

SOLAAR AA Report

Operator Name: Vincent

Report Date: 21/10/2025 10:46:03

Results File: C:\SOLAAR\DATA\Lembar Uji Skripsi: Diopratama.SLR

Solution Results - Zn

Sample ID	Signal Abs	Rsd %	Conc mg/L	Corrected Conc mg/L
Zn Standard 1	0,14933	0,7	0,5000	
1	0,14898	Background: 0,00208		21/10/2025 10:14:02
2	0,15049	Background: 0,00186		21/10/2025 10:14:06
3	0,14854	Background: 0,00205		21/10/2025 10:14:10
Zn Standard 2	0,27958	0,3	1,0000	
1	0,27921	Background: 0,00291		21/10/2025 10:14:46
2	0,27897	Background: 0,00388		21/10/2025 10:14:50
3	0,28057	Background: 0,00330		21/10/2025 10:14:54
Zn Standard 3	0,40955	0,8	1,5000	
1	0,40616	Background: 0,00377		21/10/2025 10:15:31
2	0,41241	Background: 0,00426		21/10/2025 10:15:35
3	0,41003	Background: 0,00465		21/10/2025 10:15:40
Zn Standard 4	0,51345	0,7	2,0000	
1	0,51501	Background: 0,00453		21/10/2025 10:16:14
2	0,51575	Background: 0,00473		21/10/2025 10:16:18
3	0,50960	Background: 0,00479		21/10/2025 10:16:23
Zn Standard 5	0,80304	0,2	4,0000	
1	0,80425	Background: 0,00747		21/10/2025 10:16:50
2	0,80286	Background: 0,00700		21/10/2025 10:16:54
3	0,80502	Background: 0,00691		21/10/2025 10:16:59
Zn K1H0	0,73912	0,1	2,8591 C	142,9546 C
1	0,73927	Background: 0,00760		21/10/2025 10:18:38
2	0,73949	Background: 0,00754		21/10/2025 10:18:42
3	0,73860	Background: 0,00734		21/10/2025 10:18:47
Zn K1H3	0,77902	0,2	3,0186 C	150,9281 C
1	0,78082	Background: 0,00745		21/10/2025 10:19:20
2	0,77769	Background: 0,00745		21/10/2025 10:19:24
3	0,77856	Background: 0,00728		21/10/2025 10:19:29
Zn K2H0	0,76987	0,0	2,9820 C	149,0995 C
1	0,77026	Background: 0,00794		21/10/2025 10:20:41
2	0,76983	Background: 0,00805		21/10/2025 10:20:46
3	0,76953	Background: 0,00822		21/10/2025 10:20:50
Zn K2H3	0,75567	0,2	2,9252 C	146,2608 C
1	0,75425	Background: 0,00751		21/10/2025 10:21:21
2	0,75691	Background: 0,00802		21/10/2025 10:21:25
3	0,75584	Background: 0,00743		21/10/2025 10:21:29
Zn K3H0	0,86849	0,1	3,3762 C	168,8077 C
1	0,86922	Background: 0,00807		21/10/2025 10:22:55
2	0,86700	Background: 0,00808		21/10/2025 10:23:00
3	0,86925	Background: 0,00891		21/10/2025 10:23:04
Zn K3H3	0,83589	0,3	3,2459 C	162,2933 C
1	0,83316	Background: 0,00775		21/10/2025 10:23:36
2	0,83710	Background: 0,00799		21/10/2025 10:23:40
3	0,83741	Background: 0,00803		21/10/2025 10:23:45
Zn A1H0	0,79052	0,3	3,0645 C	153,2266 C
1	0,78770	Background: 0,00805		21/10/2025 10:25:04
2	0,79114	Background: 0,00804		21/10/2025 10:25:08
3	0,79273	Background: 0,00807		21/10/2025 10:25:12

SOLAAR AA Report

Operator Name: Vincent

Report Date: 21/10/2025 10:46:03

Results File: C:\SOLAAR\DATA\Lembar Uji Skripsi. Diopratama.SLR

Solution Results - Zn

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Zn A1H3	0,71212	0,8	2,7512 C	137,5588 C
1	0,70713	Background: 0,00708		21/10/2025 10:25:45
2	0,71093	Background: 0,00714		21/10/2025 10:25:50
3	0,71832	Background: 0,00733		21/10/2025 10:25:54
Zn A2H0	0,77578	0,4	3,0056 C	150,2798 C
1	0,77424	Background: 0,00743		21/10/2025 10:27:12
2	0,77937	Background: 0,00681		21/10/2025 10:27:16
3	0,77372	Background: 0,00686		21/10/2025 10:27:20
Zn A2H3	0,72103	0,0	2,7868 C	139,3380 C
1	0,72107	Background: 0,00656		21/10/2025 10:27:51
2	0,72105	Background: 0,00629		21/10/2025 10:27:55
3	0,72096	Background: 0,00637		21/10/2025 10:27:59
Zn A3H0	0,63383	0,7	2,4382 C	121,9122 C
1	0,62993	Background: 0,00759		21/10/2025 10:29:14
2	0,63314	Background: 0,00712		21/10/2025 10:29:19
3	0,63843	Background: 0,00706		21/10/2025 10:29:23
Zn A3H3	0,68174	0,5	2,6297 C	131,4873 C
1	0,68212	Background: 0,00742		21/10/2025 10:29:55
2	0,67825	Background: 0,00695		21/10/2025 10:29:59
3	0,68487	Background: 0,00749		21/10/2025 10:30:03
Zn B1H0	0,69974	2,2	2,7017 C	135,0843 C
1	0,68277	Background: 0,00689		21/10/2025 10:31:16
2	0,70310	Background: 0,00689		21/10/2025 10:31:20
3	0,71336	Background: 0,00734		21/10/2025 10:31:25
Zn B1H3	0,76403	0,4	2,9586 C	147,9324 C
1	0,76048	Background: 0,00675		21/10/2025 10:31:55
2	0,76651	Background: 0,00695		21/10/2025 10:31:59
3	0,76511	Background: 0,00705		21/10/2025 10:32:03
Zn B2H0	0,69631	0,5	2,6880 C	134,3983 C
1	0,69269	Background: 0,00647		21/10/2025 10:33:19
2	0,69850	Background: 0,00701		21/10/2025 10:33:23
3	0,69774	Background: 0,00682		21/10/2025 10:33:27
Zn B2H3	0,66941	0,1	2,5805 C	129,0232 C
1	0,66896	Background: 0,00650		21/10/2025 10:33:55
2	0,66977	Background: 0,00640		21/10/2025 10:34:00
3	0,66951	Background: 0,00630		21/10/2025 10:34:04
Zn B3H0	0,61250	0,7	2,3530 C	117,6495 C
1	0,60978	Background: 0,00624		21/10/2025 10:35:22
2	0,61039	Background: 0,00624		21/10/2025 10:35:27
3	0,61734	Background: 0,00622		21/10/2025 10:35:31
Zn B3H3	0,70848	0,2	2,7366 C	136,8306 C
1	0,70852	Background: 0,00696		21/10/2025 10:36:03
2	0,71011	Background: 0,00663		21/10/2025 10:36:07
3	0,70681	Background: 0,00713		21/10/2025 10:36:12
Zn C1H0	0,76001	0,1	2,9426 C	147,1296 C
1	0,75981	Background: 0,00696		21/10/2025 10:37:36
2	0,75915	Background: 0,00702		21/10/2025 10:37:40
3	0,76109	Background: 0,00747		21/10/2025 10:37:44

SOLAAR AA Report

Operator Name: Vincent

Report Date: 21/10/2025 10:46:03

Results File: C:\SOLAAR\MIDATA\Lembar Uji Skripsi. Dioprata SLR

Solution Results - Zn

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Zn C1H3	0,65893	0,2	2,5386 C	126,9277 C
1	0,66082	Background: 0,00654		21/10/2025 10:38:14
2	0,65797	Background: 0,00587		21/10/2025 10:38:18
3	0,65800	Background: 0,00605		21/10/2025 10:38:23
Zn C2H0	0,82108	0,4	3,1867 C	159,3336 C
1	0,81775	Background: 0,00755		21/10/2025 10:39:41
2	0,82235	Background: 0,00784		21/10/2025 10:39:45
3	0,82314	Background: 0,00792		21/10/2025 10:39:49
Zn C2H3	0,63845	0,1	2,4587 C	122,8357 C
1	0,63935	Background: 0,00680		21/10/2025 10:40:21
2	0,63777	Background: 0,00567		21/10/2025 10:40:25
3	0,63824	Background: 0,00648		21/10/2025 10:40:30
Zn C3H0	0,78260	0,2	3,0329 C	151,6435 C
1	0,78424	Background: 0,00693		21/10/2025 10:41:58
2	0,78274	Background: 0,00721		21/10/2025 10:42:02
3	0,78083	Background: 0,00737		21/10/2025 10:42:07
Zn C3H3	0,63557	0,7	2,4452 C	122,2602 C
1	0,63335	Background: 0,00652		21/10/2025 10:42:35
2	0,64059	Background: 0,00652		21/10/2025 10:42:40
3	0,63278	Background: 0,00678		21/10/2025 10:42:44

Lampiran 10. Hasil Olah Data dan Analisis Zn pada Limbah Cair Batik dengan SPSS

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
			Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound	
Zn H0	Kontrol	3	154.6223	14.22992	8.21565	119.2732	189.9714	143.83	170.75
	Tanaman	3	141.4909	15.30101	8.83404	103.4810	179.5007	123.83	150.87
	Ecoenzyme	3	132.1305	13.50457	7.79687	98.5833	165.6777	118.54	145.55
	Tanaman+Ecoenzyme	3	153.5645	6.00751	3.46844	138.6410	168.4879	147.63	159.65
	Total	12	145.4520	14.58308	4.20977	136.1864	154.7177	118.54	170.75
Zn H3	Kontrol	3	153.0604	8.77597	5.06681	131.2597	174.8611	145.53	162.70
	Tanaman	3	135.3209	4.55265	2.62848	124.0115	146.6303	130.53	139.59
	Ecoenzyme	3	137.0473	9.64658	5.56945	113.0839	161.0107	127.99	147.19
	Tanaman+Ecoenzyme	3	125.3463	2.06623	1.19294	120.2135	130.4791	122.97	126.67
	Total	12	137.6937	11.96232	3.45322	130.0932	145.2942	122.97	162.70

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Zn H0	Between Groups	1029.179	3	343.060	2.095	.179
	Within Groups	1310.150	8	163.769		
	Total	2339.330	11			
Zn H3	Between Groups	1183.928	3	394.643	8.092	.008
	Within Groups	390.140	8	48.768		
	Total	1574.068	11			

Post Hoc Tests

Homogeneous Subsets

Zn H0

Duncan

	Subset for alpha = .05	
	N	
Perlakuan	1	1
Ecoenzyme	3	132.1305
Tanaman	3	141.4909
Tanaman+Ecoenzyme	3	153.5645
Kontrol	3	154.6223
Sig.		.078

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Zn H3

Duncan

	Subset for alpha = .05		
	N		
Perlakuan	1	2	1
Tanaman+Ecoenzyme	3	125.3463	
Tanaman	3	135.3209	
Ecoenzyme	3	137.0473	
Kontrol	3		153.0604
Sig.		.085	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 11. Hasil Olah Data dan Analisis pH pada Limbah Cair Batik dengan SPSS

Descriptives

		N	Mean		Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
			Lower Bound	Upper Bound			Lower Bound	Upper Bound		
pH H0	Kontrol	3	7.1267		.08021	.04631	6.9274	7.3259	7.05	7.21
	Tanaman	3	7.1433		.10066	.05812	6.8933	7.3934	7.05	7.25
	Ecoenzyme	3	7.2267		.08622	.04978	7.0125	7.4408	7.15	7.32
	Tanaman+Ecoenzyme	3	7.3800		.07211	.04163	7.2009	7.5591	7.32	7.46
	Total	12	7.2192		.12760	.03683	7.1381	7.3002	7.05	7.46
pH H3	Kontrol	3	7.3900		.13077	.07550	7.0652	7.7148	7.30	7.54
	Tanaman	3	6.7533		.07767	.04485	6.5604	6.9463	6.69	6.84
	Ecoenzyme	3	6.9167		.12014	.06936	6.6182	7.2151	6.80	7.04
	Tanaman+Ecoenzyme	3	6.6933		.11015	.06360	6.4197	6.9670	6.62	6.82
	Total	12	6.9383		.30084	.08685	6.7472	7.1295	6.62	7.54

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
pH H0	Between Groups	.121	3	.040	5.511	.024
	Within Groups	.058	8	.007		
	Total	.179	11			
pH H3	Between Groups	.896	3	.299	24.042	.000
	Within Groups	.099	8	.012		
	Total	.996	11			

Post Hoc Tests

Homogeneous Subsets

pH H0

Duncan

Perlakuan	N	Subset for alpha = .05		
	1	2	3	4
Kontrol	3	7.1267		
Tanaman	3	7.1433		
Ecoenzyme	3	7.2267	7.2267	
Tanaman+Ecoenzyme	3		7.3800	
Sig.		.206	.059	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

pH H3

Duncan

Perlakuan	N	Subset for alpha = .05			
	1	2	3	4	5
Tanaman+Ecoenzyme	3	6.6933			
Tanaman	3	6.7533	6.7533		
Ecoenzyme	3		6.9167		
Kontrol	3			7.3900	
Sig.		.528	.110	1.000	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 12. Hasil Olah Data dan Analisis Suhu pada Limbah Cair Batik dengan SPSS

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
						Lower Bound	Upper Bound			
Suhu H0	Kontrol	3	27.7667	.32146	.18559	26.9681	28.5652	27.40	28.00	
	Tanaman	3	28.2667	.23094	.13333	27.6930	28.8404	28.00	28.40	
	Ecoenzyme	3	25.9667	.45092	.26034	24.8465	27.0868	25.50	26.40	
	Tanaman+Ecoenzyme	3	26.8667	.05774	.03333	26.7232	27.0101	26.80	26.90	
	Total	12	27.2167	.95330	.27520	26.6110	27.8224	25.50	28.40	
Suhu H3	Kontrol	3	27.4000	.00000	.00000	27.4000	27.4000	27.40	27.40	
	Tanaman	3	27.8000	.00000	.00000	27.8000	27.8000	27.80	27.80	
	Ecoenzyme	3	27.9000	.00000	.00000	27.9000	27.9000	27.90	27.90	
	Tanaman+Ecoenzyme	3	27.3333	.57735	.33333	25.8991	28.7676	27.00	28.00	
	Total	12	27.6083	.35537	.10259	27.3825	27.8341	27.00	28.00	

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Suhu H0	Between Groups	9.270	3	3.090	34.018	.000
	Within Groups	.727	8	.091		
	Total	9.997	11			
Suhu H3	Between Groups	.723	3	.241	2.890	.102
	Within Groups	.667	8	.083		
	Total	1.389	11			

Post Hoc Tests

Homogeneous Subsets

Suhu H0

Duncan

Perlakuan	N	Subset for alpha = .05		
		1	2	3
Ecoenzyme	3	25.9667		
Tanaman+Ecoenzyme	3		26.8667	
Kontrol	3			27.7667
Tanaman	3			28.2667
Sig.		1.000	1.000	.077

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Suhu H3

Duncan

Perlakuan	N	Subset for alpha = .05	
		1	2
Tanaman+Ecoenzyme	3	27.3333	
Kontrol	3	27.4000	
Tanaman	3	27.8000	
Ecoenzyme	3	27.9000	
Sig.			.054

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 13. Hasil Olah Data dan Analisis TDS pada Limbah Cair Batik dengan SPSS

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
			Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound		
TDS H0	Kontrol	3	6466.6667	46.18802	26.66667	6351.9293	6581.4041	6440.00	6520.00	
	Tanaman	3	6386.6667	140.47538	81.10350	6037.7065	6735.6269	6240.00	6520.00	
	Ecoenzyme	3	4283.3333	66.58328	38.44188	4117.9313	4448.7354	4240.00	4360.00	
	Tanaman+Ecoenzyme	3	4176.6667	41.63332	24.03701	4073.2438	4280.0896	4130.00	4210.00	
	Total	12	5328.3333	1150.44524	332.10493	4597.3753	6059.2914	4130.00	6520.00	
TDS H3	Kontrol	3	6786.6667	46.18802	26.66667	6671.9293	6901.4041	6760.00	6840.00	
	Tanaman	3	6520.0000	183.30303	105.83005	6064.6500	6975.3500	6320.00	6680.00	
	Ecoenzyme	3	6533.3333	61.10101	35.27668	6381.5500	6685.1167	6480.00	6600.00	
	Tanaman+Ecoenzyme	3	6453.3333	83.26664	48.07402	6246.4875	6660.1791	6360.00	6520.00	
	Total	12	6573.3333	161.20756	46.53662	6470.9069	6675.7597	6320.00	6840.00	

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TDS H0	Between Groups	145027.000	3	483423.333	689.784	.000
	Within Groups	56066.667	8	7008.333		
	Total	145587.667	11			
TDS H3	Between Groups	193066.667	3	64355.556	5.548	.024
	Within Groups	92800.000	8	11600.000		
	Total	285866.667	11			

Post Hoc Tests

Homogeneous Subsets

TDS H0

Duncan

Perlakuan	N	Subset for alpha = .05	
		1	2
Tanaman+Ecoenzyme	3	4176.6667	
Ecoenzyme	3	4283.3333	
Tanaman	3		6386.6667
Kontrol	3		6466.6667
Sig.		.157	.276

Means for groups in homogeneous subsets are displayed.
 a. Uses Harmonic Mean Sample Size = 3.000.

TDS H3

Duncan

Perlakuan	N	Subset for alpha = .05	
		1	2
Tanaman+Ecoenzyme	3	6453.3333	
Tanaman	3	6520.0000	
Ecoenzyme	3	6533.3333	
Kontrol	3		6786.6667
Sig.		.408	1.000

Means for groups in homogeneous subsets are displayed.
 a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 14. Hasil Olah Data dan Analisis BOD pada Limbah Cair Batik dengan SPSS

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound	Lower Bound	Upper Bound
BOD H0	Kontrol	3	-.5333	.57735	.33333	-1.9676	.9009	-1.20	-.20
	Tanaman	3	.3333	.30551	.17638	-.4256	1.0922	.00	.60
	Ecoenzyme	3	-.1667	.25166	.14530	-.7918	.4585	-.40	.10
	Tanaman+Ecoenzyme	3	-.0667	.20817	.12019	-.5838	.4504	-.30	.10
	Total	12	-.1083	.44814	.12937	-.3931	.1764	-1.20	.60
BOD H3	Kontrol	3	-1.8333	.35119	.20276	-2.7057	-.9609	-2.20	-1.50
	Tanaman	3	-1.9667	.11547	.06667	-2.2535	-1.6798	-2.10	-1.90
	Ecoenzyme	3	-4.2333	.30551	.17638	-4.9922	-3.4744	-4.50	-3.90
	Tanaman+Ecoenzyme	3	-4.7000	.52915	.30551	-6.0145	-3.3855	-5.10	-4.10
	Total	12	-3.1833	1.38619	.40016	-4.0641	-2.3026	-5.10	-1.50

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
BOD H0	Between Groups	1.143	3	.381	2.856	.105
	Within Groups	1.067	8	.133		
	Total	2.209	11			
BOD H3	Between Groups	20.117	3	6.706	52.593	.000
	Within Groups	1.020	8	.128		
	Total	21.137	11			

Post Hoc Tests

Homogeneous Subsets

BOD H0

Duncan

Perlakuan	N	Subset for alpha = .05	
	1	2	1
Kontrol	3	-.5333	
Ecoenzyme	3	-.1667	-.1667
Tanaman+Ecoenzyme	3	-.0667	-.0667
Tanaman	3	.3333	
Sig.		.172	.146

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

BOD H3

Duncan

Perlakuan	N	Subset for alpha = .05	
	1	2	1
Tanaman+Ecoenzyme	3	-4.7000	
Ecoenzyme	3	-4.2333	
Tanaman	3		-1.9667
Kontrol	3		-1.8333
Sig.		.148	.660

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 15. Hasil Olah Data dan Analisis DO pada Limbah Cair Batik dengan SPSS

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
DO H0	Between Groups	15.083	3	5.028	35.076	.000
	Within Groups	1.147	8	.143		
	Total	16.229	11			
DO H3	Between Groups	2.000	3	.667	5.000	.031
	Within Groups	1.067	8	.133		
	Total	3.067	11			

Lampiran 16. Morfologi Tanaman Kayu Apu (*Pistia stratiotes*) dengan Kombinasi *Ecoenzyme* pada Proses Fitoremediasi di Hari Ke-0



Lampiran 17. Morfologi Tanaman Kayu Apu (*Pistia stratiotes*) dengan Kombinasi *Ecoenzyme* pada Proses Fitoremediasi di Hari Ke-1



Lampiran 18. Morfologi Tanaman Kayu Apu (*Pistia stratiotes*) dengan Kombinasi *Ecoenzyme* pada Proses Fitoremediasi di Hari Ke-2



Lampiran 19. Morfologi Tanaman Kayu Apu (*Pistia stratiotes*) dengan Kombinasi *Ecoenzyme* pada Proses Fitoremediasi di Hari Ke-3

