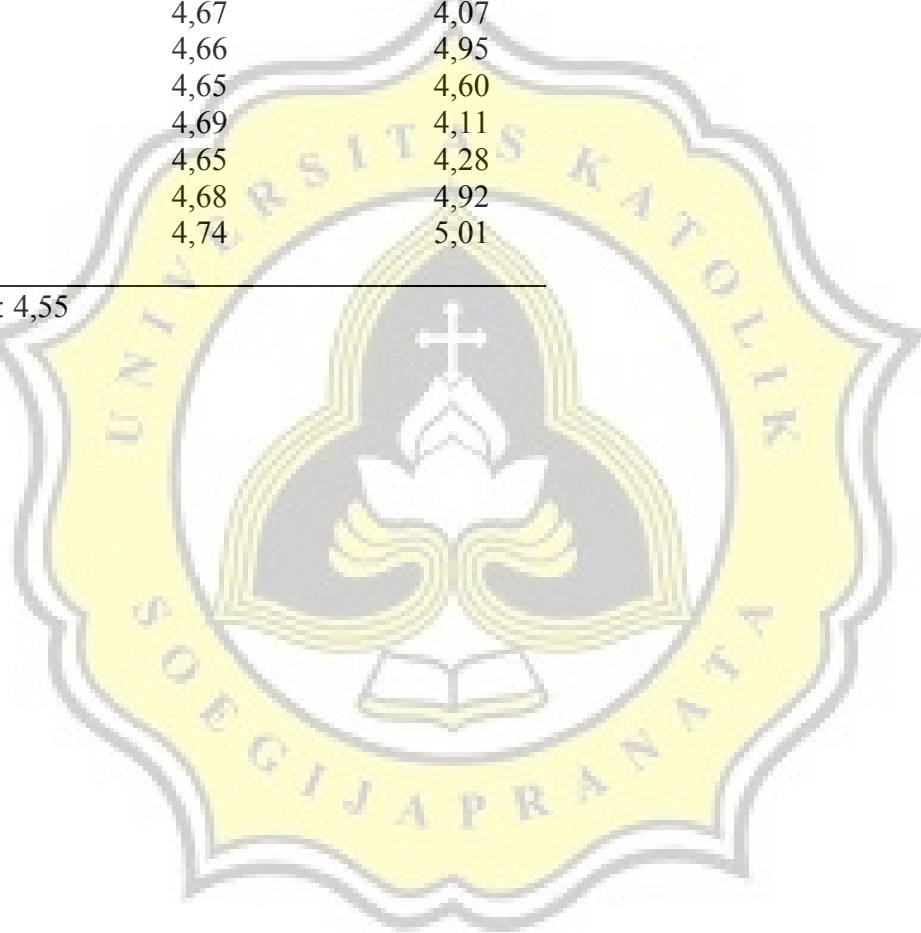
LAMPIRAN 5. Penyeragaman Kerang Darah Uji Pendahuluan

Berat (gr)	Berat (gr)	Berat (gr)
4,64	4,84	4,68
4,74	4,66	4,70
4,39	4,29	4,10
4,25	4,60	4,83
4,23	4,41	4,04
4,46	4,59	4,86
4,74	4,68	4,32
4,24	4,74	4,11
4,79	4,67	4,07
4,65	4,66	4,95
4,84	4,65	4,60
4,52	4,69	4,11
4,30	4,65	4,28
4,24	4,68	4,92
4,80	4,74	5,01

Rata-rata : 4,55

SD : 0,26

CV : 6%



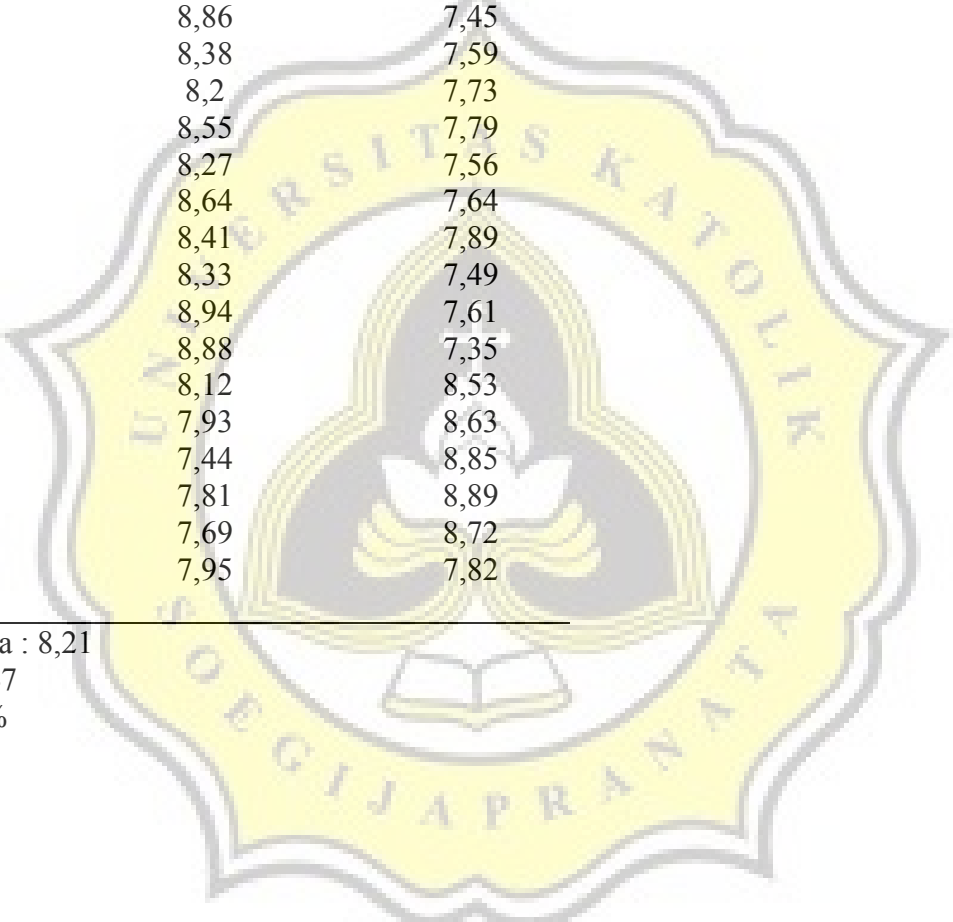
LAMPIRAN 6. Penyeragaman Kerang Darah Uji Utama

Berat (gr)	Berat (gr)	Berat (gr)
8,24	8,8	7,42
8,43	8,41	7,62
8,77	8,78	7,57
8,78	8,23	7,63
8,78	8,92	7,52
8,68	8,97	7,68
8,03	8,23	7,64
8,14	8,36	7,87
8,22	8,42	7,42
8,49	8,86	7,45
8,15	8,38	7,59
8,22	8,2	7,73
8,83	8,55	7,79
8,17	8,27	7,56
8,16	8,64	7,64
8,11	8,41	7,89
8,13	8,33	7,49
8,14	8,94	7,61
8,01	8,88	7,35
8,5	8,12	8,53
8,51	7,93	8,63
8,55	7,44	8,85
8,72	7,81	8,89
8,49	7,69	8,72
8,89	7,95	7,82

Rata-rata : 8,21

SD : 0,47

CV : 6%



LAMPIRAN 7. Kandungan Logam Cd Uji Pendahuluan

Sampel	Ulangan	Berat basah (gr)	Berat kering (gr)	Kadar Air	Abs Cd	Kadar Cd (mg/kg)	Konversi KA (mg/kg berat basah)
asam					0.084		
kontrol	1	3.64	0.75	79.40%	0.219	2.70	0.5562
	2	3.68	0.65	82.34%	0.229	2.90	0.5121
	3	3.60	0.62	82.78%	0.210	2.52	0.4339
Rata-rata						2.71	0.5008
SD						0.19	0.0619
0,5%	1	3.19	0.67	79.00%	0.242	3.16	0.6636
	2	3.15	0.69	78.10%	0.231	2.94	0.6439
	3	3.15	0.67	78.73%	0.181	1.94	0.4126
Rata-rata						2.68	0.5734
SD						0.65	0.1395
1%	1	2.80	0.58	79.29%	0.209	2.50	0.5178
	2	3.18	0.59	81.45%	0.207	2.46	0.4563
	3	3.14	0.56	82.17%	0.199	2.30	0.4101
Rata-rata						2.42	2.4614
SD						0.11	0.0540
3%	1	2.70	0.64	76.30%	0.213	2.58	0.6115
	2	3.19	0.74	76.80%	0.177	1.86	0.4315
	3	3.11	0.69	77.81%	0.164	1.60	0.3550
Rata-rata						2.01	0.4660
SD						0.51	0.1316
5%	1	3.31	0.72	78.25%	0.184	2.00	0.4350
	2	3.95	0.72	81.77%	0.174	1.80	0.3281
	3	3.20	0.68	78.75%	0.165	1.62	0.3443
Rata-rata						1.81	0.3691
SD						0.19	0.0576

LAMPIRAN 8. Kandungan Logam Cu Uji Pendahuluan

Sampel	Ulangan	Berat basah (gr)	Berat kering (gr)	Kadar Air	Abs Cu	Kadar Cu (mg/kg)	Konversi KA (mg/kg berat basah)
asam					0.097		
kontrol	1	3.64	0.75	79.40%	0.121	0.48	0.0989
	2	3.68	0.65	82.34%	0.119	0.44	0.0777
	3	3.60	0.62	82.78%	0.123	0.52	0.0895
Rata-rata						0.48	0.0887
SD						0.04	0.0106
0,5%	1	3.19	0.67	79.00%	0.169	1.44	0.3024
	2	3.15	0.69	78.10%	0.163	1.32	0.2891
	3	3.15	0.67	78.73%	0.143	0.92	0.1957
Rata-rata						1.23	0.2624
SD						0.27	0.0582
1%	1	2.80	0.58	79.29%	0.155	1.16	0.2402
	2	3.18	0.59	81.45%	0.146	0.98	0.1818
	3	3.14	0.56	82.17%	0.145	0.96	0.1712
Rata-rata						1.03	0.1977
SD						0.11	0.0372
3%	1	2.70	0.64	76.30%	0.156	1.18	0.2797
	2	3.19	0.74	76.80%	0.098	0.02	0.0046
	3	3.11	0.69	77.81%	0.090	-0.14	-0.0311
Rata-rata						0.35	0.0844
SD						0.72	0.1700
5%	1	3.31	0.72	78.25%	0.113	0.32	0.0696
	2	3.95	0.72	81.77%	0.148	1.02	0.1859
	3	3.20	0.68	78.75%	0.136	0.78	0.1658
Rata-rata						0.70	0.1404
SD						0.35	0.0622

LAMPIRAN 9. Kandungan Logam Cd Uji Utama

Sampel	Ulangan	Berat basah (gr)	Berat kering (gr)	Kadar Air	Abs Cd	Kadar Cd (mg/kg)	Konversi KA (mg/kg berat basah)
kontrol	1	7.41	1.62	78.20%	0.759	13.26	2.8907
	2	7.74	1.89	75.64%	0.564	9.36	2.2801
	3	6.46	1.41	78.24%	0.673	11.54	2.5111
	4	6.89	1.63	76.37%	0.445	6.98	1.6494
	5	6.60	1.55	76.58%	0.498	8.04	1.8830
rata-rata							2.2428
SD							0.4936
0,5%	1	4.72	1.24	73.70%	0.473	7.54	1.9830
	2	5.16	1.26	75.49%	0.350	5.08	1.2451
	3	4.95	1.07	78.30%	0.393	5.94	1.2890
	4	5.17	1.18	77.20%	0.428	6.64	1.5139
	5	5.04	1.13	77.56%	0.400	6.08	1.3644
rata-rata							1.4791
SD							0.2997
1%	1	4.62	1.14	75.41%	0.443	6.94	1.7065
	2	4.65	1.07	77.03%	0.435	6.78	1.5574
	3	6.18	1.42	76.97%	0.396	6.00	1.3818
	4	4.76	1.05	77.89%	0.625	10.58	2.3392
	5	4.89	1.15	76.51%	0.289	3.86	0.9067
rata-rata							1.5783
SD							0.5209
3%	1	5.71	1.16	79.72%	0.402	6.12	1.2411
	2	5.26	1.19	77.31%	0.418	6.44	1.4612
	3	6.18	1.24	79.89%	0.554	9.16	1.8421
	4	5.91	1.44	75.72%	0.271	3.50	0.8498
	5	5.93	1.33	77.60%	0.375	5.58	1.2499
rata-rata							1.3288
SD							0.3621
5%	1	6.05	1.36	77.49%	0.478	7.64	1.7198
	2	6.19	1.48	76.01%	0.329	4.66	1.1179
	3	6.23	1.38	77.86%	0.311	4.30	0.9520
	4	5.07	1.22	75.97%	0.561	9.30	2.2348
	5	6.29	1.43	77.34%	0.648	11.04	2.5017
rata-rata							1.7052
SD							0.6760
Asam					0.096		

LAMPIRAN 10. Kandungan Cu Uji Utama

Sampel	Ulangan	Berat basah (gr)	Berat kering (gr)	Kadar Air	Abs Cu	Kadar Cu (mg/kg)	Konversi KA (mg/kg berat basah)
kontrol	1	7.41	1.62	78.20%	0.360	5.40	1.1772
	2	7.74	1.89	75.64%	0.300	4.20	1.0231
	3	6.46	1.41	78.24%	0.360	5.40	1.1750
	4	6.89	1.63	76.37%	0.300	4.20	0.9925
	5	6.60	1.55	76.58%	0.310	4.40	1.0305
rata-rata							1.0797
SD							0.0892
0,5%	1	4.72	1.24	73.70%	0.310	4.40	1.1572
	2	5.16	1.26	75.49%	0.230	2.80	0.6863
	3	4.95	1.07	78.30%	0.310	4.40	0.9548
	4	5.17	1.18	77.20%	0.330	4.80	1.0944
	5	5.04	1.13	77.56%	0.270	3.60	0.8078
rata-rata							0.9401
SD							0.1956
1%	1	4.62	1.14	75.41%	0.250	3.20	0.7869
	2	4.65	1.07	77.03%	0.320	4.60	1.0566
	3	6.18	1.42	76.97%	0.230	2.80	0.6448
	4	4.76	1.05	77.89%	0.340	5.00	1.1055
	5	4.89	1.15	76.51%	0.250	3.20	0.7517
rata-rata							0.8691
SD							0.2012
3%	1	5.71	1.16	79.72%	0.300	4.20	0.8518
	2	5.26	1.19	77.31%	0.220	2.60	0.5899
	3	6.18	1.24	79.89%	0.260	3.40	0.6837
	4	5.91	1.44	75.72%	0.250	3.20	0.7770
	5	5.93	1.33	77.60%	0.230	2.80	0.6272
rata-rata							0.7059
SD							0.1078
5%	1	6.05	1.36	77.49%	0.240	3.00	0.6753
	2	6.19	1.48	76.01%	0.190	2.00	0.4798
	3	6.23	1.38	77.86%	0.300	4.20	0.9299
	4	5.07	1.22	75.97%	0.310	4.40	1.0573
	5	6.29	1.43	77.34%	0.300	4.20	0.9517
rata-rata							0.8188
SD							0.2360
Asam					0,090		

LAMPIRAN 11. Hasil Analisa Anova Satu Arah untuk Logam Cd

Tests of Normality

perlakuan	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
cd kontrol	.167	5	.200*	.979	5	.926
0.5%	.254	5	.200*	.826	5	.130
1%	.203	5	.200*	.978	5	.925
3%	.204	5	.200*	.969	5	.866
5%	.208	5	.200*	.924	5	.558

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

a. Lilliefors Significance Correction

Descriptives

cd

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
kontrol	5	2.242860	.4936421	.2207635	1.629922	2.855798	1.6494	2.8907
0.5%	5	1.479080	.2996566	.1340105	1.107007	1.851153	1.2451	1.9830
1%	5	1.578320	.5209366	.2329699	.931492	2.225148	.9067	2.3392
3%	5	1.328820	.3620650	.1619204	.879257	1.778383	.8498	1.8421
5%	5	1.705240	.6758944	.3022692	.866006	2.544474	.9520	2.5017
Total	25	1.666864	.5486425	.1097285	1.440395	1.893333	.8498	2.8907

Test of Homogeneity of Variances

cd

Levene Statistic	df1	df2	Sig.
1.104	4	20	.382

ANOVA

cd

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.453	4	.613	2.571	.069
Within Groups	4.771	20	.239		
Total	7.224	24			

cd

Duncan^a

perlakuan	N	Subset for alpha = .05	
		1	2
3%	5	1.328820	
0.5%	5	1.479080	
1%	5	1.578320	1.578320
5%	5	1.705240	1.705240
kontrol	5		2.242860
Sig.		.277	.054

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

LAMPIRAN 12. Hasil Analisa Anova Satu Arah untuk Logam Cu

Tests of Normality

perlakuan	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
cu kontrol	.309	5	.133	.799	5	.079
0.5%	.185	5	.200*	.954	5	.766
1%	.259	5	.200*	.891	5	.362
3%	.182	5	.200*	.951	5	.742
5%	.281	5	.200*	.913	5	.484

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

a. Lilliefors Significance Correction

Descriptives

cu

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					kontrol	5		
0.5%	5	.940100	.1956238	.0874856	.697201	1.182999	.6863	1.1572
1%	5	.869100	.2011786	.0899698	.619304	1.118896	.6448	1.1055
3%	5	.705920	.1078014	.0482102	.572067	.839773	.5899	.8518
5%	5	.818800	.2357971	.1054517	.526019	1.111581	.4798	1.0573
Total	25	.882716	.2045019	.0409004	.798302	.967130	.4798	1.1772

Test of Homogeneity of Variances

cu

Levene Statistic	df1	df2	Sig.
2.677	4	20	.062

ANOVA

cu

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.388	4	.097	3.151	.037
Within Groups	.616	20	.031		
Total	1.004	24			

cu

Duncan^a

perlakuan	N	Subset for alpha = .05	
		1	2
3%	5	.705920	
5%	5	.818800	
1%	5	.869100	.869100
0.5%	5	.940100	.940100
kontrol	5		1.079660
Sig.		.065	.086

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

LAMPIRAN 13. Perhitungan Hazard Quotients (HQ) dan Jumlah Maksimal Konsumsi (JMK) pada Kerang Darah yang Masih Mengandung Logam Cd

Perlakuan	C	Percentil			HQ	JMK
		Ke-	WC	WI		
Kontrol	2.2428	10	19.0000	42.6140	0.1	171.6570
		50	38.0000	85.2281	0.2	171.6570
		90	76.0000	170.4562	0.4	171.6570
K0.5%	1.4791	10	19.0000	28.1024	0.1	260.2976
		50	38.0000	56.2049	0.1	260.2976
		90	76.0000	112.4098	0.3	260.2976
K1%	1.5783	10	19.0000	29.9883	0.1	243.9283
		50	38.0000	59.9766	0.2	243.9283
		90	76.0000	119.9533	0.3	243.9283
K3%	1.3288	10	19.0000	25.2478	0.1	289.7278
		50	38.0000	50.4957	0.1	289.7278
		90	76.0000	100.9914	0.3	289.7278
K5%	1.7052	10	19.0000	32.3995	0.1	225.7754
		50	38.0000	64.7989	0.2	225.7754
		90	76.0000	129.5978	0.3	225.7754

Menurut perhitungan dengan MS Excel :

Contoh perhitungan perlakuan Kontrol percentil ke-10:

$$WI = C \times WC$$

$$= 2,2428 (\mu\text{g/g}) \times 19 (\text{g/minggu})$$

$$= 42,6140 \mu\text{g/minggu}$$

$$HQ = WI / PTWI$$

$$= 42,6140 \mu\text{g} / (7 (\mu\text{g/kg}) \times 55\text{kg})$$

$$= 0,11$$

$$JMK = (1/HQ) \times WC$$

$$= (1/0,11) \times 19$$

$$= 171,6570 (\text{menurut perhitungan dengan MS Excel})$$

LAMPIRAN 14. Perhitungan Hazard Quotients (HQ) dan Jumlah Maksimal Konsumsi (JMK) pada Kerang Darah yang Masih Mengandung Logam Cu

Perlakuan	C	Percentil			HQ	JMK
		ke-	WC	WI		
Kontrol	1.0797	10	19.0000	20.5135	0.0144	1323.17
		50	38.0000	41.0271	0.0287	1323.17
		90	76.0000	82.0542	0.0574	1323.17
K0.5%	0.9401	10	19.0000	17.8620	0.0125	1519.59
		50	38.0000	35.7240	0.0250	1519.59
		90	76.0000	71.4479	0.0500	1519.59
K1%	0.8691	10	19.0000	16.5130	0.0116	1643.73
		50	38.0000	33.0260	0.0231	1643.73
		90	76.0000	66.0519	0.0462	1643.73
K3%	0.7059	10	19.0000	13.4125	0.0094	2023.70
		50	38.0000	26.8250	0.0188	2023.70
		90	76.0000	53.6499	0.0376	2023.70
K5%	0.8188	10	19.0000	15.5573	0.0109	1744.70
		50	38.0000	31.1146	0.0218	1744.70
		90	76.0000	62.2291	0.0436	1744.70

Menurut perhitungan dengan MS Excel:

Contoh perhitungan perlakuan Kontrol percentil ke-10:

$$WI = C \times WC$$

$$= 1,0797 (\mu\text{g/g}) \times 19 (\text{g/minggu})$$

$$= 20,5135 \mu\text{g/minggu}$$

$$HQ = WI / PTWI$$

$$= 20,5135 \mu\text{g} \times 7\text{hari} \times 0,001 / (10 \text{ mg/hari})$$

$$= 0,0144$$

$$JMK = (1/HQ) \times WC$$

$$= (1/0,0144) \times 19$$

$$= 1323,17$$