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DAFTAR LAMPIRAN

Lampiran 1. Data Pertumbuhan Panjang Mutlak *Artemia franciscana*

Pengukuran pertumbuhan panjang mutlak Nauplius *Artemia franciscana* pada penebaran awal														
Sampel	Panjang Awal (mm/ind)											**Jumlah**	**Rerata (mm/ind)**	**Stdv**
	No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**			
Artemia franciscana		0,77	0,76	0,72	0,74	0,54	0,81	0,84	0,94	0,57	0,57	7,244	0,724	0,132

Pengukuran pertumbuhan panjang mutlak *Artemia franciscana* yang dipelihara selama 21 hari									
Perlakuan	**Ulangan**	**Rerata Panjang awal (mm/ind)**	**Sampel Pengukuran Panjang *Artemia franciscana* (mm)**			**Jumlah**	**Rerata panjang akhir (mm/ind)**	**Pertumbuhan Panjang Mutlak *(Lt-L0)* mm/ind**	**Rerata (mm/ind)**
			1	**2**	**3**				
Spirulina sp. *(A)*	**A1**	0,724	11,653	8,709	9,293	29,655	9,885	9,161	10,112
	A2	0,724	10,582	10,959	10,557	32,098	10,699	9,975	
	A3	0,724	11,192	11,032	13,549	35,773	11,924	11,200	
Chlorela sp. *(B)*	**B1**	0,724	11,470	11,129	11,299	33,898	11,299	10,575	10,117
	B2	0,724	13,330	9,937	11,980	35,247	11,749	11,025	
	B3	0,724	9,853	8,842	9,730	28,425	9,475	8,751	
Tetraselmis chuii (C)	**C1**	0,724	9,134	8,089	9,341	26,564	8,855	8,131	7,212
	C2	0,724	6,191	8,477	7,067	21,735	7,245	6,521	
	C3	0,724	7,749	8,271	7,103	23,123	7,708	6,984	
Probiotik em4 (D)	**D1**	0,724	10,642	8,746	9,293	28,681	9,560	8,836	8,518
	D2	0,724	8,100	10,071	8,696	26,867	8,956	8,232	
	D3	0,724	8,976	8,940	9,718	27,634	9,211	8,487	

Skeletonema costatum (E)	**E1**	0,724	13,038	14,765	14,133	41,936	13,979	13,255	12,244
	E2	0,724	14,291	13,841	13,172	41,304	13,768	13,044	
	E3	0,724	10,886	11,250	11,336	33,472	11,157	10,433	
Keterangan	*L_t : Rata-rata panjang akhir (mm)* *L_0 : Rata-rata panjang awal (mm)*								

Pertumbuhan Panjang Mutlak (mm/ind)							
Perlakuan	**Ulangan (mm/ind)**			**Jumlah**	**Rata-rata (mm/ind)**	**Stdev**	**Panjang rata-rata (mm) ± Stdev**
	1	**2**	**3**				
Spirulina sp.(A)	9,161	9,975	11,200	30,336	10,112	1,026	$10,112 \pm 1,026^{bc}$
Chlorella sp. (B)	10,575	11,025	8,751	30,351	10,117	1,204	$10,117 \pm 1,204^{bc}$
Tetraselmis chuii (C)	8,131	6,521	6,984	21,636	7,212	0,829	$7,212 \pm 0,829^{a}$
Probiotik em4 (D)	8,836	8,232	8,487	25,555	8,518	0,303	$8,518 \pm 0,303^{ab}$
Skeletonema costatum (E)	13,255	13,044	10,433	36,732	12,244	1,572	$12,244 \pm 1,572^{c}$
Total				144,610	48,203		

Lampiran *2.* Data Sintasan *Artemia franciscana*

Data Rata-Rata Sintasan (%)									
Perlakuan	**Ulangan**	**D0**	**Stdev**	**D7**	**Stdev**	**D14**	**Stdev**	**D21**	**Stdev**
A	A1	100	0	87	2,887	75	4,359	72	1,528
	A2	100		87		82		73	
	A3	100		82		74		70	
Rata-rata (%)		**100**		**85,33**		**77,00**		**71,67**	
B	B1	100	0	72	3,786	64	3,215	64	1,528
	B2	100		79		70		66	
	B3	100		78		65		63	
Rata-rata (%)		**100**		**76,33**		**66,33**		**64,33**	
C	C1	100	0	68	6,245	54	0,577	46	1,000
	C2	100		80		54		48	
	C3	100		77		53		47	
Rata-rata (%)		**100**		**75,00**		**53,67**		**47,00**	
D	D1	100	0	69	5,132	61	5,132	60	1,000
	D2	100		72		58		58	
	D3	100		79		68		59	
Rata-rata (%)		**100**		**73,33**		**62,33**		**59,00**	
E	E1	100	0	86	0,577	85	1,528	85	1,528
	E2	100		85		83		83	
	E3	100		86		86		86	
Rata-rata (%)		**100**		**85,67**		**84,67**		**84,67**	

Perlakuan	Sintasan (%) untuk Pemeliharaan *Artemia* selama 21 hari					Rata-rata (%)	Stdev
	Ulangan	jumlah awal (ekor)	Mortalitas (ekor)	Jumlah akhir (ekor)	Sintasan (%)		
A	A1	100	28	72	72	71,67	1,528
	A2	100	27	73	73		
	A3	100	30	70	70		
B	B1	100	36	64	64	64,33	1,528
	B2	100	34	66	66		
	B2	100	37	63	63		
C	C1	100	54	46	46	47,00	1,000
	C2	100	52	48	48		
	C3	100	53	47	47		
D	D1	100	40	60	60	59,00	1,000
	D2	100	42	58	58		
	D2	100	41	59	59		
E	E1	100	15	85	85	84,67	1,528
	E2	100	17	83	83		
	E3	100	14	86	86		
Total		**1500**	**520**	**980**	**980**	**326,67**	**6,583**
Survival rate (%) semua perlakuan adalah 65,333%							

Sintasan *Artemia franciscana* selama 21 hari pemeliharaan						
Perlakuan	**Ulangan**			**Jumlah**	**Sintasan rata-rata (%)**	**Stdev**
	1	**2**	**3**			
Spirulina (A)	72	73	70	215	71,67	1,528
Chlorella (B)	64	66	63	193	64,33	1,528
Tetraselmis (C)	46	48	47	141	47,00	1,000
Probiotik em4 (D)	60	58	59	177	59,00	1,000
Skeletonema (E)	85	83	86	254	84,67	1,528
Total				**980**	**326,67**	**6,584**

Lampiran 3. Kandungan Nutrisi Pakan Uji

Pakan uji	**Kandungan Nutrisi**				**Total (%)**	**Sumber**
	Protein (%)	**Lemak (%)**	**Karbohidrat (%)**	**Abu (%)**		
***Spirulina* sp.**	60	6	15	10	91	Label kemasan
***Chlorella* sp.**	42,2	10,7	17	19,1	89	Hastuti, 1989 & Rostini, 2007
Tetraselmis chuii	31,2	24,6	18,1	15,1	89,6	Pereira *et al.,* 2019
Probiotik EM-4 :						
- *Lactobacillus casei*	6,73	7,16	41,43	0,57	55,89	Fadhilla *et al.,* 2018 & Lukic *et al*., 2020
- *Saccharomyces cerevisiae*	47,8 % Protein LEA-like (HSP 12)				47,8	Sales *et al*., 2000
- *Rhodopseudomonas palustris*	60% True protein (Lowry's)				60	Vrati, 1984
- *Enterococcus faecalis*	91% amino acid				91	*Leavis et al.*, 2004
Skeletonema costatum	70,9%	12,1%	9%	5,20%	97,2	BPBAP Takalar

Lampiran 4. Hasil Uji Normalitas, One Way Anova, dan Uji W-Tuckey

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Panjang *Artemia*	.129	15	.200*	.960	15	.687
Sintasan	.112	15	.200*	.943	15	.417

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

a. Lilliefors Significance Correction

Oneway

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Panjang *Artemia*	Spirulina (A)	3	10.11200	1.026381	.592581	7.56233	12.66167	9.161	11.200
	Chlorella (B)	3	10.11700	1.204198	.695244	7.12561	13.10839	8.751	11.025
	Tetraselmis (C)	3	7.21200	.828862	.478544	5.15299	9.27101	6.521	8.131
	Probiotik Em4 (D)	3	8.51833	.303217	.175062	7.76510	9.27157	8.232	8.836
	Skeletonema (E)	3	12.24400	1.571916	.907546	8.33914	16.14886	10.433	13.255
	Total	15	9.64067	1.975930	.510183	8.54643	10.73490	6.521	13.255

Sintasan	Spirulina (A)	3	71.67	1.528	.882	67.87	75.46	70	73
	Chlorella (B)	3	64.33	1.528	.882	60.54	68.13	63	66
	Tetraselmis (C)	3	47.00	1.000	.577	44.52	49.48	46	48
	Probiotik Em4 (D)	3	59.00	1.000	.577	56.52	61.48	58	60
	Skeletonema (E)	3	84.67	1.528	.882	80.87	88.46	83	86
	Total	15	65.33	13.069	3.375	58.10	72.57	46	86

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Panjang *Artemia*	Based on Mean	2.253	4	10	.136
	Based on Median	.307	4	10	.867
	Based on Median and with adjusted df	.307	4	5.140	.863
	Based on trimmed mean	1.983	4	10	.173
Sintasan	Based on Mean	.421	4	10	.790
	Based on Median	.136	4	10	.965
	Based on Median and with adjusted df	.136	4	8.345	.964
	Based on trimmed mean	.398	4	10	.806

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Panjang *Artemia*	Between Groups	43.153	4	10.788	9.376	.002
	Within Groups	11.507	10	1.151		
	Total	54.660	14			
Sintasan	Between Groups	2373.333	4	593.333	329.630	.000
	Within Groups	18.000	10	1.800		
	Total	2391.333	14			

Post Hoc Tests

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Perlakuan	(J) Perlakuan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Panjang *Artemia*	Spirulina (A)	Chlorella (B)	-.005000	.875856	1.000	-2.88751	2.87751
		Tetraselmis (C)	2.900000*	.875856	.048	.01749	5.78251
		Probiotik Em4 (D)	1.593667	.875856	.414	-1.28885	4.47618
		Skeletonema (E)	-2.132000	.875856	.183	-5.01451	.75051
	Chlorella (B)	Spirulina (A)	.005000	.875856	1.000	-2.87751	2.88751
		Tetraselmis (C)	2.905000*	.875856	.048	.02249	5.78751
		Probiotik Em4 (D)	1.598667	.875856	.411	-1.28385	4.48118
		Skeletonema (E)	-2.127000	.875856	.185	-5.00951	.75551
	Tetraselmis (C)	Spirulina (A)	-2.900000*	.875856	.048	-5.78251	-.01749
		Chlorella (B)	-2.905000*	.875856	.048	-5.78751	-.02249

		Probiotik Em4 (D)	-1.306333	.875856	.589	-4.18885	1.57618
		Skeletonema (E)	-5.032000*	.875856	.001	-7.91451	-2.14949
	Probiotik Em4 (D)	Spirulina (A)	-1.593667	.875856	.414	-4.47618	1.28885
		Chlorella (B)	-1.598667	.875856	.411	-4.48118	1.28385
		Tetraselmis (C)	1.306333	.875856	.589	-1.57618	4.18885
		Skeletonema (E)	-3.725667*	.875856	.011	-6.60818	-.84315
	Skeletonema (E)	Spirulina (A)	2.132000	.875856	.183	-.75051	5.01451
		Chlorella (B)	2.127000	.875856	.185	-.75551	5.00951
		Tetraselmis (C)	5.032000*	.875856	.001	2.14949	7.91451
		Probiotik Em4 (D)	3.725667*	.875856	.011	.84315	6.60818
Sintasan	Spirulina (A)	Chlorella (B)	7.333*	1.095	.000	3.73	10.94
		Tetraselmis (C)	24.667*	1.095	.000	21.06	28.27
		Probiotik Em4 (D)	12.667*	1.095	.000	9.06	16.27
		Skeletonema (E)	-13.000*	1.095	.000	-16.61	-9.39
	Chlorella (B)	Spirulina (A)	-7.333*	1.095	.000	-10.94	-3.73
		Tetraselmis (C)	17.333*	1.095	.000	13.73	20.94
		Probiotik Em4 (D)	5.333*	1.095	.005	1.73	8.94
		Skeletonema (E)	-20.333*	1.095	.000	-23.94	-16.73
	Tetraselmis (C)	Spirulina (A)	-24.667*	1.095	.000	-28.27	-21.06
		Chlorella (B)	-17.333*	1.095	.000	-20.94	-13.73
		Probiotik Em4 (D)	-12.000*	1.095	.000	-15.61	-8.39
		Skeletonema (E)	-37.667*	1.095	.000	-41.27	-34.06
	Probiotik Em4 (D)	Spirulina (A)	-12.667*	1.095	.000	-16.27	-9.06
		Chlorella (B)	-5.333*	1.095	.005	-8.94	-1.73

	Tetraselmis (C)	12.000*	1.095	.000	8.39	15.61
	Skeletonema (E)	-25.667*	1.095	.000	-29.27	-22.06
Skeletonema (E)	Spirulina (A)	13.000*	1.095	.000	9.39	16.61
	Chlorella (B)	20.333*	1.095	.000	16.73	23.94
	Tetraselmis (C)	37.667*	1.095	.000	34.06	41.27
	Probiotik Em4 (D)	25.667*	1.095	.000	22.06	29.27

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

Panjang Mutlak *Artemia*

Tukey HSD

		Subset for alpha = 0.05			
Perlakuan	N	1	2	3	Notasi
Tetraselmis (C)	3	7.21200			a
Probiotik Em4 (D)	3	8.51833	8.51833		ab
Spirulina (A)	3		10.11200	10.11200	bc
Chlorella (B)	3		10.11700	10.11700	bc
Skeletonema (E)	3			12.24400	c
Sig.		.589	.411	.183	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Sintasan

Tukey HSD[a]

Perlakuan	N	Subset for alpha = 0.05					Notasi
		1	2	3	4	5	
Tetraselmis (C)	3	47.00					a
Probiotik Em4 (D)	3		59.00				b
Chlorella (B)	3			64.33			c
Spirulina (A)	3				71.67		d
Skeletonema (E)	3					84.67	e
Sig.		1.000	1.000	1.000	1.000	1.000	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 5. Dokumentasi Kegiatan Penelitian

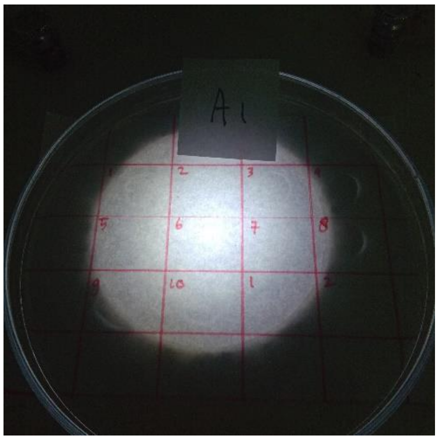
Pengukuran Salinitas

Pemberian pakan

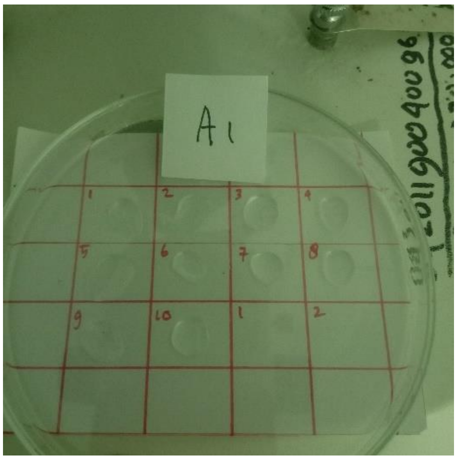
Pengukuran pH

Proses menghitung Nauplii *Artemia*

Peralatan untuk membantu mengamati (handcounter, pipet tetes, spoit, cawan petri, botol kaca, gelas beker, kertas bergaris, label

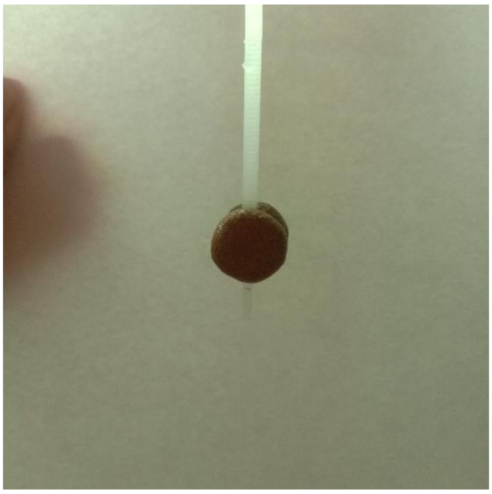


Menghitung Nauplius yang akan ditebar



Nauplius yang diamati pada penebaran awal

Membersihkan cangkang kista dengan magnet

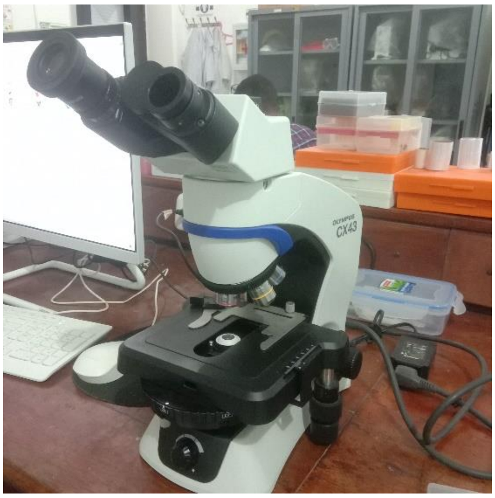


Cangkang kista menempel pada magnet

Menimbang Kista *Artemia*

Hidrasi kista *Artemia*

Mikroskop olympus stereo model SZ2-ILST

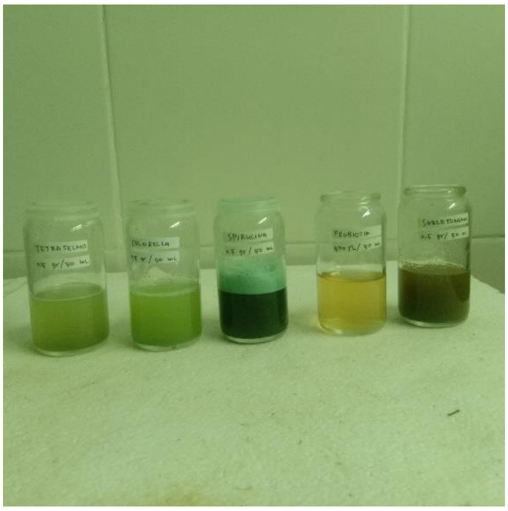


Mikroskop Olympus CX43RF

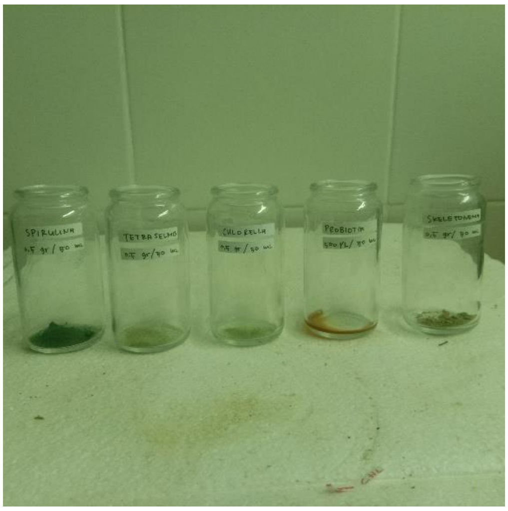
Kamera mikroskop Dino-eye edge

Tata letak botol plastik untuk pemeliharaan

Botol plastik untuk pemeliharaan



Pakan yang telah dilarutkan (Tetraselmis, Chlorella, Spirulina, Em4, Skeletonema)



Pakan sebelum dilarutkan (Spirulina, Tetraselmis, Chlorella, EM4, Skeletonema)

Menyimpan pakan di lemari pendingin

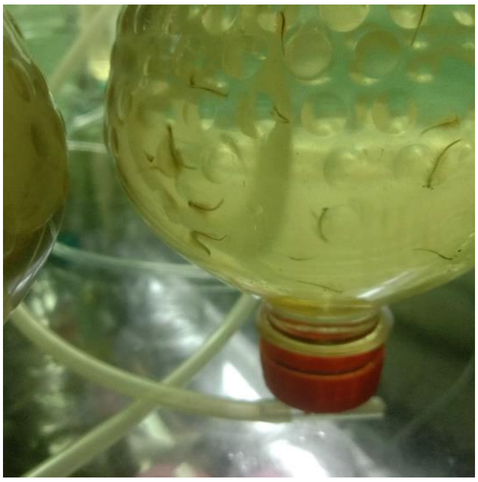
Probiotik EM4 Perikanan

Spirulina Powder (Polaris Spiruganik)

Mikroalga powders (Tetraselmis, Skeletonema, Chlorella)

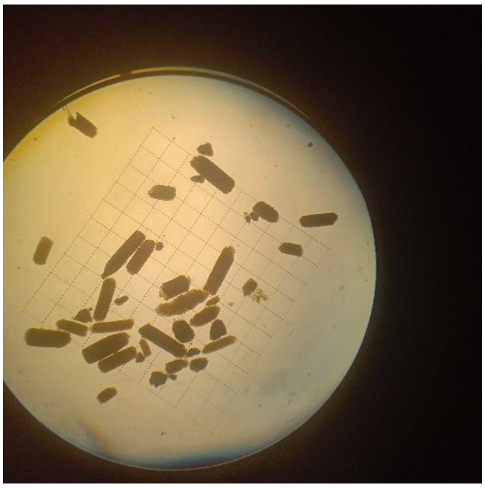
Pakan mikroalga powders & probiotik Em4

Menimbang pakan powder



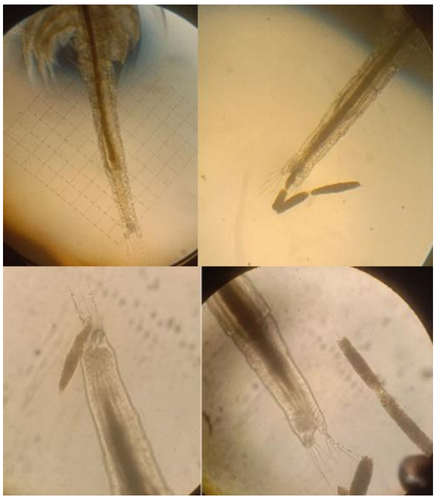
Induk *Artemia* yang bertelur (Perlakuan Skeletonema)

***Artemia* di wadah pemeliharaan botol plastik (Perlakuan skeletonema)**



Feses *Artemia* pembesaran 10x

Induk *Artemia* yang kawin

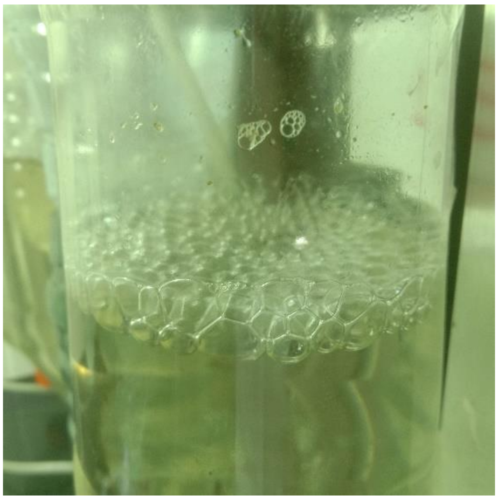


Proses feses *Artemia* keluar dari saluran pencernaan

***Artemia* berumur 7 hari pemeliharaan**

Sampel Nauplius *Artemia* (panjang 0,774 mm) umur 1 hari

Sampel *Artemia* dewasa (Panjang 14, 133 mm)
Umur 21 hari



Gelembung udara yang terperangkap di botol plastik pemeliharaan *Artemia*

Sisa pakan dan kotoran yang diambil dari botol pemeliharaan

Mikropipet 1000 µL dan pipet tip 1 mL

Kista *Artemia franciscana* yang di tetaskan (Inve EG *Artemia*)

pH Meter digital	**Refratometer 0-100 ppt**

Termometer stick	**Timbangan digital pocket 200 gr /0,01 gr**