

## KESIMPULAN DAN SARAN

### Kesimpulan

Berdasarkan hasil penelitian LAMA PERIODE LARVA DAN BERAT CANGKANG KOKON *Attacus atlas* L. (Lepidoptera: Saturniidae) AKIBAT PEMBERIAN HORMON TIROKSIN, dapat disimpulkan bahwa:

1. Tiroksin paling baik diberikan pada instar IV, karena mempersingkat periode larva, menaikkan berat larva, meningkatkan berat kokon, dan meningkatkan berat cangkang kokon.
2. Tiroksin tidak baik diberikan secara berurut-turut pada instar IV dan V, karena mengakibatkan tirotoksikosis (hipertiroidisme), sehingga menurunkan berat larva dan berat cangkang kokon.

### Saran

Saran yang diberikan adalah:

1. Pemberian tiroksin pada ulat sutera liar *Attacus atlas* L. perlu dipertimbangkan oleh industri persuteraan, mengingat harga bubuk tiroid yang relatif mahal.
2. Jumlah sampel uji penelitian perlu ditambah agar hasil yang diperoleh lebih teliti.

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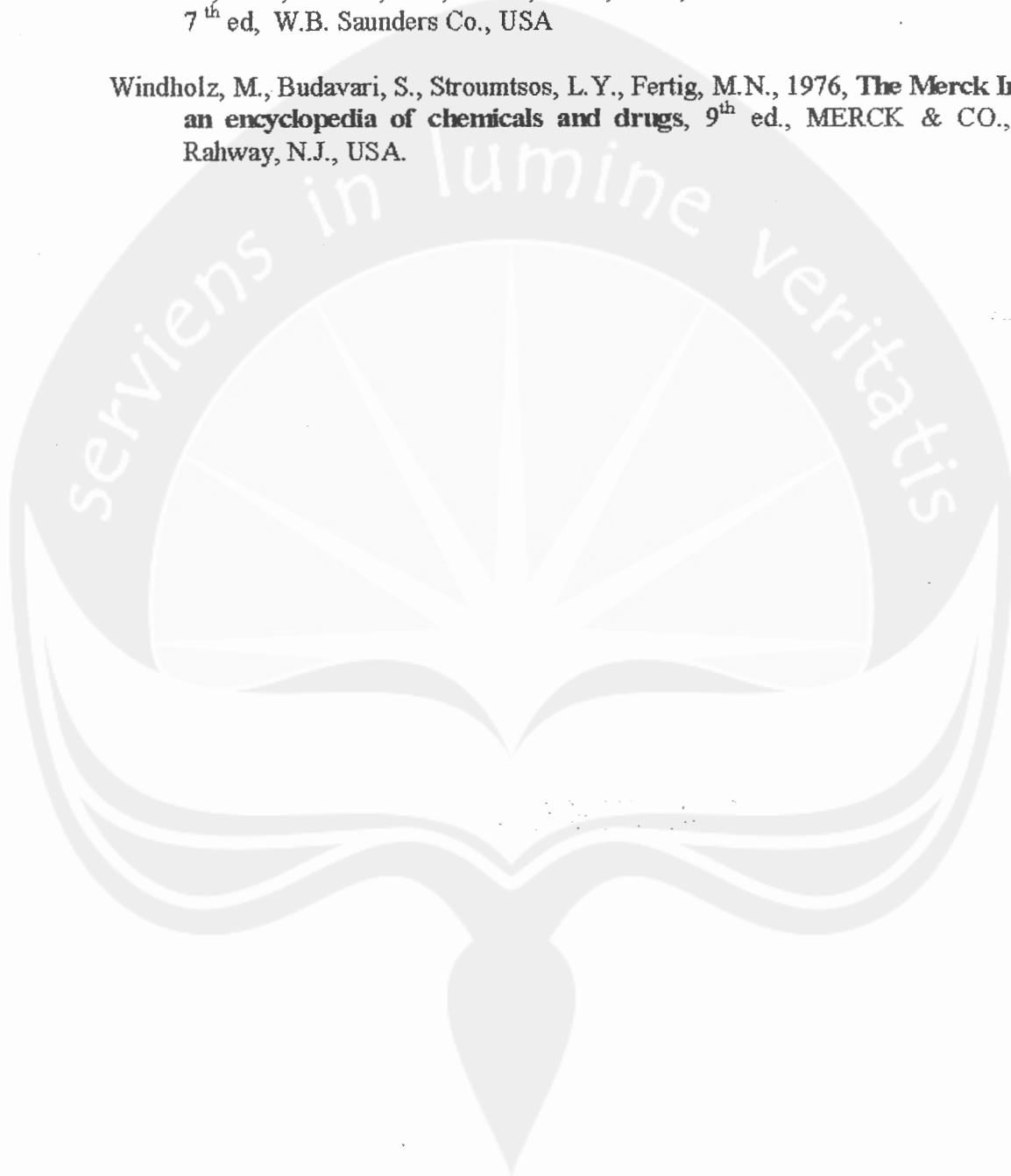
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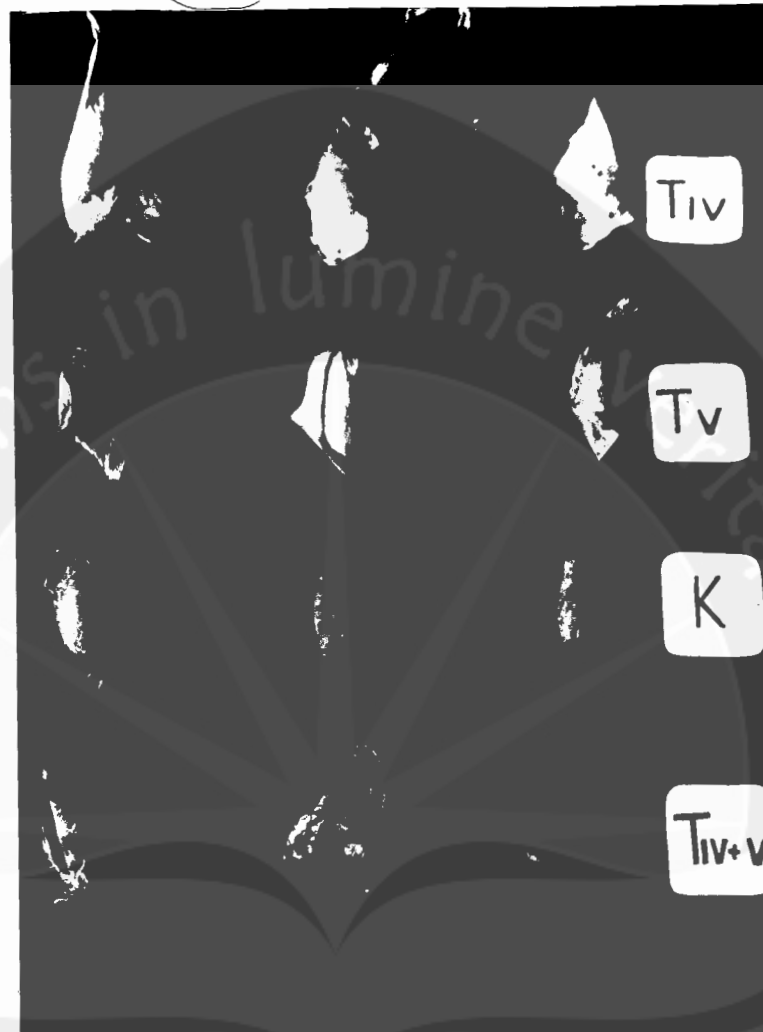
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**LAMPIRAN**



PUSTAKAAN  
 TAS BIOLOGI  
 PTAS ATMA JAYA  
 GYAKARTA

Gambar. Perbandingan kokon *Attacus atlas* L. akibat pemberian hormon tiroksin

Keterangan:

K= kontrol

T IV= perlakuan tiroksin pada instar IV

T IV+V= perlakuan tiroksin pada instar IV dan V

T V= perlakuan tiroksin pada instar V

OBS	KELOMPOK	UL	LAMA_LRV	BRT_AKH	B_KOKON	KOKONKSG
1	C	1	431.0	10.00	5.72	0.47
2	C	2	451.0	7.64	3.81	0.32
3	C	3	458.0	7.92	3.64	0.43
4	C	4	476.0	8.79	4.21	0.24
5	C	5	452.0	8.65	5.37	0.65
6	C	6	452.0	9.32	5.29	0.46
7	C	7	477.0	7.98	4.80	0.45
8	C	8	475.0	9.71	5.61	1.09
9	C	9	452.0	8.50	4.10	0.35
10	C	10	452.0	12.45	6.80	0.29
11	C	11	471.0	7.90	3.79	0.33
12	C	12	603.0	9.31	5.17	0.50
13	C	13	458.0	21.59	12.75	1.49
14	C	14	475.0	8.10	4.85	0.45
15	C	15	456.0	7.20	3.75	0.38
16	C	16	480.0	8.32	.	.
17	C	17	478.0	7.40	3.50	0.50
18	C	18	505.0	6.12	.	.
19	C	19	457.0	7.58	.	.
20	C	20	432.0	11.23	.	.
21	C	21	467.0	9.17	5.40	0.11
22	C	22	548.0	7.52	4.30	0.27
23	C	23	.	.	.	.
24	C	24	423.0	10.28	.	.
25	C	25	398.0	15.68	9.18	1.17
26	C	26	469.0	11.21	7.54	0.48
27	C	27	405.0	12.78	9.03	1.20
28	C	28	.	.	.	.
29	C	29	.	.	.	.
30	C	30	589.0	6.57	4.45	0.44
31	T4	1	362.0	13.30	9.32	0.67
32	T4	2	406.0	9.05	5.72	0.71
33	T4	3	409.0	16.30	10.30	0.72
34	T4	4	434.0	10.11	.	.
35	T4	5	390.0	9.81	.	.
36	T4	6	355.0	14.40	8.90	0.71
37	T4	7	361.0	8.13	.	.
38	T4	8	358.0	9.56	.	.
39	T4	9	362.0	11.00	7.10	0.40
40	T4	10	361.0	11.50	8.76	0.60
41	T4	11	363.0	12.40	11.03	0.89
42	T4	12	385.0	11.20	7.12	0.57
43	T4	13	370.0	11.47	6.62	0.72
44	T4	14	386.0	10.27	7.35	0.62
45	T4	15	361.0	11.49	6.73	0.60
46	T4	16	361.0	14.65	11.14	0.81
47	T4	17	391.0	10.30	6.52	0.39
48	T4	18	394.0	16.04	12.13	0.87
49	T4	19	375.0	7.90	.	.
50	T4	20	398.0	10.36	.	.
51	T4	21	375.0	11.30	.	.



OBS	KELOMPOK	UL	LAMA_LRV	BRT_AKH	B_KOKON	KOKONKSG
52	T4	22	426.0	8.45	4.17	0.29
53	T4	23	379.0	15.69	5.00	0.37
54	T4	24	394.0	16.00	8.39	1.38
55	T4	25	459.0	15.45	10.38	1.60
56	T4	26	401.0	10.21	7.36	0.30
57	T4	27	404.5	8.66	7.43	0.12
58	T4	28	376.5	8.68	6.44	0.31
59	T4	29	376.5	12.07	7.49	0.83
60	T4	30	381.0	14.78	9.76	1.23
61	T4	31	381.0	13.82	.	.
62	T4	32	405.0	10.53	6.76	0.50
63	T4	33	354.0	12.23	7.00	0.58
64	T4	34	394.0	16.55	10.80	0.71
65	T4	35	401.0	10.45	.	.
66	T4	36	375.0	13.88	8.69	0.78
67	T4	37	391.0	15.63	14.27	0.98
68	T4	38	402.0	9.97	6.35	0.65
69	T4	39	376.0	23.80	14.56	1.88
70	T4	40	.	.	.	.
71	T4	41	392.0	16.46	.	.
72	T4	42	.	.	.	.
73	T4	43	403.0	10.23	.	.
74	T4	44	494.0	6.58	.	.
75	T4+5	1	338.0	7.14	4.90	0.61
76	T4+5	2	355.0	14.00	8.56	0.78
77	T4+5	3	328.0	7.80	3.41	0.12
78	T4+5	4	356.0	8.01	4.37	0.23
79	T4+5	5	356.0	7.67	3.32	0.11
80	T4+5	6	376.0	8.25	.	.
81	T4+5	7	391.0	7.37	4.21	0.09
82	T4+5	8	379.0	11.20	5.10	0.33
83	T4+5	9	386.0	8.67	.	.
84	T4+5	10	384.0	8.10	4.15	0.11
85	T4+5	11	358.0	9.60	5.95	0.51
86	T4+5	12	381.0	7.56	.	.
87	T4+5	13	385.0	6.90	.	.
88	T4+5	14	373.0	8.20	.	.
89	T4+5	15	375.0	7.20	.	.
90	T4+5	16	408.0	9.65	5.41	0.34
91	T4+5	17	385.0	13.50	9.74	0.21
92	T4+5	18	360.0	8.22	4.30	0.17
93	T4+5	19	397.0	10.97	7.36	0.30
94	T4+5	20	380.0	8.60	4.70	0.10
95	T4+5	21	394.0	15.99	10.06	0.43
96	T4+5	22	400.0	11.08	6.88	0.34
97	T4+5	23	396.0	13.80	9.61	0.78
98	T4+5	24	394.0	.	.	.
99	T4+5	25	459.0	6.45	.	.
100	T4+5	26	401.0	8.14	6.25	0.26
101	T4+5	27	386.0	9.29	5.66	0.34
102	T4+5	28	.	.	.	.

OBS	KELOMPOK	UL	LAMA_LRV	BRT_AKH	B_KOKON	KOKONKSG
103	T4+5	29	476.0	5.41	6.46	0.28
104	T4+5	30	335.0	14.92	8.57	0.99
105	T4+5	31	379.0	12.92	6.62	0.39
106	T4+5	32	445.0	5.12	4.48	0.16
107	T4+5	33	496.0	5.32	.	.
108	T5	1	357.0	8.00	4.50	0.52
109	T5	2	380.0	12.53	5.89	0.78
110	T5	3	387.0	7.29	4.52	0.65
111	T5	4	404.0	9.76	5.31	1.93
112	T5	5	404.0	6.95	4.60	1.52
113	T5	6	404.0	7.92	4.12	0.47
114	T5	7	407.0	7.63	4.21	0.61
115	T5	8	404.0	11.77	5.60	0.50
116	T5	9	425.0	11.85	.	.
117	T5	10	425.0	9.73	5.10	0.53
118	T5	11	425.0	9.38	4.83	0.47
119	T5	12	427.0	7.15	.	.
120	T5	13	433.0	8.21	4.97	0.76
121	T5	14	438.0	10.22	.	.
122	T5	15	476.0	19.42	9.87	1.50
123	T5	16	477.0	7.83	.	.
124	T5	17	382.0	18.76	10.60	1.38
125	T5	18	384.0	9.90	5.84	0.25
126	T5	19	454.0	7.84	4.87	1.08
127	T5	20	478.0	6.50	4.35	0.30
128	T5	21	407.0	8.15	5.25	0.55
129	T5	22	457.0	13.10	7.17	0.38
130	T5	23	414.0	12.35	8.90	0.53
131	T5	24	410.0	8.40	4.73	0.31
132	T5	25	433.0	8.85	5.02	0.62
133	T5	26	420.0	17.60	10.49	0.45
134	T5	27	432.0	8.60	6.10	0.38
135	T5	28	433.0	12.39	7.38	1.74
136	T5	29	411.0	10.11	5.63	0.61
137	T5	30	470.0	16.70	6.20	0.58
138	T5	31	.	.	.	.
139	T5	32	.	.	.	.
140	T5	33	638.0	9.78	5.20	0.05
141	T5	34	570.0	5.12	3.95	0.15
142	T5	35	547.0	8.49	7.31	0.36

General Linear Models Procedure  
Class Level Information

Class	Levels	Values
KELOMPOK	4	C T4 T4+5 T5
UL	44	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44

Number of observations in data set = 142

Group	Obs	Dependent Variables
1	134	LAMA_LRV
2	133	BRT_AKH
3	104	B_KOKON KOKONKSG

NOTE: Variables in each group are consistent with respect to the presence or absence of missing values.

General Linear Models Procedure

Dependent Variable: LAMA\_LRV

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
KELOMPOK	3	149658.9190	49886.3063	27.60	0.0001
Error	130	234940.5904	1807.2353		
Corrected Total	133	384599.5093			

R-Square	C.V.	Root MSE	LAMA_LRV Mean
0.389129	10.20202	42.51159	416.697761

## Duncan's Multiple Range Test for variable: LAMA\_LRV

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 130 MSE= 1807.235

WARNING: Cell sizes are not equal.

Harmonic Mean of cell sizes= 32.67985

Number of Means	2	3	4
Critical Range	20.89	21.97	22.66

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	KELOMPOK
A	470.00	27	C
B	436.76	33	T5
C	388.63	42	T4
C			
C	387.87	32	T4+5

General Linear Models Procedure

Dependent Variable: BRT\_AKH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
KELOMPOK	3	187.6319116	62.5439705	5.94	0.0008
Error	129	1357.7703801	10.5253518		
Corrected Total	132	1545.4022917			

R-Square	C.V.	Root MSE	BRT_AKH Mean
0.121413	30.93312	3.244280	10.4880451

Duncan's Multiple Range Test for variable: BRT\_AKH

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 129 MSE= 10.52535  
 WARNING: Cell sizes are not equal.  
 Harmonic Mean of cell sizes= 32.4129

Number of Means	2	3	4
Critical Range	1.601	1.683	1.737

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	KELOMPOK
A	12.159	42	T4
B	10.251	33	T5
B	9.590	27	C
B	9.260	31	T4+5

## General Linear Models Procedure

Dependent Variable: B\_KOKON

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
KELOMPOK	3	143.4990074	47.8330025	9.92	0.0001
Error	100	482.1998839	4.8219988		
Corrected Total	103	625.6988913			

R-Square	C.V.	Root MSE	B_KOKON Mean
0.229342	33.13468	2.195905	6.62721154

Duncan's Multiple Range Test for variable: B\_KOKON

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 100 MSE= 4.821999  
 WARNING: Cell sizes are not equal.  
 Harmonic Mean of cell sizes= 25.51852

Number of Means	2	3	4
Critical Range	1.221	1.284	1.325

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	KELOMPOK
A	8.453	30	T4
B	6.090	23	T4+5
B	5.949	29	T5
B			
B	5.594	22	C

## General Linear Models Procedure

Dependent Variable: KOKONKSG

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
KELOMPOK	3	2.23208195	0.74402732	5.05	0.0027
Error	100	14.72385651	0.14723857		
Corrected Total	103	16.95593846			

R-Square	C.V.	Root MSE	KOKONKSG Mean
0.131640	64.57370	0.383717	0.59423077

Duncan's Multiple Range Test for variable: KOKONKSG

NOTE: This test controls the type I comparisonwise error rate, not the experimentwise error rate

Alpha= 0.05 df= 100 MSE= 0.147239  
 WARNING: Cell sizes are not equal.  
 Harmonic Mean of cell sizes= 25.51852

Number of Means	2	3	4
Critical Range	0.213	0.224	0.231

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	KELOMPOK
A	0.726	30	T4
A			
A	0.688	29	T5
A			
B	0.549	22	C
B			
B	0.347	23	T4+5

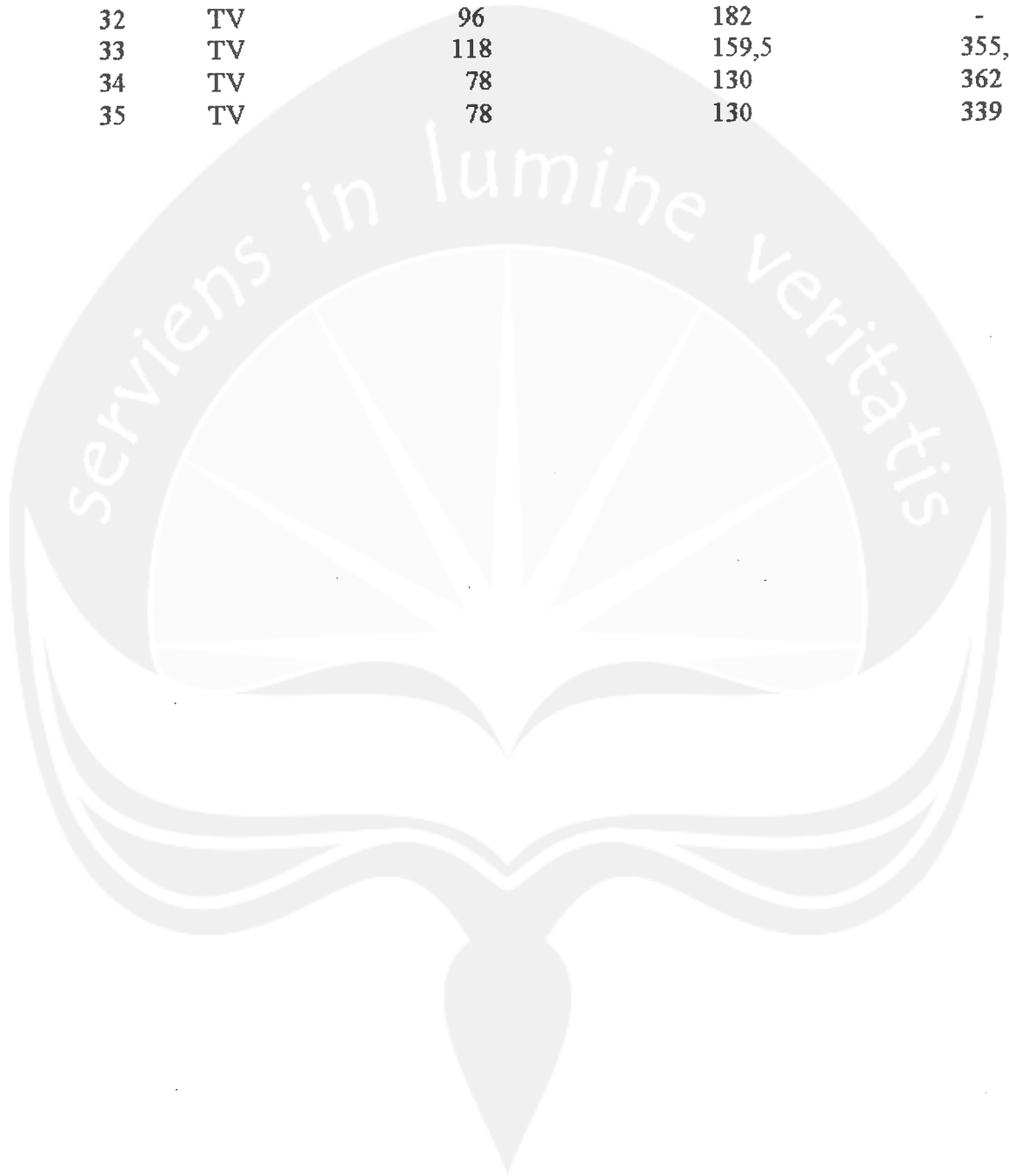
No	Kelompok	Lama i. IV	Lama i. V	Lama i. VI
1	C	93	116	222
2	C	114	96	240
3	C	100	126	233
4	C	120	120	236
5	C	123	187	214
6	C	115	151	186
7	C	140	142	176
8	C	148	160	167
9	C	147	168	137
10	C	146	185	121
11	C	162	192	117
12	C	190	222	193
13	C	117	271	190
14	C	149	140	186
15	C	83	112	261
16	C	72	121	287
17	C	105	133	240
18	C	96	104	305
19	C	100	164	217
20	C	106	112	238
21	C	106	87	298
22	C	100	104	344
23	C	93	144	-
24	C	93	128	215
25	C	93	251	191
26	C	119	106	241
27	C	92	130	183
28	C	92	192	-
29	C	120	145	-
30	C	92	88	409
1	TIV	70	128	116
2	TIV	76	185	145
3	TIV	93	123	193
4	TIV	95	122	217
5	TIV	72	118	200
6	TIV	91	98	166
7	TIV	73	99	189
8	TIV	73	100	185
9	TIV	80	88	194
10	TIV	78	114	169
11	TIV	83	134	146
12	TIV	80	112	192
13	TIV	83	113	174
14	TIV	80	113	192
15	TIV	73	120	168



No	Kelompok	Lama i. IV	Lama i. V	Lama i. VI
16	TIV	80	113	168
17	TIV	79	113	199
18	TIV	119	128	147
19	TIV	96	121	163
20	TIV	75	105	218
21	TIV	73	108	194
22	TIV	75	225	126
23	TIV	72	83	224
24	TIV	119	133	147
25	TIV	94	251	114
26	TIV	79	106	216
27	TIV	90,5	118	196
28	TIV	90,5	120	166
29	TIV	78,5	106	192
30	TIV	73	116	192
31	TIV	80	135	166
32	TIV	83	106	216
33	TIV	72	115	167
34	TIV	96	132	166
35	TIV	88	122	191
36	TIV	71	112	168
37	TIV	91	141	159
38	TIV	104	82	216
39	TIV	70	162	144
40	TIV	96	105	-
41	TIV	95	142	155
42	TIV	123	90	-
43	TIV	89	143	171
44	TIV	74	182	238
1	TIV+V	74	112	152
2	TIV+V	76	115	164
3	TIV+V	71	110	147
4	TIV+V	73	116	167
5	TIV+V	71	143	142
6	TIV+V	73	109	192
7	TIV+V	77	116	198
8	TIV+V	76	115	188
9	TIV+V	99	102	185
10	TIV+V	101	121	162
11	TIV+V	74	116	168
12	TIV+V	79	118	192
13	TIV+V	117	144	124
14	TIV+V	134	142	97
15	TIV+V	115	138	122
16	TIV+V	79	112	217

No	Kelompok	Lama i. IV	Lama i.V	Lama i. VI
17	TIV+V	82	113	190
18	TIV+V	80	114	166
19	TIV+V	73	134	142
20	TIV+V	68	144	168
21	TIV+V	102	136	156
22	TIV+V	72	158	170
23	TIV+V	71	182	143
24	TIV+V	74	72	147
25	TIV+V	80	95	114
26	TIV+V	80	131	216
27	TIV+V	83	72	231
28	TIV+V	80	108	-
29	TIV+V	104	206	166
30	TIV+V	80	84	171
31	TIV+V	78	86	215
32	TIV+V	97	132	216
33	TIV+V	98	181	217
1	TV	99	88	172
2	TV	102	85	193
3	TV	116	76	195
4	TV	102	85	217
5	TV	101	90	213
6	TV	100	88	216
7	TV	102	90	215
8	TV	122	63	219
9	TV	100	110	215
10	TV	102	109	214
11	TV	116	120	189
12	TV	119	117	191
13	TV	144	93	196
14	TV	152	91	195
15	TV	164	117	195
16	TV	114	137	196
17	TV	103	87	192
18	TV	100	92	192
19	TV	126	111	216
20	TV	128	133	216
21	TV	122	93	192
22	TV	83	109	265
23	TV	78	114	222
24	TV	83	109	218
25	TV	79	114	240
26	TV	84	133	203
27	TV	83	84	265
28	TV	84	133	216

No	Kelompok	Lama i. IV	Lama i. V	Lama i. VI
29	TV	79	114	218
30	TV	95	182	193
31	TV	121	157	-
32	TV	96	182	-
33	TV	118	159,5	355,5
34	TV	78	130	362
35	TV	78	130	339



**Lama instar IV**

	C	TIV	TIV+V	TV	TOTAL
Total Yi	3426	3725,5	2791	3673	10824,5
Rata-rata	114,2	84,67	84,58	104,94	76,23
Ulangan	30	44	33	35	142

**ANOVA**

Sb. Keragaman	DB	JK	KT	F hit.	F tab.
Perlakuan	3	503055,59	167685,2	444,71	2,68
Galat	138	52035,72	377,07		
Total	141	555091,31			

DMRT taraf 5%: rata-rata dengan huruf yang sama, tidak beda nyata

Kelompok	Rata-rata	Grup
TIV+V	84,58	A
TIV	84,67	A
TV	104,94	B
C	114,2	B

**Lama instar V**

	C	TIV	TIV+V	TV	TOTAL
Total Yi	4395	5482	4077	3925,5	17879,5
Rata-rata	146,5	124,59	123,55	112,16	125,91
Ulangan	30	44	33	35	142

**ANOVA**

Sb. Keragaman	DB	JK	KT	F hit.	F tab.
Perlakuan	3	19599,44	6533,15	5,5471	2,68
Galat	138	162819,71	1179,85		
Total	141	182419,16			

DMRT taraf 5%: rata-rata dengan huruf yang sama, tidak beda nyata

Kelompok	Rata-rata	Grup
TV	112,16	A
TIV+V	123,55	A
TIV	124,59	A
C	146,5	B

Lama instar VI

	C	TIV	TIV+V	TV	TOTAL
Total Yi	6047	7465	5445	7335,5	26292,5
Rata-rata	223,96	117,74	123,55	170,16	222,29
Ulangan	27	42	32	33	134

ANOVA

Sb. Keragaman	DB	JK	KT	F hit.	F tab.
Perlakuan	3	79290,38	26430	13,89	2,68
Galat	130	247200,81	1901,54		
Total	133	326491,19			

DMRT taraf 5%: rata-rata dengan huruf yang sama, tidak beda nyata

Kelompok	Rata-rata	Grup
TIV+V	170,16	A
TIV	177,74	A
TV	222,29	B
C	223,96	B

