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Lampiran 1

Kadar Hematocrit

Hari Ke-	Perlakuan	U1	U 2	U3	Jumlah	Rata-Rata	Stdr Dev
Sebelum Uji tantang (H0)	K-	25.71	18.92	19.23	63.86	21.29	3.8
	K+	25.71	18.92	19.23	63.86	21.29	3.8
	A	25.71	18.92	19.23	63.86	21.29	3.8
	B	25.71	18.92	19.23	63.86	21.29	3.8
	C	25.71	18.92	19.23	63.86	21.29	3.8
Pasca Uji Tantang (H 1)	K-	25.71	18.92	19.23	63.86	21.29	3.8
	K+	37.14	42.86		80	26.67	4.0
	A	35.48	45.95		81.43	27.14	7.4
	B	43.24	40.48	58.62	142.34	47.45	9.8
	C	42.22	40.48	27.27	109.97	36.66	8.2
Hari Terakhir (H14)	K-	40.74	36.36		77.1	25.70	3.1
	K+	46.15	46.15	46.15	138.45	46.15	0.0
	A	34.88	32.56		67.44	22.48	1.6
	B	38.46	38.1		76.56	25.52	0.3
	C	40	40		80	26.67	0.0

Lampiran 2

Kadar Hemoglobin

Hari Ke-	Perlakuan	U1	U 2	U3	Jumlah	Rata-Rata	Stdr Dev
Sebelum Uji tantang (H0)	K-	2.2	2.2	2.2	6.6	2.20	0.00
	K+	2.2	2.2	2.2	6.6	2.20	0.00
	A	2.2	2.2	2.2	6.6	2.20	0.00
	B	2.2	2.2	2.2	6.6	2.20	0.00
	C	2.2	2.2	2.2	6.6	2.20	0.00
Pasca Uji Tantang (H 1)	K-	2.2	2.2	2.2	6.6	2.20	0.00
	K+	3.3	3.3	3.3	9.9	3.30	0.00
	A	3.1	3.1	3.1	9.3	3.10	0.00
	B	2.9	2.9	2.9	8.7	2.90	0.00
	C	1.5	1.5	1.5	4.5	1.50	0.00
Hari Terakhir (H14)	K-	2.9	2.8	2.8	8.5	2.83	0.06
	K+	2.7	2.6	2.8	8.1	2.70	0.10
	A	3	3.2	3	9.2	3.07	0.12
	B	2.9	3	3	8.9	2.97	0.06
	C	2.8	2.6	2.5	7.9	2.63	0.15

Lampiran 3

Total Leukosit

Hari Ke-	Perlakuan	U1	U 2	U3	Jumlah	Rata-Rata	Stdr Dev
Sebelum Uji tantang (H0)	K-	13.3	9.2	5.5	28	9.33	3.90
	K+	13.3	9.2	5.5	28	9.33	3.90
	A	13.3	9.2	5.5	28	9.33	3.90
	B	13.3	9.2	5.5	28	9.33	3.90
	C	13.3	9.2	5.5	28	9.33	3.90
Pasca Uji Tantang (H 1)	K-	13.3	9.2	5.5	28	9.33	3.90
	K+	6.9	6.6	7.7	21.2	7.07	0.57
	A	8.1	4.1	6.3	18.5	6.17	2.00
	B	11	10.7	14.4	36.1	12.03	2.06
	C	3.9	3.6	2.6	10.1	3.37	0.68
Hari Terakhir (H14)	K-	4.5	4.3	6.3	15.1	5.03	1.10
	K+	12.2	11.6	10.6	34.4	11.47	0.81
	A	16	17.7	15.4	49.1	16.37	1.19
	B	8.4	8.3	8.4	25.1	8.37	0.06
	C	3.5	4.4	3.5	11.4	3.80	0.52

Lampiran 4

Total Eritrosit

Hari Ke-	Perlakuan	U1	U 2	U3	Jumlah	Rata-Rata	Stdr Dev
Sebelum Uji tantang (H0)	K-	8.21	9.22	10.25	27.68	9.23	1.02
	K+	8.21	9.22	10.25	27.68	9.23	1.02
	A	8.21	9.22	10.25	27.68	9.23	1.02
	B	8.21	9.22	10.25	27.68	9.23	1.02
	C	8.21	9.22	10.25	27.68	9.23	1.02
Pasca Uji Tantang (H 1)	K-	8.21	9.22	10.25	27.68	9.23	1.02
	K+	6.87	9.86	7.7	24.43	8.14	1.54
	A	6.97	8.92	6.3	22.19	7.40	1.36
	B	2.11	1.99	14.4	18.5	6.17	7.13
	C	8.21	9.92	2.6	20.73	6.91	3.83
Hari Terakhir (H14)	K-	5.97	5.53	4.14	15.64	5.21	0.96
	K+	4.93	7.57	6.21	18.71	6.24	1.32
	A	9.76	3.03	9.67	22.46	7.49	3.86
	B	1.72	1.94	2.11	5.77	1.92	0.20
	C	2.41	0.95	1.75	5.11	1.70	0.73

Lampiran 5
Perhitungan Sidik Ragam ANOVA Kadar Hematokrit
Results for: Worksheet 1
One-way ANOVA: H0 versus Dosis

Source DF SS MS F P
Dosis 4 0.0 0.0 0.00 1.000
Error 10 147.0 14.7
Total 14 147.0

S = 3.834 R-Sq = 0.00% R-Sq(adj) = 0.00%

Individual 95% CIs For Mean Based on Pooled StDev

Level N Mean StDev -----+---------+---------+---------+----
0 3 21.287 3.834 (-------------------*-------------------)
1 3 21.287 3.834 (-------------------*-------------------)
2 3 21.287 3.834 (-------------------*-------------------)
3 3 21.287 3.834 (-------------------*-------------------)
4 3 21.287 3.834 (-------------------*-------------------)
-----+---------+---------+---------+----
17.5 20.0 22.5 25.0

Pooled StDev = 3.834

Grouping Information Using Dunnett Method

Level N Mean Grouping
1 (control) 3 21.287 A
4 3 21.287 A
3 3 21.287 A
2 3 21.287 A
0 3 21.287 A

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control
Family error rate = 0.05
Individual error rate = 0.0161
Critical value = 2.89
Control = level (1) of Dosis

Intervals for treatment mean minus control mean

Level Lower Center Upper --------+---------+---------+---------+-
0 -9.048 0.000 9.048 (-----------------*-----------------)
2 -9.048 0.000 9.048 (-----------------*-----------------)
3 -9.048 0.000 9.048 (-----------------*-----------------)
4 -9.048 0.000 9.048 (-----------------*-----------------)
--------+---------+---------+---------+-
-5.0 0.0 5.0 10.0

Results for: Worksheet 2
One-way ANOVA: H1 versus Dosis

Source DF SS MS F P
Dosis 4 1113.2 278.3 5.23 0.023
Error 8 425.3 53.2
Total 12 1538.5

S = 7.291 R-Sq = 72.36% R-Sq(adj) = 58.53%

Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	+---------+---------+---------+---------
0	3	21.287	3.834	(-------*-------)
1	2	40.000	4.045	(---------*---------)
2	2	40.715	7.403	(---------*---------)
3	3	47.447	9.774	(--------*-------)
4	3	36.657	8.176	(--------*-------)

+---------+---------+---------+---------
12 24 36 48

Pooled StDev = 7.291

Grouping Information Using Dunnett Method

Level	N	Mean	Grouping
1 (control)	2	40.000	A
3	3	47.447	A
2	2	40.715	A
4	3	36.657	A
0	3	21.287	A

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

Family error rate = 0.05

Individual error rate = 0.0174

Critical value = 2.99

Control = level (1) of Dosis

Intervals for treatment mean minus control mean

Level	Lower	Center	Upper	---------+---------+---------+---------
0	-38.592	-18.713	1.166	(---------*---------)
2	-21.061	0.715	22.491	(----------*----------)
3	-12.432	7.447	27.326	(---------*---------)
4	-23.222	-3.343	16.536	(---------*---------)

---------+---------+---------+---------+
-20 0 20 40

Results for: Worksheet 3

One-way ANOVA: H14 versus Dosis

Source	DF	SS	MS	F	P
Dosis	4	202.45	50.61	24.59	0.001
Error	6	12.35	2.06		
Total	10	214.80			

S = 1.435 R-Sq = 94.25% R-Sq(adj) = 90.42%

Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	--------+---------+---------+---------+-
0	2	38.550	3.097	(----*----)
1	3	46.150	0.000	(---*---)
2	2	33.720	1.640	(----*----)
3	2	38.280	0.255	(----*----)
4	2	40.000	0.000	(----*----)

--------+---------+---------+---------+-
35.0 40.0 45.0 50.0

Pooled StDev = 1.435
Grouping Information Using Dunnett Method
Level N Mean Grouping
1 (control) 3 46.150 A
4 2 40.000
0 2 38.550
3 2 38.280
2 2 33.720
Means not labeled with letter A are significantly different from control level mean.
Dunnett's comparisons with a control
Family error rate = 0.05
Individual error rate = 0.0162
Critical value = 3.31
Control = level (1) of Dosis
Intervals for treatment mean minus control mean

Level	Lower	Center	Upper	--+---------+---------+---------+-------
0	-11.934	-7.600	-3.266	(----------*----------)
2	-16.764	-12.430	-8.096	(----------*----------)
3	-12.204	-7.870	-3.536	(----------*----------)
4	-10.484	-6.150	-1.816	(----------*---------)

--+---------+---------+---------+-------
-16.0 -12.0 -8.0 -4.0

Lampiran 6
Perhitungan Sidik Ragam ANOVA Kadar Hemoglobin
One-way ANOVA: H0 versus Dosis

Source DF SS MS F P
Dosis 4 0.0000000 0.0000000 * *
Error 10 0.0000000 0.0000000
Total 14 0.0000000
S = 0 R-Sq = *% R-Sq(adj) = *%
Individual 95% CIs For Mean Based on Pooled StDev
Level N Mean StDev +---------+---------+---------+---------
0 3 2.20000 0.00000 *
1 3 2.20000 0.00000 *
2 3 2.20000 0.00000 *
3 3 2.20000 0.00000 *
4 3 2.20000 0.00000 *
+---------+---------+---------+---------
2.20000 2.20025 2.20050 2.20075
Pooled StDev = 0.00000
Grouping Information Using Dunnett Method
Level N Mean Grouping
1 (control) 3 2.200000000 A
4 3 2.200000000
3 3 2.200000000
2 3 2.200000000
0 3 2.200000000
Means not labeled with letter A are significantly different from control level mean.
Dunnett's comparisons with a control
Family error rate = 0.05
Critical value = 2.89
Individual error rate = 0.0161
Control = level (1) of Dosis

Intervals for treatment mean minus control mean
Level Lower Center Upper
0 0.000000000 0.000000000 0.000000000
2 0.000000000 0.000000000 0.000000000
3 0.000000000 0.000000000 0.000000000
4 0.000000000 0.000000000 0.000000000
Level +---------+---------+---------+---------
0 *
2 *
3 *
4 *
+---------+---------+---------+---------
0.000000 0.000010 0.000020 0.000030

Results for: Worksheet 2

One-way ANOVA: H1 versus Dosis

```
Source  DF       SS       MS  F  P
Dosis    4  6.600000  1.650000  *  *
Error   10  0.000000  0.000000
Total   14  6.600000
S = 0   R-Sq = 100.00%   R-Sq(adj) = 100.00%
Individual 95% CIs For Mean Based on Pooled StDev
Level  N    Mean    StDev   +---------+---------+---------+---------
0      3  2.20000  0.00000             *
1      3  3.30000  0.00000                                 *
2      3  3.10000  0.00000                               *
3      3  2.90000  0.00000                             *
4      3  1.50000  0.00000   *
                    +---------+---------+---------+---------
                   1.50      2.00      2.50      3.00
Pooled StDev = 0.00000


Grouping Information Using Dunnett Method
Level        N     Mean  Grouping
1 (control)  3  3.30000  A
2            3  3.10000
3            3  2.90000
0            3  2.20000
4            3  1.50000
Means not labeled with letter A are significantly different from control level
mean.
Dunnett's comparisons with a control
Family error rate = 0.05
Individual error rate = 0.0161
Critical value = 2.89
Control = level (1) of Dosis
Intervals for treatment mean minus control mean
Level    Lower    Center    Upper  -----+---------+---------+---------+----
0     -1.10000  -1.10000  -1.10000               *
2     -0.20000  -0.20000  -0.20000                                   *
3     -0.40000  -0.40000  -0.40000                                 *
4     -1.80000  -1.80000  -1.80000  *
                          -----+---------+---------+---------+----
                           -1.60     -1.20     -0.80     -0.40
```

Results for: Worksheet 3

One-way ANOVA: H14 versus Dosis

```
Source  DF      SS      MS     F      P
Dosis    4  0.3893  0.0973  9.12  0.002
Error   10  0.1067  0.0107
Total   14  0.4960
S = 0.1033   R-Sq = 78.49%   R-Sq(adj) = 69.89%
```

Individual 95% CIs For Mean Based on Pooled StDev

```
Level  N    Mean   StDev  -----+---------+---------+---------+----
0      3  2.8333  0.0577           (------*-----)
1      3  2.7000  0.1000     (------*------)
2      3  3.0667  0.1155                  (-----*------)
3      3  2.9667  0.0577               (-----*------)
4      3  2.6333  0.1528  (------*-----)
                     -----+---------+---------+---------+----
                       2.60      2.80      3.00      3.20
```

Pooled StDev = 0.1033

Grouping Information Using Dunnett Method

Level	N	Mean	Grouping
1 (control)	3	2.7000	A
2	3	3.0667	
3	3	2.9667	
0	3	2.8333	A
4	3	2.6333	A

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

Family error rate = 0.05

Individual error rate = 0.0161

Critical value = 2.89

Control = level (1) of Dosis

Intervals for treatment mean minus control mean

```
Level    Lower   Center   Upper   --+---------+---------+---------+-------
0      -0.1104   0.1333  0.3771          (--------*---------)
2       0.1229   0.3667  0.6104                  (---------*--------)
3       0.0229   0.2667  0.5104               (---------*--------)
4      -0.3104  -0.0667  0.1771   (--------*---------)
                              --+---------+---------+---------+-------
                             -0.25      0.00      0.25      0.50
```

Lampiran 7
Perhitungan Sidik Ragam ANOVA Total Leukosit
One-way ANOVA: H0 versus Dosis

Source DF SS MS F P
Dosis 4 0.0 0.0 0.00 1.000
Error 10 152.2 15.2
Total 14 152.2
S = 3.902 R-Sq = 0.00% R-Sq(adj) = 0.00%
Individual 95% CIs For Mean Based on Pooled StDev

```
Level  N   Mean  StDev  ------+---------+---------+---------+---
0      3  9.333  3.902  (----------------*----------------)
1      3  9.333  3.902  (----------------*----------------)
2      3  9.333  3.902  (----------------*----------------)
3      3  9.333  3.902  (----------------*----------------)
4      3  9.333  3.902  (----------------*----------------)
                ------+---------+---------+---------+---
                    6.0       9.0      12.0      15.0
```

Pooled StDev = 3.902
Grouping Information Using Dunnett Method

```
Level        N   Mean  Grouping
1 (control)  3  9.333  A
4            3  9.333  A
3            3  9.333  A
2            3  9.333  A
0            3  9.333  A
```

Means not labeled with letter A are significantly different from control level mean.
Dunnett's comparisons with a control
Family error rate = 0.05
Individual error rate = 0.0161
Critical value = 2.89
Control = level (1) of Dosis
Intervals for treatment mean minus control mean

```
Level   Lower  Center  Upper  --------+---------+---------+---------+-
0      -9.209   0.000  9.209  (-----------------*-----------------)
2      -9.209   0.000  9.209  (-----------------*-----------------)
3      -9.209   0.000  9.209  (-----------------*-----------------)
4      -9.209   0.000  9.209  (-----------------*-----------------)
                --------+---------+---------+---------+-
                    -5.0       0.0       5.0      10.0
```

Results for: Worksheet 2
One-way ANOVA: H1 versus Dosis

Source DF SS MS F P
Dosis 4 128.76 32.19 6.64 0.007
Error 10 48.49 4.85
Total 14 177.25
S = 2.202 R-Sq = 72.64% R-Sq(adj) = 61.70%
Individual 95% CIs For Mean Based on Pooled StDev

```
Level  N    Mean  StDev  ---------+---------+---------+---------+
0      3   9.333  3.902              (------*------)
1      3   7.067  0.569          (------*------)
2      3   6.167  2.003        (------*------)
3      3  12.033  2.055                   (------*------)
4      3   3.367  0.681  (------*------)
                   ---------+---------+---------+---------+
                        4.0       8.0      12.0      16.0
Pooled StDev = 2.202
```

Grouping Information Using Dunnett Method

```
Level        N    Mean  Grouping
1 (control)  3   7.067  A
3            3  12.033  A
0            3   9.333  A
2            3   6.167  A
4            3   3.367  A
```

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

```
Family error rate = 0.05
Individual error rate = 0.0161
Critical value = 2.89
Control = level (1) of Dosis
Intervals for treatment mean minus control mean
Level   Lower  Center   Upper  --------+---------+---------+---------+-
0      -2.931   2.267   7.464            (----------*---------)
2      -6.097  -0.900   4.297       (----------*----------)
3      -0.231   4.967  10.164                 (---------*---------)
4      -8.897  -3.700   1.497  (----------*---------)
                       --------+---------+---------+---------+-
                          -5.0       0.0       5.0      10.0
```

Results for: Worksheet 3

One-way ANOVA: H14 versus Dosis

```
Source  DF      SS      MS       F      P
Dosis    4  310.583  77.646  108.95  0.000
Error   10    7.127   0.713
Total   14  317.709
S = 0.8442   R-Sq = 97.76%   R-Sq(adj) = 96.86%
Individual 95% CIs For Mean Based on Pooled StDev
Level  N    Mean  StDev  ---+---------+---------+---------+------
0      3   5.033  1.102     (--*-)
1      3  11.467  0.808                 (--*-)
2      3  16.367  1.193                          (--*--)
3      3   8.367  0.058           (--*--)
4      3   3.800  0.520  (--*-)
                   ---+---------+---------+---------+------
                      4.0       8.0      12.0      16.0
Pooled StDev = 0.844
```

Grouping Information Using Dunnett Method

Level	N	Mean	Grouping
1 (control)	3	11.4667	A
2	3	16.3667	
3	3	8.3667	
0	3	5.0333	
4	3	3.8000	

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

Family error rate = 0.05

Individual error rate = 0.0161

Critical value = 2.89

Control = level (1) of Dosis

Intervals for treatment mean minus control mean

Level	Lower	Center	Upper	---------+---------+---------+---------+
0	-8.4258	-6.4333	-4.4409	(---*---)
2	2.9076	4.9000	6.8924	(---*---)
3	-5.0924	-3.1000	-1.1076	(---*---)
4	-9.6591	-7.6667	-5.6742	(---*---)

---------+---------+---------+---------+

-5.0 0.0 5.0 10.0

Lampiran 8
Perhitungan Sidik Ragam ANOVA Total Eritrosit
One-way ANOVA: H0 versus Dosis

Source DF SS MS F P
Dosis 4 0.00 0.00 0.00 1.000
Error 10 10.40 1.04
Total 14 10.40

S = 1.020 R-Sq = 0.00% R-Sq(adj) = 0.00%

Individual 95% CIs For Mean Based on Pooled StDev

Level N Mean StDev -------+---------+---------+---------+--
0 3 9.227 1.020 (------------------*------------------)
1 3 9.227 1.020 (------------------*------------------)
2 3 9.227 1.020 (------------------*------------------)
3 3 9.227 1.020 (------------------*------------------)
4 3 9.227 1.020 (------------------*------------------)
-------+---------+---------+---------+--
8.40 9.10 9.80 10.50

Pooled StDev = 1.020

Grouping Information Using Dunnett Method

Level N Mean Grouping
1 (control) 3 9.227 A
4 3 9.227 A
3 3 9.227 A
2 3 9.227 A
0 3 9.227 A

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control
Family error rate = 0.05
Individual error rate = 0.0161
Critical value = 2.89
Control = level (1) of Dosis

Intervals for treatment mean minus control mean

Level Lower Center Upper ------+---------+---------+---------+---
0 -2.407 0.000 2.407 (---------------*---------------)
2 -2.407 0.000 2.407 (---------------*---------------)
3 -2.407 0.000 2.407 (---------------*---------------)
4 -2.407 0.000 2.407 (---------------*---------------)
------+---------+---------+---------+---
-1.5 0.0 1.5 3.0

Results for: Worksheet 2
One-way ANOVA: H1 versus Dosis

Source DF SS MS F P
Dosis 4 115.83 28.96 19.14 0.000
Error 10 15.13 1.51
Total 14 130.96

S = 1.230 R-Sq = 88.45% R-Sq(adj) = 83.83%

Individual 95% CIs For Mean Based on Pooled StDev

```
Level  N   Mean  StDev  ---------+---------+---------+---------+
0      3  9.227  1.020                    (-----*----)
1      3  8.207  1.520                  (----*-----)
2      3  8.660  1.596                    (----*----)
3      3  1.770  0.489  (----*----)
4      3  8.583  1.195                    (-----*----)
                  ---------+---------+---------+---------+
                       3.0       6.0       9.0      12.0
Pooled StDev = 1.230
```

Grouping Information Using Dunnett Method

```
Level       N   Mean  Grouping
1 (control)  3  8.207  A
0            3  9.227  A
2            3  8.660  A
4            3  8.583  A
3            3  1.770
```

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

Family error rate = 0.05

Individual error rate = 0.0161

Critical value = 2.89

Control = level (1) of Dosis

Intervals for treatment mean minus control mean

```
Level   Lower  Center   Upper  -------+---------+---------+---------+--
0      -1.883   1.020   3.923                   (-------*-------)
2      -2.449   0.453   3.356                 (-------*--------)
3      -9.339  -6.437  -3.534  (--------*-------)
4      -2.526   0.377   3.279                 (-------*-------)
                      -------+---------+---------+---------+--
                        -7.0      -3.5       0.0       3.5
```

Results for: Worksheet 3

One-way ANOVA: H14 versus Dosis

```
Source  DF     SS     MS     F      P
Dosis    4   80.77  20.19  5.57  0.013
Error   10   36.27   3.63
Total   14  117.04
S = 1.904   R-Sq = 69.01%   R-Sq(adj) = 56.62%
```

Individual 95% CIs For Mean Based on Pooled StDev

```
Level  N   Mean  StDev  --+---------+---------+---------+-------
0      3  5.213  0.955           (-------*--------)
1      3  6.237  1.320              (-------*-------)
2      3  7.487  3.860                 (-------*-------)
3      3  1.923  0.196  (-------*--------)
4      3  1.700  0.736  (-------*-------)
                  --+---------+---------+---------+-------
                    0.0       3.0       6.0       9.0
Pooled StDev = 1.904
```

Grouping Information Using Dunnett Method

Level	N	Mean	Grouping
1 (control)	3	6.237	A
2	3	7.487	A
0	3	5.213	A
3	3	1.923	A
4	3	1.700	

Means not labeled with letter A are significantly different from control level mean.

Dunnett's comparisons with a control

Family error rate = 0.05

Individual error rate = 0.0161

Critical value = 2.89

Control = level (1) of Dosis

Intervals for treatment mean minus control mean

Level	Lower	Center	Upper	---+---------+---------+---------+------
0	-5.518	-1.023	3.471	(----------*----------)
2	-3.245	1.250	5.745	(----------*----------)
3	-8.808	-4.313	0.181	(----------*----------)
4	-9.031	-4.537	-0.042	(----------*----------)

---+---------+---------+---------+------

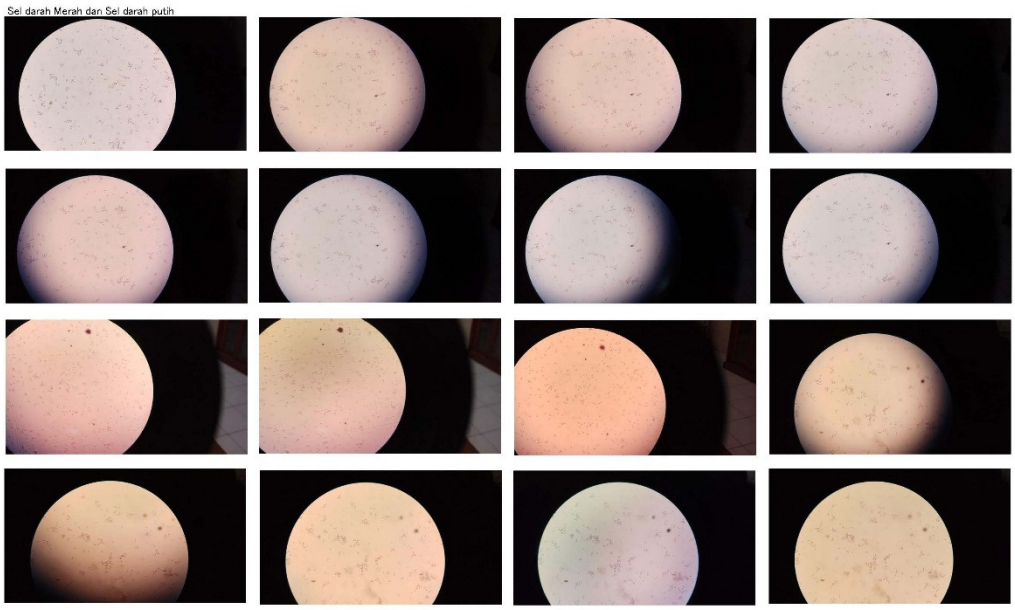
-8.0 -4.0 0.0 4.0

Lampiran 9
Foto – foto Kegiatan

Foto kegiatan

Alat dan Bahan

Hasil pengamatan



Lampiran 10
Riwayat Hidup

Penulis dilahirkan di Blitar pada tanggal 23 Mei 1988. Penulis merupakan anak ketiga dari tiga bersaudara dari pasangan ayah yang bernama Tamsir dan ibu bernama Sumartun. Pendidikan Formal yang ditempuh penulis mulai dari SD Negeri 1 Sumberdadi Bakung Blitar pada tahun 1995 hingga 2001, selanjutnya ditempuh di SMP Negeri 1 Bakung Blitar pada tahun 2001 sampai 2004, selanjutnya ditempuh di SMK Negeri 1 Bakung Blitar Lulus pada tahun 2007, dan sempat mengikuti Program Magang di Jepang selama 3 tahun pada Industri Pengolahan Seafood. Penulis diterima sebagai Mahasiswa Budidaya Perikanan, Fakultas Pertanian, Universitas Muhammadiyah Gresik pada tahun 2012 dan dinyatakan lulus pada tahun 2018. Selama studi di universitas Muhammadiyah, penulis mengikuti kegiatan Pengembangan Kreatifitas Mahasiswa (PKM) dengan judul "Meningkatkan Produktifitas Usaha Pembenihan Ikan Lele Dumbo dengan Pembuatan Pakan Cake Kerang Hijau " pada tahun 2013 dan juga terdaftar dalam kepengurusan Himpunan Mahasiswa Akuakultur (HIMAKUA). Sebagai salah satu syarat meraih gelar sarjana strata 1, pada bulan Oktober 2015, penulis melaksanakan Praktek kerja Lapangan (PKL) dengan judul "Penanganan Udang *vannamei (Litopenaues vannamei)* di PT. Kelola Mina Laut Gresik Jawa Timur dengan Proses Pembekuan" bertempat di PT. Kelola Mina Laut, Penulis Melakukan penelitian dengan judul "PENGARUH PENAMBAHAN SERBUK DAUN TANAMAN KAYU MANIS (*Cinnamomum burmannii*) PADA PAKAN TERHADAP PROFIL DARAH (KADAR HEMATOKRIT, KADAR HEMOGLOBIN, TOTAL LEUKOSIT DAN TOTAL ERITROSIT) IKAN NILA (*Oreochromis niloticus*) YANG DIINFEKSI *Streptococcus agalactiae*" dibawah bimbingan ibu Firma Fika Rahmawati , S.Pi.,M.Si.