

## 7. LAMPIRAN

### Analisa Normalitas dan Uji Beda

#### Lampiran 1. Analisa Normalitas dan Uji Beda

Tests of Normality

perlakuan	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
juml_koloni kantong cellulose sampel titik 0	.326	12	.001	.743	12	.002
kantong cellulose sampel titik 1	.358	12	.000	.826	12	.019
kantong cellulose sampel titik 2	.148	12	.200*	.948	12	.609
kantong cellulose sampel titik 3	.210	12	.149	.897	12	.144
kantong cellulose kontrol titik 0	.328	12	.001	.738	12	.002
kantong cellulose kontrol titik 1	.314	12	.002	.736	12	.002
kantong cellulose kontrol titik 2	.122	12	.200*	.983	12	.994
kantong cellulose kontrol titik 3	.178	12	.200*	.919	12	.277
metalize sampel titik 0	.328	12	.001	.725	12	.001
metalize sampel titik 1	.267	12	.018	.724	12	.001
metalize sampel titik 2	.257	12	.028	.742	12	.002
metalize sampel titik 3	.318	12	.001	.719	12	.001
metalize sampel titik 4	.276	12	.012	.881	12	.092
metalize sampel titik 5	.224	12	.099	.874	12	.074
metalize sampel titik 6	.170	12	.200*	.932	12	.402
metalize sampel titik 7	.180	12	.200*	.924	12	.322
metalize kontrol titik 0	.328	12	.001	.738	12	.002
metalize kontrol titik 1	.353	12	.000	.750	12	.003
metalize kontrol titik 2	.320	12	.001	.694	12	.001
metalize kontrol titik 3	.240	12	.055	.918	12	.270
metalize kontrol titik 4	.101	12	.200*	.975	12	.953
metalize kontrol titik 5	.117	12	.200*	.946	12	.575
metalize kontrol titik 6	.158	12	.200*	.981	12	.988
metalize kontrol titik 7	.169	12	.200*	.883	12	.095

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

a. Lilliefors Significance Correction

## Descriptives

perlakuan		Statistic	std. error	
juml_koloni	kantong cellulose sampel titik 0	Mean	1.1563	.35528
		Std. Deviation	1.23074	
	kantong cellulose sampel titik 1	Mean	3.0419	.19740
		Std. Deviation	.68381	
	kantong cellulose sampel titik 2	Mean	3.4172	.21753
		Std. Deviation	.75353	
	kantong cellulose sampel titik 3	Mean	3.7422	.10968
		Std. Deviation	.37996	
	kantong cellulose kontrol titik 0	Mean	1.1586	.35395
		Std. Deviation	1.22610	
	kantong cellulose kontrol titik 1	Mean	1.2921	.33281
		Std. Deviation	1.15289	
	kantong cellulose kontrol titik 2	Mean	3.0321	.10549
		Std. Deviation	.36544	
	kantong cellulose kontrol titik 3	Mean	3.4869	.14826
		Std. Deviation	.51358	
	metalize sampel titik 0	Mean	1.2064	.36752
		Std. Deviation	1.27311	
	metalize sampel titik 1	Mean	2.2535	.31853
		Std. Deviation	1.10343	
	metalize sampel titik 2	Mean	2.3392	.23724
		Std. Deviation	.82183	
	metalize sampel titik 3	Mean	2.1656	.23053
		Std. Deviation	.79858	
	metalize sampel titik 4	Mean	2.3574	.28676
		Std. Deviation	.99338	
	metalize sampel titik 5	Mean	2.4159	.37503
		Std. Deviation	1.29913	
	metalize sampel titik 6	Mean	2.8092	.35246
		Std. Deviation	1.22096	
	metalize sampel titik 7	Mean	2.6852	.11466
		Std. Deviation	.39721	
	metalize kontrol titik 0	Mean	1.1586	.35395
		Std. Deviation	1.22610	
	metalize kontrol titik 1	Mean	1.7196	.30860
		Std. Deviation	1.06901	
	metalize kontrol titik 2	Mean	2.3266	.22866
		Std. Deviation	.79209	
	metalize kontrol titik 3	Mean	2.9884	.13318
		Std. Deviation	.46135	

metalize kontrol titik 4	Mean	3.0953	.14525
	Std. Deviation	.50316	
metalize kontrol titik 5	Mean	3.2974	.17495
	Std. Deviation	.60604	
metalize kontrol titik 6	Mean	3.3682	.07809
	Std. Deviation	.27051	
metalize kontrol titik 7	Mean	3.0720	.17149
	Std. Deviation	.59406	

**Test Statistic<sup>a,b</sup>**

	juml_koloni
Chi-Square	137.269
df	23
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: perlakuan

		Ranks		
perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	7.13	85.50
	kantong cellulose sampel titik 1	12	17.88	214.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	7.500
Wilcoxon W	85.500
Z	-3.773
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a. Not corrected for ties.

b. Grouping Variable: perlakuan

		Ranks		
perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	6.88	82.50
	kantong cellulose sampel titik 2	12	18.13	217.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	4.500
Wilcoxon W	82.500
Z	-3.937
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a. Not corrected for ties.

b. Grouping Variable: perlakuan

**Ranks**

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	6.50	78.00
	kantong cellulose sampel titik 3	12	18.50	222.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.195
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	12.29	147.50
	kantong cellulose kontrol titik 1	12	12.71	152.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	69.500
Wilcoxon W	147.500
Z	-.153
Asymp. Sig. (2-tailed)	.878
Exact Sig. [2*(1-tailed Sig.)]	.887(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	6.83	82.00
	kantong cellulose kontrol titik 2	12	18.17	218.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	4.000
Wilcoxon W	82.000
Z	-3.963
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	6.50	78.00
kantong cellulose kontrol titik 3	12	18.50	222.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.194
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	12.25	147.00
metalize sampel titik 0	12	12.75	153.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	69.000
Wilcoxon W	147.000
Z	-.186
Asymp. Sig. (2-tailed)	.852
Exact Sig. [2*(1-tailed Sig.)]	.887(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.08	109.00
metalize sampel titik 1	12	15.92	191.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	31.000
Wilcoxon W	109.000
Z	-2.420
Asymp. Sig. (2-tailed)	.016
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.00	108.00
metalize sampel titik 2	12	16.00	192.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.472
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.67	116.00
metalize sampel titik 3	12	15.33	184.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	38.000
Wilcoxon W	116.000
Z	-2.010
Asymp. Sig. (2-tailed)	.044
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.63	115.50
metalize sampel titik 4	12	15.38	184.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	37.500
Wilcoxon W	115.500
Z	-2.044
Asymp. Sig. (2-tailed)	.041
Exact Sig. [2*(1-tailed Sig.)]	.045(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.00	108.00
metalize sampel titik 5	12	16.00	192.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.484
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	8.46	101.50
metalize sampel titik 6	12	16.54	198.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	23.500
Wilcoxon W	101.500
Z	-2.851
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.004(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	7.92	95.00
metalize sampel titik 7	12	17.08	205.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	17.000
Wilcoxon W	95.000
Z	-3.231
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	12.50	150.00
metalize kontrol titik 0	12	12.50	150.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	72.000
Wilcoxon W	150.000
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	11.08	133.00
metalize kontrol titik 1	12	13.92	167.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	55.000
Wilcoxon W	133.000
Z	-1.023
Asymp. Sig. (2-tailed)	.307
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 0	12	9.08	109.00
metalize kontrol titik 2	12	15.92	191.00
Total	24		



**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	31.000
Wilcoxon W	109.000
Z	-2.408
Asymp. Sig. (2-tailed)	.016
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	7.00	84.00
	metalize kontrol titik 3	12	18.00	216.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	6.000
Wilcoxon W	84.000
Z	-3.851
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	7.04	84.50
	metalize kontrol titik 4	12	17.96	215.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	6.500
Wilcoxon W	84.500
Z	-3.820
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	7.00	84.00
	metalize kontrol titik 5	12	18.00	216.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	6.000
Wilcoxon W	84.000
Z	-3.845
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	6.50	78.00
	metalize kontrol titik 6	12	18.50	222.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.194
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 0	12	7.33	88.00
	metalize kontrol titik 7	12	17.67	212.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	10.000
Wilcoxon W	88.000
Z	-3.626
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 1	12	10.04	120.50
	kantong cellulose sampel titik 2	12	14.96	179.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	42.500
Wilcoxon W	120.500
Z	-1.711
Asymp. Sig. (2-tailed)	.087
Exact Sig. [2*(1-tailed Sig.)]	.089(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 1	12	8.25	99.00
	kantong cellulose sampel titik 3	12	16.75	201.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	21.000
Wilcoxon W	99.000
Z	-2.955
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 1	12	17.83	214.00
	kantong cellulose kontrol titik 0	12	7.17	86.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	8.000
Wilcoxon W	86.000
Z	-3.742
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 1	12	17.83	214.00
	kantong cellulose kontrol titik 1	12	7.17	86.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	8.000
Wilcoxon W	86.000
Z	-3.739
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 1	12	11.96	143.50
	kantong cellulose kontrol titik 2	12	13.04	156.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	65.500
Wilcoxon W	143.500
Z	-.377
Asymp. Sig. (2-tailed)	.706
Exact Sig. [2*(1-tailed Sig.)]	.713(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	9.08	109.00
kantong cellulose kontrol titik 3	12	15.92	191.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	31.000
Wilcoxon W	109.000
Z	-2.380
Asymp. Sig. (2-tailed)	.017
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	17.71	212.50
metalize sampel titik 0	12	7.29	87.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	9.500
Wilcoxon W	87.500
Z	-3.652
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	15.08	181.00
metalize sampel titik 1	12	9.92	119.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	41.000
Wilcoxon W	119.000
Z	-1.799
Asymp. Sig. (2-tailed)	.072
Exact Sig. [2*(1-tailed Sig.)]	.078(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	15.33	184.00
metalize sampel titik 2	12	9.67	116.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	38.000
Wilcoxon W	116.000
Z	-1.973
Asymp. Sig. (2-tailed)	.048
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	17.08	205.00
metalize sampel titik 3	12	7.92	95.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	17.000
Wilcoxon W	95.000
Z	-3.196
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	15.58	187.00
metalize sampel titik 4	12	9.42	113.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	35.000
Wilcoxon W	113.000
Z	-2.154
Asymp. Sig. (2-tailed)	.031
Exact Sig. [2*(1-tailed Sig.)]	.033(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	14.42	173.00
metalize sampel titik 5	12	10.58	127.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	49.000
Wilcoxon W	127.000
Z	-1.335
Asymp. Sig. (2-tailed)	.182
Exact Sig. [2*(1-tailed Sig.)]	.198(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	13.79	165.50
metalize sampel titik 6	12	11.21	134.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	56.500
Wilcoxon W	134.500
Z	-.900
Asymp. Sig. (2-tailed)	.368
Exact Sig. [2*(1-tailed Sig.)]	.378(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	14.50	174.00
metalize sampel titik 7	12	10.50	126.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	48.000
Wilcoxon W	126.000
Z	-1.395
Asymp. Sig. (2-tailed)	.163
Exact Sig. [2*(1-tailed Sig.)]	.178(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	17.83	214.00
metalize kontrol titik 0	12	7.17	86.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	8.000
Wilcoxon W	86.000
Z	-3.742
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	17.54	210.50
metalize kontrol titik 1	12	7.46	89.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	11.500
Wilcoxon W	89.500
Z	-3.524
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	16.25	195.00
metalize kontrol titik 2	12	8.75	105.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	27.000
Wilcoxon W	105.000
Z	-2.615
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	12.96	155.50
metalize kontrol titik 3	12	12.04	144.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	66.500
Wilcoxon W	144.500
Z	-.322
Asymp. Sig. (2-tailed)	.747
Exact Sig. [2*(1-tailed Sig.)]	.755(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	11.38	136.50
metalize kontrol titik 4	12	13.63	163.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	58.500
Wilcoxon W	136.500
Z	-.785
Asymp. Sig. (2-tailed)	.433
Exact Sig. [2*(1-tailed Sig.)]	.443(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	10.29	123.50
metalize kontrol titik 5	12	14.71	176.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	45.500
Wilcoxon W	123.500
Z	-1.538
Asymp. Sig. (2-tailed)	.124
Exact Sig. [2*(1-tailed Sig.)]	.128(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	8.96	107.50
metalize kontrol titik 6	12	16.04	192.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.465
Asymp. Sig. (2-tailed)	.014
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 1	12	11.38	136.50
metalize kontrol titik 7	12	13.63	163.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	58.500
Wilcoxon W	136.500
Z	-.783
Asymp. Sig. (2-tailed)	.434
Exact Sig. [2*(1-tailed Sig.)]	.443(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	10.33	124.00
kantong cellulose sampel titik 3	12	14.67	176.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	46.000
Wilcoxon W	124.000
Z	-1.502
Asymp. Sig. (2-tailed)	.133
Exact Sig. [2*(1-tailed Sig.)]	.143(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	18.08	217.00
kantong cellulose kontrol titik 0	12	6.92	83.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.902
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	18.04	216.50
kantong cellulose kontrol titik 1	12	6.96	83.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.500
Wilcoxon W	83.500
Z	-3.868
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	14.96	179.50
kantong cellulose kontrol titik 2	12	10.04	120.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	42.500
Wilcoxon W	120.500
Z	-1.704
Asymp. Sig. (2-tailed)	.088
Exact Sig. [2*(1-tailed Sig.)]	.089(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	12.29	147.50
kantong cellulose kontrol titik 3	12	12.71	152.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	69.500
Wilcoxon W	147.500
Z	-.144
Asymp. Sig. (2-tailed)	.885
Exact Sig. [2*(1-tailed Sig.)]	.887(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	18.04	216.50
metalize sampel titik 0	12	6.96	83.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.500
Wilcoxon W	83.500
Z	-3.871
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	16.88	202.50
metalize sampel titik 1	12	8.13	97.50
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	19.500
Wilcoxon W	97.500
Z	-3.034
Asymp. Sig. (2-tailed)	.002
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	17.08	205.00
metalize sampel titik 2	12	7.92	95.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	17.000
Wilcoxon W	95.000
Z	-3.182
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 2	12	17.75	213.00
metalize sampel titik 3	12	7.25	87.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	9.000
Wilcoxon W	87.000
Z	-3.649
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	16.17	194.00
	metalize sampel titik 4	12	8.83	106.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	28.000
Wilcoxon W	106.000
Z	-2.552
Asymp. Sig. (2-tailed)	.011
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	15.92	191.00
	metalize sampel titik 5	12	9.08	109.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	31.000
Wilcoxon W	109.000
Z	-2.371
Asymp. Sig. (2-tailed)	.018
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	14.71	176.50
	metalize sampel titik 6	12	10.29	123.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	45.500
Wilcoxon W	123.500
Z	-1.532
Asymp. Sig. (2-tailed)	.126
Exact Sig. [2*(1-tailed Sig.)]	.128(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	16.67	200.00
	metalize sampel titik 7	12	8.33	100.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	22.000
Wilcoxon W	100.000
Z	-2.894
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.003(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	18.08	217.00
	metalize kontrol titik 0	12	6.92	83.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.902
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	17.92	215.00
	metalize kontrol titik 1	12	7.08	85.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	7.000
Wilcoxon W	85.000
Z	-3.773
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	17.38	208.50
	metalize kontrol titik 2	12	7.63	91.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	13.500
Wilcoxon W	91.500
Z	-3.385
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	15.33	184.00
	metalize kontrol titik 3	12	9.67	116.00
	Total	24		



**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	38.000
Wilcoxon W	116.000
Z	-1.966
Asymp. Sig. (2-tailed)	.049
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	14.17	170.00
	metalize kontrol titik 4	12	10.83	130.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	52.000
Wilcoxon W	130.000
Z	-1.156
Asymp. Sig. (2-tailed)	.248
Exact Sig. [2*(1-tailed Sig.)]	.266(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	12.63	151.50
	metalize kontrol titik 5	12	12.38	148.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	70.500
Wilcoxon W	148.500
Z	-.087
Asymp. Sig. (2-tailed)	.931
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	12.38	148.50
	metalize kontrol titik 6	12	12.63	151.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	70.500
Wilcoxon W	148.500
Z	-.087
Asymp. Sig. (2-tailed)	.931
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 2	12	13.75	165.00
	metalize kontrol titik 7	12	11.25	135.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	57.000
Wilcoxon W	135.000
Z	-.868
Asymp. Sig. (2-tailed)	.386
Exact Sig. [2*(1-tailed Sig.)]	.410(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	kantong cellulose kontrol titik 0	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.193
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	kantong cellulose kontrol titik 1	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.184
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	17.71	212.50
	kantong cellulose kontrol titik 2	12	7.29	87.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	9.500
Wilcoxon W	87.500
Z	-3.611
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	14.54	174.50
kantong cellulose kontrol titik 3	12	10.46	125.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	47.500
Wilcoxon W	125.500
Z	-1.417
Asymp. Sig. (2-tailed)	.157
Exact Sig. [2*(1-tailed Sig.)]	.160(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	18.50	222.00
metalize sampel titik 0	12	6.50	78.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.193
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	18.50	222.00
metalize sampel titik 1	12	6.50	78.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.160
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize sampel titik 2	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.162
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize sampel titik 3	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.170
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	17.42	209.00
metalize sampel titik 4	12	7.58	91.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	13.000
Wilcoxon W	91.000
Z	-3.416
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	17.25	207.00
metalize sampel titik 5	12	7.75	93.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	15.000
Wilcoxon W	93.000
Z	-3.294
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	15.75	189.00
metalize sampel titik 6	12	9.25	111.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	33.000
Wilcoxon W	111.000
Z	-2.253
Asymp. Sig. (2-tailed)	.024
Exact Sig. [2*(1-tailed Sig.)]	.024(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize sampel titik 7	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.164
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize kontrol titik 0	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.193
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize kontrol titik 1	12	6.50	78.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.172
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	18.50	222.00
	metalize kontrol titik 2	12	6.50	78.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.167
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	17.25	207.00
	metalize kontrol titik 3	12	7.75	93.00
	Total	24		



**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	15.000
Wilcoxon W	93.000
Z	-3.297
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	16.83	202.00
metalize kontrol titik 4	12	8.17	98.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	20.000
Wilcoxon W	98.000
Z	-3.005
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose sampel titik 3	12	15.29	183.50
metalize kontrol titik 5	12	9.71	116.50
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	38.500
Wilcoxon W	116.500
Z	-1.937
Asymp. Sig. (2-tailed)	.053
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	16.04	192.50
	metalize kontrol titik 6	12	8.96	107.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.456
Asymp. Sig. (2-tailed)	.014
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose sampel titik 3	12	16.13	193.50
	metalize kontrol titik 7	12	8.88	106.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	28.500
Wilcoxon W	106.500
Z	-2.514
Asymp. Sig. (2-tailed)	.012
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	12.38	148.50
	kantong cellulose kontrol titik 1	12	12.63	151.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	70.500
Wilcoxon W	148.500
Z	-.092
Asymp. Sig. (2-tailed)	.927
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	6.79	81.50
	kantong cellulose kontrol titik 2	12	18.21	218.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	3.500
Wilcoxon W	81.500
Z	-3.991
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	6.50	78.00
	kantong cellulose kontrol titik 3	12	18.50	222.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	12.17	146.00
metalize sampel titik 0	12	12.83	154.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	68.000
Wilcoxon W	146.000
Z	-.248
Asymp. Sig. (2-tailed)	.804
Exact Sig. [2*(1-tailed Sig.)]	.843(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	9.00	108.00
metalize sampel titik 1	12	16.00	192.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.476
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	8.96	107.50
metalize sampel titik 2	12	16.04	192.50
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.497
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	9.46	113.50
	metalize sampel titik 3	12	15.54	186.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	35.500
Wilcoxon W	113.500
Z	-2.146
Asymp. Sig. (2-tailed)	.032
Exact Sig. [2*(1-tailed Sig.)]	.033(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	9.71	116.50
	metalize sampel titik 4	12	15.29	183.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	38.500
Wilcoxon W	116.500
Z	-1.978
Asymp. Sig. (2-tailed)	.048
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	9.00	108.00
	metalize sampel titik 5	12	16.00	192.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.478
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	8.42	101.00
	metalize sampel titik 6	12	16.58	199.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	23.000
Wilcoxon W	101.000
Z	-2.872
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.004(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	7.79	93.50
	metalize sampel titik 7	12	17.21	206.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	15.500
Wilcoxon W	93.500
Z	-3.303
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	12.50	150.00
	metalize kontrol titik 0	12	12.50	150.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	72.000
Wilcoxon W	150.000
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	11.13	133.50
	metalize kontrol titik 1	12	13.88	166.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.988
Asymp. Sig. (2-tailed)	.323
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	8.96	107.50
metalize kontrol titik 2	12	16.04	192.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.504
Asymp. Sig. (2-tailed)	.012
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	6.92	83.00
metalize kontrol titik 3	12	18.08	217.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.908
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	6.96	83.50
metalize kontrol titik 4	12	18.04	216.50
Total	24		



**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	5.500
Wilcoxon W	83.500
Z	-3.876
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	7.00	84.00
	metalize kontrol titik 5	12	18.00	216.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	6.000
Wilcoxon W	84.000
Z	-3.849
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 0	12	6.50	78.00
	metalize kontrol titik 6	12	18.50	222.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 0	12	7.38	88.50
metalize kontrol titik 7	12	17.63	211.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	10.500
Wilcoxon W	88.500
Z	-3.588
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	6.71	80.50
kantong cellulose kontrol titik 2	12	18.29	219.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	2.500
Wilcoxon W	80.500
Z	-4.043
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	6.50	78.00
kantong cellulose kontrol titik 3	12	18.50	222.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.183
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	12.21	146.50
	metalize sampel titik 0	12	12.79	153.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	68.500
Wilcoxon W	146.500
Z	-.214
Asymp. Sig. (2-tailed)	.830
Exact Sig. [2*(1-tailed Sig.)]	.843(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	8.88	106.50
	metalize sampel titik 1	12	16.13	193.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	28.500
Wilcoxon W	106.500
Z	-2.555
Asymp. Sig. (2-tailed)	.011
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	8.79	105.50
metalize sampel titik 2	12	16.21	194.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	27.500
Wilcoxon W	105.500
Z	-2.613
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	9.17	110.00
metalize sampel titik 3	12	15.83	190.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	32.000
Wilcoxon W	110.000
Z	-2.346
Asymp. Sig. (2-tailed)	.019
Exact Sig. [2*(1-tailed Sig.)]	.020(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	9.67	116.00
metalize sampel titik 4	12	15.33	184.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	38.000
Wilcoxon W	116.000
Z	-2.013
Asymp. Sig. (2-tailed)	.044
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	9.04	108.50
	metalize sampel titik 5	12	15.96	191.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	30.500
Wilcoxon W	108.500
Z	-2.439
Asymp. Sig. (2-tailed)	.015
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	8.33	100.00
	metalize sampel titik 6	12	16.67	200.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	22.000
Wilcoxon W	100.000
Z	-2.925
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.003(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	7.58	91.00
	metalize sampel titik 7	12	17.42	209.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	13.000
Wilcoxon W	91.000
Z	-3.443
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	12.63	151.50
	metalize kontrol titik 0	12	12.38	148.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	70.500
Wilcoxon W	148.500
Z	-.092
Asymp. Sig. (2-tailed)	.927
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	11.13	133.50
	metalize kontrol titik 1	12	13.88	166.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.986
Asymp. Sig. (2-tailed)	.324
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	8.58	103.00
	metalize kontrol titik 2	12	16.42	197.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	25.000
Wilcoxon W	103.000
Z	-2.769
Asymp. Sig. (2-tailed)	.006
Exact Sig. [2*(1-tailed Sig.)]	.006(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	6.75	81.00
	metalize kontrol titik 3	12	18.25	219.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	3.000
Wilcoxon W	81.000
Z	-4.019
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	6.79	81.50
	metalize kontrol titik 4	12	18.21	218.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	3.500
Wilcoxon W	81.500
Z	-3.986
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	6.92	83.00
	metalize kontrol titik 5	12	18.08	217.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.906
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 1	12	6.50	78.00
	metalize kontrol titik 6	12	18.50	222.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.183
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 1	12	7.42	89.00
metalize kontrol titik 7	12	17.58	211.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	11.000
Wilcoxon W	89.000
Z	-3.556
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	9.21	110.50
kantong cellulose kontrol titik 3	12	15.79	189.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	32.500
Wilcoxon W	110.500
Z	-2.283
Asymp. Sig. (2-tailed)	.022
Exact Sig. [2*(1-tailed Sig.)]	.020(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	18.08	217.00
metalize sampel titik 0	12	6.92	83.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.905
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 2	12	16.00	192.00
	metalize sampel titik 1	12	9.00	108.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.429
Asymp. Sig. (2-tailed)	.015
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 2	12	16.46	197.50
	metalize sampel titik 2	12	8.54	102.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	24.500
Wilcoxon W	102.500
Z	-2.748
Asymp. Sig. (2-tailed)	.006
Exact Sig. [2*(1-tailed Sig.)]	.005(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	17.63	211.50
metalize sampel titik 3	12	7.38	88.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	10.500
Wilcoxon W	88.500
Z	-3.563
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	15.83	190.00
metalize sampel titik 4	12	9.17	110.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	32.000
Wilcoxon W	110.000
Z	-2.317
Asymp. Sig. (2-tailed)	.020
Exact Sig. [2*(1-tailed Sig.)]	.020(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	14.75	177.00
metalize sampel titik 5	12	10.25	123.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	45.000
Wilcoxon W	123.000
Z	-1.561
Asymp. Sig. (2-tailed)	.119
Exact Sig. [2*(1-tailed Sig.)]	.128(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	13.71	164.50
metalize sampel titik 6	12	11.29	135.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	57.500
Wilcoxon W	135.500
Z	-.838
Asymp. Sig. (2-tailed)	.402
Exact Sig. [2*(1-tailed Sig.)]	.410(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	15.58	187.00
metalize sampel titik 7	12	9.42	113.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	35.000
Wilcoxon W	113.000
Z	-2.143
Asymp. Sig. (2-tailed)	.032
Exact Sig. [2*(1-tailed Sig.)]	.033(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	18.21	218.50
metalize kontrol titik 0	12	6.79	81.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	3.500
Wilcoxon W	81.500
Z	-3.991
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	18.00	216.00
metalize kontrol titik 1	12	7.00	84.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	6.000
Wilcoxon W	84.000
Z	-3.825
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	17.00	204.00
metalize kontrol titik 2	12	8.00	96.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	18.000
Wilcoxon W	96.000
Z	-3.131
Asymp. Sig. (2-tailed)	.002
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	13.29	159.50
metalize kontrol titik 3	12	11.71	140.50
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	62.500
Wilcoxon W	140.500
Z	-.550
Asymp. Sig. (2-tailed)	.582
Exact Sig. [2*(1-tailed Sig.)]	.590(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose	12	12.17	146.00
	kontrol titik 2			
	metalize kontrol titik 4	12	12.83	154.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	68.000
Wilcoxon W	146.000
Z	-.231
Asymp. Sig. (2-tailed)	.817
Exact Sig. [2*(1-tailed Sig.)]	.843(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose	12	10.58	127.00
	kontrol titik 2			
	metalize kontrol titik 5	12	14.42	173.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	49.000
Wilcoxon W	127.000
Z	-1.330
Asymp. Sig. (2-tailed)	.184
Exact Sig. [2*(1-tailed Sig.)]	.198(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	9.13	109.50
metalize kontrol titik 6	12	15.88	190.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	31.500
Wilcoxon W	109.500
Z	-2.341
Asymp. Sig. (2-tailed)	.019
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 2	12	11.58	139.00
metalize kontrol titik 7	12	13.42	161.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	61.000
Wilcoxon W	139.000
Z	-.635
Asymp. Sig. (2-tailed)	.525
Exact Sig. [2*(1-tailed Sig.)]	.551(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	18.50	222.00
metalize sampel titik 0	12	6.50	78.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	17.79	213.50
	metalize sampel titik 1	12	7.21	86.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	8.500
Wilcoxon W	86.500
Z	-3.669
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	18.04	216.50
	metalize sampel titik 2	12	6.96	83.50
	Total	24		

**Test Statistics<sup>b</sup>**

	juml_koloni
Mann-Whitney U	5.500
Wilcoxon W	83.500
Z	-3.844
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000 <sup>a</sup>

a. Not corrected for ties.

b. Grouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	18.46	221.50
metalize sampel titik 3	12	6.54	78.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.500
Wilcoxon W	78.500
Z	-4.141
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	16.79	201.50
metalize sampel titik 4	12	8.21	98.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	20.500
Wilcoxon W	98.500
Z	-2.982
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	16.67	200.00
metalize sampel titik 5	12	8.33	100.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	22.000
Wilcoxon W	100.000
Z	-2.889
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.003(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	15.21	182.50
	metalize sampel titik 6	12	9.79	117.50
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	39.500
Wilcoxon W	117.500
Z	-1.878
Asymp. Sig. (2-tailed)	.060
Exact Sig. [2*(1-tailed Sig.)]	.060(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	17.67	212.00
	metalize sampel titik 7	12	7.33	88.00
	Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	10.000
Wilcoxon W	88.000
Z	-3.587
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	18.50	222.00
	metalize kontrol titik 0	12	6.50	78.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	18.46	221.50
	metalize kontrol titik 1	12	6.54	78.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	.500
Wilcoxon W	78.500
Z	-4.143
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	kantong cellulose kontrol titik 3	12	18.17	218.00
	metalize kontrol titik 2	12	6.83	82.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	4.000
Wilcoxon W	82.000
Z	-3.937
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	16.17	194.00
metalize kontrol titik 3	12	8.83	106.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	28.000
Wilcoxon W	106.000
Z	-2.551
Asymp. Sig. (2-tailed)	.011
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	15.25	183.00
metalize kontrol titik 4	12	9.75	117.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	39.000
Wilcoxon W	117.000
Z	-1.906
Asymp. Sig. (2-tailed)	.057
Exact Sig. [2*(1-tailed Sig.)]	.060(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	13.25	159.00
metalize kontrol titik 5	12	11.75	141.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	63.000
Wilcoxon W	141.000
Z	-.520
Asymp. Sig. (2-tailed)	.603
Exact Sig. [2*(1-tailed Sig.)]	.630(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	12.96	155.50
metalize kontrol titik 6	12	12.04	144.50
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	66.500
Wilcoxon W	144.500
Z	-.318
Asymp. Sig. (2-tailed)	.751
Exact Sig. [2*(1-tailed Sig.)]	.755(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni kantong cellulose kontrol titik 3	12	14.17	170.00
metalize kontrol titik 7	12	10.83	130.00
Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	52.000
Wilcoxon W	130.000
Z	-1.156
Asymp. Sig. (2-tailed)	.248
Exact Sig. [2*(1-tailed Sig.)]	.266(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	9.25	111.00
metalize sampel titik 1	12	15.75	189.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	33.000
Wilcoxon W	111.000
Z	-2.299
Asymp. Sig. (2-tailed)	.021
Exact Sig. [2*(1-tailed Sig.)]	.024(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	9.33	112.00
metalize sampel titik 2	12	15.67	188.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	34.000
Wilcoxon W	112.000
Z	-2.233
Asymp. Sig. (2-tailed)	.026
Exact Sig. [2*(1-tailed Sig.)]	.028(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	9.83	118.00
metalize sampel titik 3	12	15.17	182.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	40.000
Wilcoxon W	118.000
Z	-1.885
Asymp. Sig. (2-tailed)	.059
Exact Sig. [2*(1-tailed Sig.)]	.068(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	10.13	121.50
metalize sampel titik 4	12	14.88	178.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	43.500
Wilcoxon W	121.500
Z	-1.678
Asymp. Sig. (2-tailed)	.093
Exact Sig. [2*(1-tailed Sig.)]	.101(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	9.17	110.00
metalize sampel titik 5	12	15.83	190.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	32.000
Wilcoxon W	110.000
Z	-2.358
Asymp. Sig. (2-tailed)	.018
Exact Sig. [2*(1-tailed Sig.)]	.020(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	8.63	103.50
metalize sampel titik 6	12	16.38	196.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	25.500
Wilcoxon W	103.500
Z	-2.724
Asymp. Sig. (2-tailed)	.006
Exact Sig. [2*(1-tailed Sig.)]	.006(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	8.08	97.00
metalize sampel titik 7	12	16.92	203.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	19.000
Wilcoxon W	97.000
Z	-3.103
Asymp. Sig. (2-tailed)	.002
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	12.83	154.00
metalize kontrol titik 0	12	12.17	146.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	68.000
Wilcoxon W	146.000
Z	-.248
Asymp. Sig. (2-tailed)	.804
Exact Sig. [2*(1-tailed Sig.)]	.843(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	11.50	138.00
metalize kontrol titik 1	12	13.50	162.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	60.000
Wilcoxon W	138.000
Z	-.716
Asymp. Sig. (2-tailed)	.474
Exact Sig. [2*(1-tailed Sig.)]	.514(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	9.42	113.00
metalize kontrol titik 2	12	15.58	187.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	35.000
Wilcoxon W	113.000
Z	-2.176
Asymp. Sig. (2-tailed)	.030
Exact Sig. [2*(1-tailed Sig.)]	.033(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	7.08	85.00
metalize kontrol titik 3	12	17.92	215.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	7.000
Wilcoxon W	85.000
Z	-3.793
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	7.13	85.50
metalize kontrol titik 4	12	17.88	214.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	7.500
Wilcoxon W	85.500
Z	-3.762
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	7.17	86.00
metalize kontrol titik 5	12	17.83	214.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	8.000
Wilcoxon W	86.000
Z	-3.733
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	6.50	78.00
metalize kontrol titik 6	12	18.50	222.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 0	12	7.50	90.00
metalize kontrol titik 7	12	17.50	210.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	12.000
Wilcoxon W	90.000
Z	-3.498
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	13.08	157.00
metalize sampel titik 2	12	11.92	143.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	65.000
Wilcoxon W	143.000
Z	-.406
Asymp. Sig. (2-tailed)	.685
Exact Sig. [2*(1-tailed Sig.)]	.713(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	14.21	170.50
metalize sampel titik 3	12	10.79	129.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	51.500
Wilcoxon W	129.500
Z	-1.192
Asymp. Sig. (2-tailed)	.233
Exact Sig. [2*(1-tailed Sig.)]	.242(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	13.38	160.50
metalize sampel titik 4	12	11.63	139.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	61.500
Wilcoxon W	139.500
Z	-.610
Asymp. Sig. (2-tailed)	.542
Exact Sig. [2*(1-tailed Sig.)]	.551(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	11.96	143.50
metalize sampel titik 5	12	13.04	156.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	65.500
Wilcoxon W	143.500
Z	-.377
Asymp. Sig. (2-tailed)	.706
Exact Sig. [2*(1-tailed Sig.)]	.713(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	11.33	136.00
metalize sampel titik 6	12	13.67	164.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	58.000
Wilcoxon W	136.000
Z	-.810
Asymp. Sig. (2-tailed)	.418
Exact Sig. [2*(1-tailed Sig.)]	.443(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	11.67	140.00
metalize sampel titik 7	12	13.33	160.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	62.000
Wilcoxon W	140.000
Z	-.580
Asymp. Sig. (2-tailed)	.562
Exact Sig. [2*(1-tailed Sig.)]	.590(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	16.00	192.00
metalize kontrol titik 0	12	9.00	108.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.476
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	15.33	184.00
metalize kontrol titik 1	12	9.67	116.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	38.000
Wilcoxon W	116.000
Z	-1.983
Asymp. Sig. (2-tailed)	.047
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	13.42	161.00
metalize kontrol titik 2	12	11.58	139.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	61.000
Wilcoxon W	139.000
Z	-.639
Asymp. Sig. (2-tailed)	.523
Exact Sig. [2*(1-tailed Sig.)]	.551(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	9.92	119.00
metalize kontrol titik 3	12	15.08	181.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	41.000
Wilcoxon W	119.000
Z	-1.794
Asymp. Sig. (2-tailed)	.073
Exact Sig. [2*(1-tailed Sig.)]	.078(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	9.21	110.50
metalize kontrol titik 4	12	15.79	189.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	32.500
Wilcoxon W	110.500
Z	-2.285
Asymp. Sig. (2-tailed)	.022
Exact Sig. [2*(1-tailed Sig.)]	.020(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	8.50	102.00
metalize kontrol titik 5	12	16.50	198.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	24.000
Wilcoxon W	102.000
Z	-2.776
Asymp. Sig. (2-tailed)	.006
Exact Sig. [2*(1-tailed Sig.)]	.005(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	6.92	83.00
metalize kontrol titik 6	12	18.08	217.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.872
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 1	12	9.25	111.00
metalize kontrol titik 7	12	15.75	189.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	33.000
Wilcoxon W	111.000
Z	-2.255
Asymp. Sig. (2-tailed)	.024
Exact Sig. [2*(1-tailed Sig.)]	.024(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	13.50	162.00
metalize sampel titik 3	12	11.50	138.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	60.000
Wilcoxon W	138.000
Z	-.701
Asymp. Sig. (2-tailed)	.483
Exact Sig. [2*(1-tailed Sig.)]	.514(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 2	12	13.25	159.00
	metalize sampel titik 4	12	11.75	141.00
Total		24		

## Test Statistics(b)

		juml_koloni
Mann-Whitney U		63.000
Wilcoxon W		141.000
Z		-.526
Asymp. Sig. (2-tailed)		.599
Exact Sig. [2*(1-tailed Sig.)]		.630(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 2	12	11.58	139.00
	metalize sampel titik 5	12	13.42	161.00
Total		24		

## Test Statistics(b)

		juml_koloni
Mann-Whitney U		61.000
Wilcoxon W		139.000
Z		-.638
Asymp. Sig. (2-tailed)		.524
Exact Sig. [2*(1-tailed Sig.)]		.551(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan		N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 2	12	10.96	131.50
	metalize sampel titik 6	12	14.04	168.50
Total		24		

## Test Statistics(b)

		juml_koloni
Mann-Whitney U		53.500
Wilcoxon W		131.500
Z		-1.073
Asymp. Sig. (2-tailed)		.283
Exact Sig. [2*(1-tailed Sig.)]		.291(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	10.79	129.50
metalize sampel titik 7	12	14.21	170.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	51.500
Wilcoxon W	129.500
Z	-1.192
Asymp. Sig. (2-tailed)	.233
Exact Sig. [2*(1-tailed Sig.)]	.242(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	16.04	192.50
metalize kontrol titik 0	12	8.96	107.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.497
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	15.08	181.00
metalize kontrol titik 1	12	9.92	119.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	41.000
Wilcoxon W	119.000
Z	-1.814
Asymp. Sig. (2-tailed)	.070
Exact Sig. [2*(1-tailed Sig.)]	.078(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	12.63	151.50
metalize kontrol titik 2	12	12.38	148.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	70.500
Wilcoxon W	148.500
Z	-.087
Asymp. Sig. (2-tailed)	.930
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	9.29	111.50
metalize kontrol titik 3	12	15.71	188.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	33.500
Wilcoxon W	111.500
Z	-2.231
Asymp. Sig. (2-tailed)	.026
Exact Sig. [2*(1-tailed Sig.)]	.024(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	8.54	102.50
metalize kontrol titik 4	12	16.46	197.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	24.500
Wilcoxon W	102.500
Z	-2.750
Asymp. Sig. (2-tailed)	.006
Exact Sig. [2*(1-tailed Sig.)]	.005(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	8.17	98.00
metalize kontrol titik 5	12	16.83	202.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	20.000
Wilcoxon W	98.000
Z	-3.013
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	6.75	81.00
metalize kontrol titik 6	12	18.25	219.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	3.000
Wilcoxon W	81.000
Z	-3.988
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 2	12	8.88	106.50
metalize kontrol titik 7	12	16.13	193.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	28.500
Wilcoxon W	106.500
Z	-2.521
Asymp. Sig. (2-tailed)	.012
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	12.58	151.00
metalize sampel titik 4	12	12.42	149.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	71.000
Wilcoxon W	149.000
Z	-.058
Asymp. Sig. (2-tailed)	.953
Exact Sig. [2*(1-tailed Sig.)]	.977(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	10.38	124.50
metalize sampel titik 5	12	14.63	175.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	46.500
Wilcoxon W	124.500
Z	-1.482
Asymp. Sig. (2-tailed)	.138
Exact Sig. [2*(1-tailed Sig.)]	.143(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	9.96	119.50
metalize sampel titik 6	12	15.04	180.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	41.500
Wilcoxon W	119.500
Z	-1.775
Asymp. Sig. (2-tailed)	.076
Exact Sig. [2*(1-tailed Sig.)]	.078(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	9.50	114.00
metalize sampel titik 7	12	15.50	186.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	36.000
Wilcoxon W	114.000
Z	-2.108
Asymp. Sig. (2-tailed)	.035
Exact Sig. [2*(1-tailed Sig.)]	.039(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	15.54	186.50
metalize kontrol titik 0	12	9.46	113.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	35.500
Wilcoxon W	113.500
Z	-2.146
Asymp. Sig. (2-tailed)	.032
Exact Sig. [2*(1-tailed Sig.)]	.033(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	14.38	172.50
metalize kontrol titik 1	12	10.63	127.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	49.500
Wilcoxon W	127.500
Z	-1.323
Asymp. Sig. (2-tailed)	.186
Exact Sig. [2*(1-tailed Sig.)]	.198(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	11.67	140.00
metalize kontrol titik 2	12	13.33	160.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	62.000
Wilcoxon W	140.000
Z	-.583
Asymp. Sig. (2-tailed)	.560
Exact Sig. [2*(1-tailed Sig.)]	.590(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	7.71	92.50
metalize kontrol titik 3	12	17.29	207.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	14.500
Wilcoxon W	92.500
Z	-3.337
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	7.83	94.00
metalize kontrol titik 4	12	17.17	206.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	16.000
Wilcoxon W	94.000
Z	-3.252
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	7.83	94.00
metalize kontrol titik 5	12	17.17	206.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	16.000
Wilcoxon W	94.000
Z	-3.242
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	6.50	78.00
metalize kontrol titik 6	12	18.50	222.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.169
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 3	12	8.17	98.00
metalize kontrol titik 7	12	16.83	202.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	20.000
Wilcoxon W	98.000
Z	-3.018
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	11.50	138.00
metalize sampel titik 5	12	13.50	162.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	60.000
Wilcoxon W	138.000
Z	-.699
Asymp. Sig. (2-tailed)	.484
Exact Sig. [2*(1-tailed Sig.)]	.514(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	10.54	126.50
metalize sampel titik 6	12	14.46	173.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	48.500
Wilcoxon W	126.500
Z	-1.368
Asymp. Sig. (2-tailed)	.171
Exact Sig. [2*(1-tailed Sig.)]	.178(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	10.50	126.00
metalize sampel titik 7	12	14.50	174.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	48.000
Wilcoxon W	126.000
Z	-1.399
Asymp. Sig. (2-tailed)	.162
Exact Sig. [2*(1-tailed Sig.)]	.178(a)

a Not corrected for ties.

b Grouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	15.29	183.50
metalize kontrol titik 0	12	9.71	116.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	38.500
Wilcoxon W	116.500
Z	-1.978
Asymp. Sig. (2-tailed)	.048
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	14.17	170.00
metalize kontrol titik 1	12	10.83	130.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	52.000
Wilcoxon W	130.000
Z	-1.181
Asymp. Sig. (2-tailed)	.237
Exact Sig. [2*(1-tailed Sig.)]	.266(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	11.63	139.50
metalize kontrol titik 2	12	13.38	160.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	61.500
Wilcoxon W	139.500
Z	-.613
Asymp. Sig. (2-tailed)	.540
Exact Sig. [2*(1-tailed Sig.)]	.551(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 4	12	9.13	109.50
	metalize kontrol titik 3	12	15.88	190.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	31.500
Wilcoxon W	109.500
Z	-2.349
Asymp. Sig. (2-tailed)	.019
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 4	12	9.13	109.50
	metalize kontrol titik 4	12	15.88	190.50
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	31.500
Wilcoxon W	109.500
Z	-2.347
Asymp. Sig. (2-tailed)	.019
Exact Sig. [2*(1-tailed Sig.)]	.017(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

**Ranks**

	perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni	metalize sampel titik 4	12	8.83	106.00
	metalize kontrol titik 5	12	16.17	194.00
	Total	24		

**Test Statistics(b)**

	juml_koloni
Mann-Whitney U	28.000
Wilcoxon W	106.000
Z	-2.551
Asymp. Sig. (2-tailed)	.011
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	8.46	101.50
metalize kontrol titik 6	12	16.54	198.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	23.500
Wilcoxon W	101.500
Z	-2.808
Asymp. Sig. (2-tailed)	.005
Exact Sig. [2*(1-tailed Sig.)]	.004(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 4	12	9.75	117.00
metalize kontrol titik 7	12	15.25	183.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	39.000
Wilcoxon W	117.000
Z	-1.920
Asymp. Sig. (2-tailed)	.055
Exact Sig. [2*(1-tailed Sig.)]	.060(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	11.92	143.00
metalize sampel titik 6	12	13.08	157.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	65.000
Wilcoxon W	143.000
Z	-.406
Asymp. Sig. (2-tailed)	.685
Exact Sig. [2*(1-tailed Sig.)]	.713(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	12.33	148.00
metalize sampel titik 7	12	12.67	152.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	70.000
Wilcoxon W	148.000
Z	-.116
Asymp. Sig. (2-tailed)	.908
Exact Sig. [2*(1-tailed Sig.)]	.932(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	16.00	192.00
metalize kontrol titik 0	12	9.00	108.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.000
Wilcoxon W	108.000
Z	-2.478
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	15.38	184.50
metalize kontrol titik 1	12	9.63	115.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	37.500
Wilcoxon W	115.500
Z	-2.017
Asymp. Sig. (2-tailed)	.044
Exact Sig. [2*(1-tailed Sig.)]	.045(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	13.88	166.50
metalize kontrol titik 2	12	11.13	133.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.957
Asymp. Sig. (2-tailed)	.338
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	10.88	130.50
metalize kontrol titik 3	12	14.13	169.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	52.500
Wilcoxon W	130.500
Z	-1.128
Asymp. Sig. (2-tailed)	.259
Exact Sig. [2*(1-tailed Sig.)]	.266(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	10.21	122.50
metalize kontrol titik 4	12	14.79	177.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	44.500
Wilcoxon W	122.500
Z	-1.592
Asymp. Sig. (2-tailed)	.111
Exact Sig. [2*(1-tailed Sig.)]	.114(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	9.38	112.50
metalize kontrol titik 5	12	15.63	187.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	34.500
Wilcoxon W	112.500
Z	-2.167
Asymp. Sig. (2-tailed)	.030
Exact Sig. [2*(1-tailed Sig.)]	.028(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	8.38	100.50
metalize kontrol titik 6	12	16.63	199.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	22.500
Wilcoxon W	100.500
Z	-2.862
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.003(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 5	12	10.04	120.50
metalize kontrol titik 7	12	14.96	179.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	42.500
Wilcoxon W	120.500
Z	-1.708
Asymp. Sig. (2-tailed)	.088
Exact Sig. [2*(1-tailed Sig.)]	.089(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	13.00	156.00
metalize sampel titik 7	12	12.00	144.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	66.000
Wilcoxon W	144.000
Z	-.348
Asymp. Sig. (2-tailed)	.728
Exact Sig. [2*(1-tailed Sig.)]	.755(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	16.58	199.00
metalize kontrol titik 0	12	8.42	101.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	23.000
Wilcoxon W	101.000
Z	-2.872
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.004(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	15.96	191.50
metalize kontrol titik 1	12	9.04	108.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	30.500
Wilcoxon W	108.500
Z	-2.423
Asymp. Sig. (2-tailed)	.015
Exact Sig. [2*(1-tailed Sig.)]	.014(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	14.38	172.50
metalize kontrol titik 2	12	10.63	127.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	49.500
Wilcoxon W	127.500
Z	-1.306
Asymp. Sig. (2-tailed)	.192
Exact Sig. [2*(1-tailed Sig.)]	.198(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	11.50	138.00
metalize kontrol titik 3	12	13.50	162.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	60.000
Wilcoxon W	138.000
Z	-.694
Asymp. Sig. (2-tailed)	.487
Exact Sig. [2*(1-tailed Sig.)]	.514(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	11.25	135.00
metalize kontrol titik 4	12	13.75	165.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	57.000
Wilcoxon W	135.000
Z	-.868
Asymp. Sig. (2-tailed)	.386
Exact Sig. [2*(1-tailed Sig.)]	.410(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	10.79	129.50
metalize kontrol titik 5	12	14.21	170.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	51.500
Wilcoxon W	129.500
Z	-1.184
Asymp. Sig. (2-tailed)	.236
Exact Sig. [2*(1-tailed Sig.)]	.242(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	10.21	122.50
metalize kontrol titik 6	12	14.79	177.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	44.500
Wilcoxon W	122.500
Z	-1.590
Asymp. Sig. (2-tailed)	.112
Exact Sig. [2*(1-tailed Sig.)]	.114(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 6	12	11.38	136.50
metalize kontrol titik 7	12	13.63	163.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	58.500
Wilcoxon W	136.500
Z	-.781
Asymp. Sig. (2-tailed)	.435
Exact Sig. [2*(1-tailed Sig.)]	.443(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	17.21	206.50
metalize kontrol titik 0	12	7.79	93.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	15.500
Wilcoxon W	93.500
Z	-3.303
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	16.58	199.00
metalize kontrol titik 1	12	8.42	101.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	23.000
Wilcoxon W	101.000
Z	-2.862
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.004(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	14.58	175.00
metalize kontrol titik 2	12	10.42	125.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	47.000
Wilcoxon W	125.000
Z	-1.450
Asymp. Sig. (2-tailed)	.147
Exact Sig. [2*(1-tailed Sig.)]	.160(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	10.50	126.00
metalize kontrol titik 3	12	14.50	174.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	48.000
Wilcoxon W	126.000
Z	-1.391
Asymp. Sig. (2-tailed)	.164
Exact Sig. [2*(1-tailed Sig.)]	.178(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	9.71	116.50
metalize kontrol titik 4	12	15.29	183.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	38.500
Wilcoxon W	116.500
Z	-1.944
Asymp. Sig. (2-tailed)	.052
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize sampel titik 7	12	8.83	106.00
metalize kontrol titik 5	12	16.17	194.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	28.000
Wilcoxon W	106.000
Z	-2.545
Asymp. Sig. (2-tailed)	.011
Exact Sig. [2*(1-tailed Sig.)]	.010(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
jumlah_koloni metalize sampel titik 7	12	7.04	84.50
jumlah_koloni metalize kontrol titik 6	12	17.96	215.50
Total	24		

## Test Statistics(b)

	jumlah_koloni
Mann-Whitney U	6.500
Wilcoxon W	84.500
Z	-3.790
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
jumlah_koloni metalize sampel titik 7	12	9.71	116.50
jumlah_koloni metalize kontrol titik 7	12	15.29	183.50
Total	24		

## Test Statistics(b)

	jumlah_koloni
Mann-Whitney U	38.500
Wilcoxon W	116.500
Z	-1.944
Asymp. Sig. (2-tailed)	.052
Exact Sig. [2*(1-tailed Sig.)]	.052(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
jumlah_koloni metalize kontrol titik 0	12	11.13	133.50
jumlah_koloni metalize kontrol titik 1	12	13.88	166.50
Total	24		

## Test Statistics(b)

	jumlah_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.988
Asymp. Sig. (2-tailed)	.323
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Grouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	8.96	107.50
metalize kontrol titik 2	12	16.04	192.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.500
Wilcoxon W	107.500
Z	-2.504
Asymp. Sig. (2-tailed)	.012
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	6.92	83.00
metalize kontrol titik 3	12	18.08	217.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.000
Wilcoxon W	83.000
Z	-3.908
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	6.96	83.50
metalize kontrol titik 4	12	18.04	216.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	5.500
Wilcoxon W	83.500
Z	-3.876
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	7.00	84.00
metalize kontrol titik 5	12	18.00	216.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	6.000
Wilcoxon W	84.000
Z	-3.849
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	6.50	78.00
metalize kontrol titik 6	12	18.50	222.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.192
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 0	12	7.38	88.50
metalize kontrol titik 7	12	17.63	211.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	10.500
Wilcoxon W	88.500
Z	-3.588
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	9.79	117.50
metalize kontrol titik 2	12	15.21	182.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	39.500
Wilcoxon W	117.500
Z	-1.901
Asymp. Sig. (2-tailed)	.057
Exact Sig. [2*(1-tailed Sig.)]	.060(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	7.17	86.00
metalize kontrol titik 3	12	17.83	214.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	8.000
Wilcoxon W	86.000
Z	-3.715
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	7.21	86.50
metalize kontrol titik 4	12	17.79	213.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	8.500
Wilcoxon W	86.500
Z	-3.683
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	7.25	87.00
metalize kontrol titik 5	12	17.75	213.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	9.000
Wilcoxon W	87.000
Z	-3.652
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	6.50	78.00
metalize kontrol titik 6	12	18.50	222.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.171
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 1	12	7.75	93.00
metalize kontrol titik 7	12	17.25	207.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	15.000
Wilcoxon W	93.000
Z	-3.320
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan



## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 2	12	8.50	102.00
metalize kontrol titik 3	12	16.50	198.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	24.000
Wilcoxon W	102.000
Z	-2.792
Asymp. Sig. (2-tailed)	.005
Exact Sig. [2*(1-tailed Sig.)]	.005(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 2	12	8.33	100.00
metalize kontrol titik 4	12	16.67	200.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	22.000
Wilcoxon W	100.000
Z	-2.898
Asymp. Sig. (2-tailed)	.004
Exact Sig. [2*(1-tailed Sig.)]	.003(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 2	12	8.17	98.00
metalize kontrol titik 5	12	16.83	202.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	20.000
Wilcoxon W	98.000
Z	-3.019
Asymp. Sig. (2-tailed)	.003
Exact Sig. [2*(1-tailed Sig.)]	.002(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 2	12	6.71	80.50
metalize kontrol titik 6	12	18.29	219.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	2.500
Wilcoxon W	80.500
Z	-4.022
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 2	12	8.75	105.00
metalize kontrol titik 7	12	16.25	195.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	27.000
Wilcoxon W	105.000
Z	-2.605
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.008(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 3	12	11.33	136.00
metalize kontrol titik 4	12	13.67	164.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	58.000
Wilcoxon W	136.000
Z	-.810
Asymp. Sig. (2-tailed)	.418
Exact Sig. [2*(1-tailed Sig.)]	.443(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 3	12	10.17	122.00
metalize kontrol titik 5	12	14.83	178.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	44.000
Wilcoxon W	122.000
Z	-1.620
Asymp. Sig. (2-tailed)	.105
Exact Sig. [2*(1-tailed Sig.)]	.114(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 3	12	8.92	107.00
metalize kontrol titik 6	12	16.08	193.00
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	29.000
Wilcoxon W	107.000
Z	-2.486
Asymp. Sig. (2-tailed)	.013
Exact Sig. [2*(1-tailed Sig.)]	.012(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 3	12	10.96	131.50
metalize kontrol titik 7	12	14.04	168.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	53.500
Wilcoxon W	131.500
Z	-1.070
Asymp. Sig. (2-tailed)	.285
Exact Sig. [2*(1-tailed Sig.)]	.291(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 4	12	11.13	133.50
metalize kontrol titik 5	12	13.88	166.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.955
Asymp. Sig. (2-tailed)	.340
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 4	12	9.88	118.50
metalize kontrol titik 6	12	15.13	181.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	40.500
Wilcoxon W	118.500
Z	-1.821
Asymp. Sig. (2-tailed)	.069
Exact Sig. [2*(1-tailed Sig.)]	.068(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 4	12	12.13	145.50
metalize kontrol titik 7	12	12.88	154.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	67.500
Wilcoxon W	145.500
Z	-.260
Asymp. Sig. (2-tailed)	.795
Exact Sig. [2*(1-tailed Sig.)]	.799(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 5	12	12.21	146.50
metalize kontrol titik 6	12	12.79	153.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	68.500
Wilcoxon W	146.500
Z	-.202
Asymp. Sig. (2-tailed)	.840
Exact Sig. [2*(1-tailed Sig.)]	.843(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 5	12	13.88	166.50
metalize kontrol titik 7	12	11.13	133.50
Total	24		

## Test Statistics(b)

	juml_koloni
Mann-Whitney U	55.500
Wilcoxon W	133.500
Z	-.953
Asymp. Sig. (2-tailed)	.340
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

b Gouping Variable: perlakuan

## Ranks

perlakuan	N	Mean Rank	Sum of Ranks
juml_koloni metalize kontrol titik 6	12	13.92	167.00
metalize kontrol titik 7	12	11.08	133.00
Total	24		

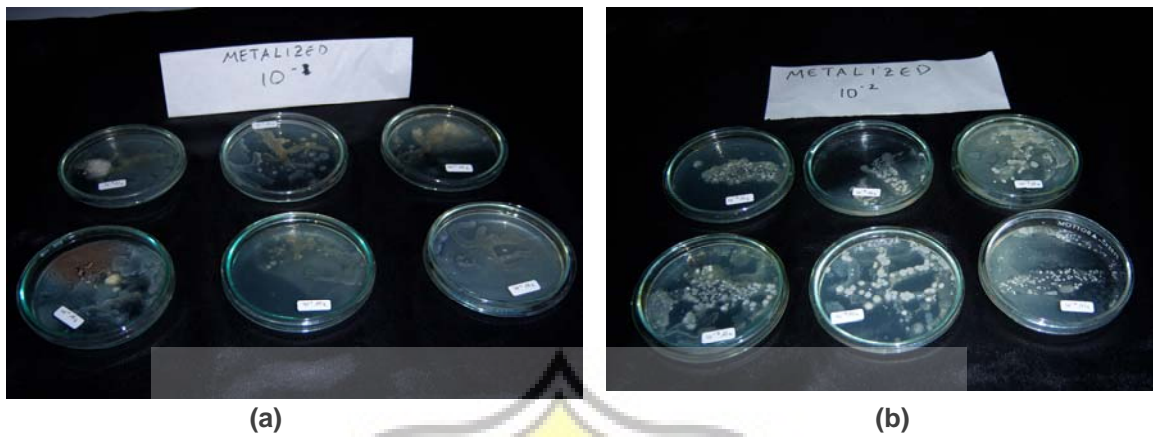
## Test Statistics(b)

	juml_koloni
Mann-Whitney U	55.000
Wilcoxon W	133.000
Z	-.982
Asymp. Sig. (2-tailed)	.326
Exact Sig. [2*(1-tailed Sig.)]	.347(a)

a Not corrected for ties.

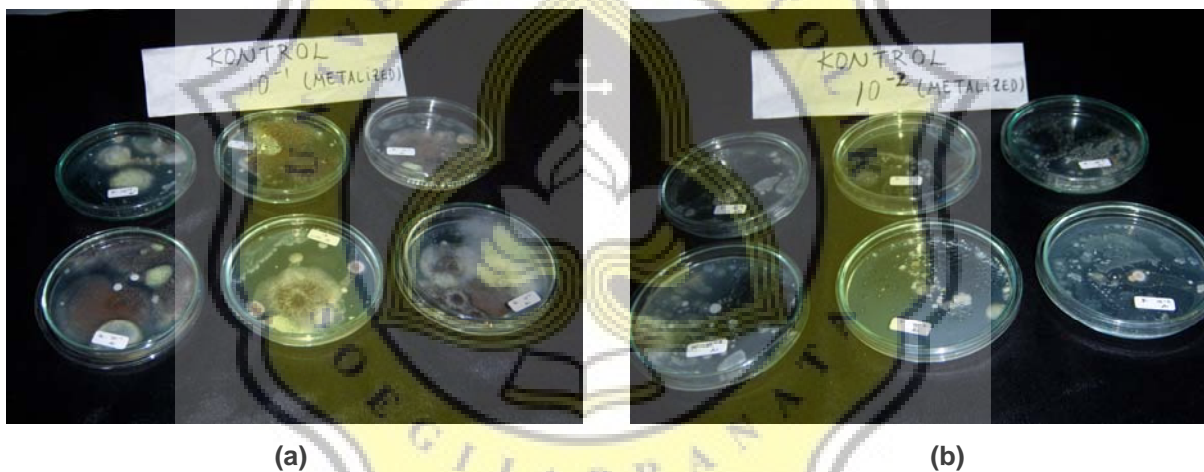
b Gouping Variable: perlakuan

**Gambar Kapang pada Minuman Herbal Instant Selama Penyimpanan**  
**Lampiran 2. Gambar Kapang pada Minuman Herbal Instant Selama Penyimpanan**



Gambar 15. Kapang Pada Minuman Herbal Instant yang Dikemas *Metalize*

(a) Pengenceran  $10^{-1}$  (b) Pengenceran  $10^{-2}$



Gambar 16. Kapang Pada Kontrol yang Dikemas *Metalize*

(a) Pengenceran  $10^{-1}$  (b) Pengenceran  $10^{-2}$



Gambar 17. Kapang Pada Kontrol yang Dikemas Kantong *Cellulose*



Gambar 18. Kapang Pada Minuman Herbal Instant yang Dikemas Kantong *Cellulose*



## Lembar Kuisisioner

### Lampiran 3. Lembar Kuisisioner

Nama :

Umur :

Nim :

Produk : minuman herbal

	Rasa	Aroma	Kemanisan	Kepedasan	rasa hangat	kepahitan	overall
301							
302							
303							

Keterangan :

Rasa dan aroma	Kemanisan	Kepedasan, rasa hangat dan kepahitan
+ : lemah	+ : tidak manis	+ : tidak pedas / hangat / pahit
++ : agak kuat	++ : agak manis	++ : agak pedas / hangat / pahit
+++ : cukup kuat	+++ : cukup manis	+++ : cukup pedas / hangat / pahit
++++ : kuat	++++ : manis	++++ : pedas / hangat / pahit
+++++ : kuat sekali	+++++ : manis sekali	+++++ : pedas sekali / hangat sekali / pahit sekali

overall :

+ : tidak diterima
++ : agak diterima
+++ : cukup diterima
++++ : diterima
+++++ : diterima sekali

Pendapat :

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## Perhitungan Umur Simpan

### Lampiran 4. Perhitungan Umur Simpan

Contoh perhitungan umur simpan:

Dalam penelitian ini digunakan suhu 39 °C selama 49 hari, maka bila dikonversikan pada suhu kamar (25 °C) menjadi:

$$Q = 2$$

$$ts(T_2) = 49 \text{ hari}$$

$$\text{suhu kamar } (T_1) = 25 \text{ } ^\circ\text{C}$$

$$\text{suhu penelitian } (T_2) = 39 \text{ } ^\circ\text{C}$$

$$\delta T = T_2 - T_1 = 39 \text{ } ^\circ\text{C} - 25 \text{ } ^\circ\text{C} = 14 \text{ } ^\circ\text{C}$$

$$ts(T_1) = ts(T_2) \times Q^{\delta T/10}$$

$$= 49 \text{ hari} \times 2^{14/10}$$

$$= 49 \text{ hari} \times 2.639$$

$$= 129,311 \text{ hari}$$

$$= 4,3 \text{ bulan}$$

$$\text{Diasumsikan } = 1 \text{ minggu} = 7 \text{ hari}$$

$$= 1 \text{ bulan} = 30 \text{ hari}$$

