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LAMPIRAN

LAMPIRAN

Lampiran 1. Pengamatan Kepadatan Sel Mikroalga *Chlorella sorokiniana* UNM-IND1

Hari/Tanggal	PERLAKUAN														
	Suhu Kultur			RATA2	SDV	Suhu Kamar			RATA2	SDV	Suhu Pengereng			RATA2	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
H0 (01/08/2023)	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0
H1 (02/08/2023)	210	210	205	208	3	163	175	167	168	6	179	177	175	177	2
H2 (03/08/2023)	506	500	413	473	52	258	270	257	262	7	216	205	191	204	13
H3 (04/08/2023)	898	894	922	905	15	498	580	489	522	50	345	237	253	278	58
H4 (05/08/2023)	1185	1191	1180	1185	6	723	775	767	755	28	681	558	583	607	65
H5 (06/08/2023)	1644	1446	1427	1506	120	1084	1136	1091	1104	28	853	671	718	747	94
H6 (07/08/2023)	1861	1664	1662	1729	114	868	897	856	874	21	621	340	349	437	160
H7 (08/08/2023)	1450	1145	1333	1309	154	1180	1336	1130	1215	107	781	793	633	736	89
H08(09/08/2023)	1587	1218	1594	1466	215	1477	1514	1330	1440	97	1025	1004	1067	1032	32
H9 (10/08/2023)	1463	1187	1596	1415	209	1579	1648	1481	1569	84	1002	999	1000	1000	2
H10 (11/08/2023)	697	588	594	626	61	1418	1573	1283	1425	145	955	923	951	943	17
Lampiran 2. Pengamatan Laju Pertumbuhan Spesifik (SGR) Mikroalga UNM IND-01															
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,6576	0,7646	0,6433	0,6885	0,0663	0,6800	0,8563	0,8348	0,7904	0,0962

Lampiran 3. Pengamatan Biomassa dan Lipid Mikroalga UNM IND-01

FASE I H3. (Fase Eksponensi)															
BIOMASSA															
Tanggal	PERLAKUAN	SAMPEL	BERAT FILTER (g)	BF+ALGA (g)	BIOMASSA (g/5 ml)	BIOMASSA YIELD (g/L)	Biomass yield rata2	SDV	Berat Vial	Berat Vial+Alga	LIPID (g/5 mL)	LIPID YIELD (g/L)	LY rata2	LIPID %	LIPID Content (%)
H3 (04/08/2023)	S. Kultur	A1	0.0268	0.0276	0.0008	0.1600	0.1467	0.0231	7.1493	7.1496	0.0003	0.0600	0.0533	37.5	36.11
		A2	0.0264	0.0270	0.0006	0.1200			7.1474	7.1476	0.0002	0.0400	0.0115	33.3	2.41
		A3	0.0265	0.0273	0.0008	0.1600			7.2134	7.2137	0.0003	0.0600		37.5	
	S. Kamar	B1	0.0273	0.028	0.0007	0.1400	0.1333	0.0115	7.3145	7.3147	0.0002	0.0400	0.0467	28.6	34.92
		B2	0.0262	0.0269	0.0007	0.1400			7.3158	7.3161	0.0003	0.0600	0.0115	42.9	7.27
		B3	0.0269	0.0275	0.0006	0.1200			7.1045	7.1047	0.0002	0.0400		33.3	
	S. Pengeri	C1	0.0264	0.0273	0.0009	0.1600	0.1600	0.0200	7.1977	7.198	0.0003	0.0600	0.0533	33.3	33.13
		C2	0.0274	0.0282	0.0008	0.1600			7.2979	7.2982	0.0003	0.0600	0.0115	37.5	4.47
		C3	0.0263	0.0270	0.0007	0.1400			7.1109	7.1111	0.0002	0.0400		28.6	
FASE I H6. (Fase Stasioner)															
BIOMASSA															
TANGGAL	PERLAKUAN	SAMPEL	BERAT FILTER (g)	BF+ALGA (g)	BIOMASSA (g/5 ml)	BIOMASSA YIELD (g/L)	Biomass yield rata2	SDV	Berat Vial	Berat Vial+Alga	LIPID (g/5 mL)	LIPID YIELD (g/L)	LY rata2	LIPID %	LIPID Content (%)
H6 (07/08/2023)	S. Kultur	A1	0.0274	0.0285	0.0011	0.22	0.2133	0.0115	7.1926	7.1931	0.0005	0.1000	0.0867	45.5	40.61
		A2	0.0264	0.0275	0.0011	0.22			7.1917	7.1921	0.0004	0.08	0.0115	36.4	4.58
		A3	0.0279	0.0289	0.001	0.2			7.2102	7.2106	0.0004	0.08		40.0	
	S. Kamar	B1	0.0266	0.0277	0.0011	0.22	0.2267	0.0115	7.2183	7.2187	0.0004	0.08	0.0867	36.4	38.13
		B2	0.0255	0.0266	0.0011	0.22			7.2085	7.2089	0.0004	0.08	0.0115	36.4	3.06
		B3	0.0269	0.0281	0.0012	0.24			7.1241	7.1246	0.0005	0.10		41.7	
H5 (06/08/2023)	S. Pengeri	C1	0.0263	0.0275	0.0012	0.24	0.23	0.0115	7.0906	7.0911	0.0005	0.10	0.0800	41.7	34.09
		C2	0.0269	0.0281	0.0012	0.24			7.0928	7.0932	0.0004	0.08	0.0200	33.3	7.23
		C3	0.0273	0.0284	0.0011	0.22			7.1075	7.1078	0.0003	0.06		27.3	
FASE KE II (H1)															
BIOMASSA															
Tanggal	Perlakuan	SAMPEL	BERAT FILTER (g)	BF+ALGA (g)	BIOMASSA (g/5 ml)	BIOMASSA YIELD (g/L)	Biomass yield rata2	SDV	Berat Vial	Berat Vial+Alga	LIPID (g/5 mL)	LIPID (g/L)	LY rata2	LIPID %	LIPID Content (%)
H8 (09/08/2023)	S. Kultur	A1	0.0256	0.0268	0.0012	0.24	0.2333	0.0115	7.2377	7.2382	0.0005	0.1000	0.1000	41.7	42.93
		A2	0.0268	0.0279	0.0011	0.22			7.2379	7.2384	0.0005	0.1000		45.5	2.19
		A3	0.0258	0.027	0.0012	0.24			7.1242	7.1247	0.0005	0.1000		41.7	
H7 (08/08/2023)	S. Kultur	B1	0.0273	0.0286	0.0013	0.26	0.2333	0.0231	7.1211	7.1217	0.0006	0.12	0.0933	46.2	39.63
		B2	0.0263	0.0274	0.0011	0.22			7.1013	7.1017	0.0004	0.08	0.02	36.4	5.65
		B3	0.0267	0.0278	0.0011	0.22			7.219	7.2194	0.0004	0.08		36.4	
H6 (07/08/2023)	S. Kamar	C1	0.0276	0.0288	0.0012	0.24	0.2400	0	7.1112	7.1116	0.0004	0.08	0.0867	33.3	36.11
		C2	0.0266	0.0278	0.0012	0.24			7.1114	7.1119	0.0005	0.10	0.01	41.7	4.81
		C3	0.0256	0.0268	0.0012	0.24			7.2188	7.2192	0.0004	0.08		33.3	
FASE KE II (H2)															
BIOMASSA															
Tanggal	Perlakuan	SAMPEL	BERAT FILTER (g)	BF+ALGA (g)	BIOMASSA (g/5 ml)	BIOMASSA YIELD (g/L)	Biomass yield rata2	SDV	Berat Vial	Berat Vial+Alga	LIPID (g/5 mL)	LIPID YIELD (g/L)	LY rata2	LIPID %	LIPID Content (%)
H9 (10/08/2023)	S. Kultur	A1	0.0266	0.0278	0.0012	0.24	0.23	0.01	7.0980	7.0985	0.0005	0.10	0.0933	41.7	41.2
		A2	0.0265	0.0276	0.0011	0.22			7.0976	7.0981	0.0005	0.10	0.01	45.5	4.6
		A3	0.0273	0.0284	0.0011	0.22			7.219	7.2194	0.0004	0.08		36.4	
H8 (09/08/2023)	S. Kultur	B1	0.0255	0.0269	0.0014	0.28	0.25	0.02	7.2138	7.2143	0.0005	0.10	0.1000	35.7	39.7
		B2	0.026	0.0272	0.0012	0.24			7.3139	7.3144	0.0005	0.10	0.00	41.7	3.4
		B3	0.026	0.0272	0.0012	0.24			7.1243	7.1248	0.0005	0.1		41.7	
H7 (08/08/2023)	S. Kamar	C1	0.0265	0.0276	0.0011	0.22	0.22	0E+00	7.2475	7.2479	0.0004	0.08	0.0800	36.4	36.4
		C2	0.0261	0.0272	0.0011	0.22			7.1476	7.1480	0.0004	0.08	0.00	36.4	0.0
		C3	0.0263	0.0274	0.0011	0.22			7.219	7.2194	0.0004	0.08		36.4	
FASE KE II (H3)															
BIOMASSA															
Tanggal	Perlakuan	SAMPEL	BERAT FILTER (g)	BF+ALGA (g)	BIOMASSA (g/5 ml)	BIOMASSA YIELD (g/L)	Biomass yield rata2	SDV	Berat Vial	Berat Vial+Alga	LIPID (g/5 mL)	LIPID YIELD (g/L)	LY rata2	LIPID %	LIPID Content (%)
H11 (12/08/2023)	S. Kultur	A1	0.0264	0.0276	0.0012	0.24	0.2267	0.0231	7.2085	7.209	0.0005	0.10	0.09	41.7	41.1
		A2	0.0263	0.0275	0.0012	0.24			7.2075	7.208	0.0005	0.10	0.01	41.7	1.0
		A3	0.0269	0.0279	0.001	0.20			7.2172	7.2176	0.0004	0.08		40.0	
H9 (10/08/2023)	S. Kultur	B1	0.0274	0.0286	0.0012	0.24	0.2267	0.0115	7.1919	7.1924	0.0005	0.10	0.10	41.7	38.1
		B2	0.0273	0.0284	0.0011	0.22			7.1923	7.1927	0.0004	0.08	0.01	36.4	3.1
		B3	0.0268	0.0279	0.0011	0.22			7.1476	7.148	0.0004	0.08		36.4	
H8 (09/08/2023)	S. Kamar	C1	0.0262	0.0274	0.0012	0.24	0.2333	0.0115	7.0906	7.0910	0.0004	0.08	0.09	33.3	37.1
		C2	0.0262	0.0274	0.0012	0.24			7.0926	7.0931	0.0005	0.10	0.01	41.7	4.2
		C3	0.0263	0.0274	0.0011	0.22			7.2208	7.2212	0.0004	0.08		36.4	

Lampiran 4. Pengamatan Produktivitas Biomassa dan Mikroalga *Chlorella sorokiniana* UNM-IND1

PRODUKTIVITAS BIOMASSA															
Pengamatan	Suhu Kultur			Rata-Rata	SDV	Suhu Kamar			Rata-Rata	SDV	Suhu Pengering			Rata-Rata	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,65760	0,7646	0,6433	0,6885	0,06629125	0,6800	0,8563	0,8348	0,7904	0,0962
Biomassa	0,2200	0,2200	0,2000	0,2133	0,0115	0,2200	0,2200	0,2400	0,2267	0,0115	0,2400	0,2400	0,2200	0,2333	0,0115
Prod. Biomassa	0,17835	0,1770	0,1418	0,1657	0,0207	0,1447	0,1682	0,1544	0,1558	0,0118	0,1632	0,2055	0,1837	0,1841	0,0212

Lampiran 5. Pengamatan Produktivitas Lipid Mikroalga *Chlorella sorokiniana* UNM-IND1

PRODUKTIVITAS LIPID															
Fase I (Batch kultur)															
Pengamatan	Suhu Kultur			Rata-Rata	SDV	Suhu Kamar			Rata-Rata	SDV	Suhu Pengering			Rata-Rata	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,65760	0,7646	0,6433	0,6885	0,06629125	0,6800	0,8563	0,8348	0,7904	0,0962
Lipid yield	0,1000	0,0800	0,0800	0,0867	0,0115	0,0800	0,0800	0,1000	0,0867	0,0115	0,1000	0,0800	0,0600	0,0800	0,0200
Prod. LIPID	0,08107	0,0644	0,0567	0,0674	0,0124	0,0526	0,0612	0,0643	0,0594	0,0061	0,068	0,0685	0,0501	0,0622	0,0105
Fase II (hari 1)															
Pengamatan	Suhu Kultur/Ruang Pendingin			Rata-Rata	SDV	Suhu Kamar/Ruang Kultur			Rata-Rata	SDV	Suhu Pengering/Ruang Kamar			Rata-Rata	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,65760	0,7646	0,6433	0,6885	0,06629125	0,6800	0,8563	0,8348	0,7904	0,0962
Lipid yield	0,1000	0,1000	0,1000	0,1000	0,0000	0,1200	0,0800	0,0800	0,0933	0,0231	0,0800	0,1000	0,0800	0,0867	0,0115
Prod. LIPID H+1	0,08107	0,0805	0,0709	0,0775	0,0057	0,0789	0,0612	0,0515	0,0638	0,0139	0,0544	0,0856	0,0668	0,0689	0,0157
Fase II (Hari 2)															
Pengamatan	Suhu Kultur/Ruang Pendingin			Rata-Rata	SDV	Suhu Kamar/Ruang Kultur			Rata-Rata	SDV	Suhu Pengering/Ruang Kamar			Rata-Rata	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,65760	0,7646	0,6433	0,6885	0,06629125	0,6800	0,8563	0,8348	0,7904	0,0962
Lipid yield	0,1000	0,1000	0,0800	0,0933	0,0115	0,1000	0,1000	0,1000	0,1000	0,0000	0,0800	0,0800	0,0800	0,0800	0,0000
Prod. LIPID H+2	0,0811	0,0805	0,0567	0,0728	0,014	0,0658	0,0765	0,0643	0,0689	0,007	0,0544	0,0685	0,0668	0,0632	0,008
Fase II (Hari 3)															
Pengamatan	Suhu Kultur/Ruang Pendingin			Rata-Rata	SDV	Suhu Kamar/Ruang Kultur			Rata-Rata	SDV	Suhu Pengering/Ruang Kamar			Rata-Rata	SDV
	A1	A2	A3			B1	B2	B3			C1	C2	C3		
SGR	0,8107	0,8047	0,7091	0,7748	0,0570	0,65760	0,7646	0,6433	0,6885	0,06629125	0,6800	0,8563	0,8348	0,7904	0,0962
Lipid yield	0,1000	0,1000	0,0800	0,0933	0,0115	0,1000	0,0800	0,0800	0,0867	0,0115	0,0800	0,1000	0,0800	0,0867	0,0115
Prod. LIPID H+3	0,0811	0,0805	0,0567	0,0728	0,0139	0,0658	0,0612	0,0515	0,0595	0,0073	0,0544	0,0856	0,0668	0,0689	0,0157

Lampiran 6. Laju Pertumbuhan Spesifik-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.415)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.882)

Group Name	N	Missing	Mean	Std Dev	SEM
RK	3	0	0.775	0.0570	0.0329
K	3	0	0.689	0.0663	0.0383
RP	3	0	0.790	0.0962	0.0555

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.0181	0.00904	1.605	0.277
Residual	6	0.0338	0.00563		
Total	8	0.0519			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.277).

Power of performed test with alpha = 0.050: 0.111

The power of the performed test (0.111) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 7. Biomass Eksponensial fase-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.358)

Equal Variance Test (Brown-Forsythe): Passed (P = 1.000)

Group Name	N	Missing	Mean	Std Dev	SEM
RK	3	0	0.147	0.0231	0.0133
K	3	0	0.133	0.0115	0.00667
RP	3	0	0.160	0.0200	0.0115

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.00107	0.000533	1.500	0.296
Residual	6	0.00213	0.000356		
Total	8	0.00320			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.296).

Power of performed test with alpha = 0.050: 0.100

The power of the performed test (0.100) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 8. Biomass Fase Stasioner-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.077)

Equal Variance Test (Brown-Forsythe): Passed (P = 1.000)

Group Name	N	Missing	Mean	Std Dev	SEM
RK	3	0	0.213	0.0115	0.00667
K	3	0	0.227	0.0115	0.00667
RP	3	0	0.233	0.0115	0.00667

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.000622	0.000311	2.333	0.178
Residual	6	0.000800	0.000133		
Total	8	0.00142			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.178).

Power of performed test with alpha = 0.050: 0.192

The power of the performed test (0.192) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 9. Produktivitas Biomassa-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.452)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.800)

Group Name	N	Missing	Mean	Std Dev	SEM
RK	3	0	0.166	0.0207	0.0120
K	3	0	0.156	0.0118	0.00682
RP	3	0	0.184	0.0212	0.0122

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.00124	0.000621	1.833	0.239
Residual	6	0.00203	0.000339		
Total	8	0.00328			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.239).

Power of performed test with alpha = 0.050: 0.136

The power of the performed test (0.136) is below the desired power of 0.800.

Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 10. Produktivitas Lipid Fase I-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.675)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.766)

Group Name	N	Missing	Mean	Std Dev	SEM
RK	3	0	0.0674	0.0125	0.00720
K	3	0	0.0594	0.00606	0.00350
RP	3	0	0.0622	0.0105	0.00605

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.0000996	0.0000498	0.494	0.633
Residual	6	0.000604	0.000101		
Total	8	0.000704			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.633).

Power of performed test with alpha = 0.050: 0.050

The power of the performed test (0.050) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 11. Produktivitas Lipid Fase II (H1)-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.586)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.278)

Group Name	N	Missing	Mean	Std Dev	SEM
R.pendingin	3	0	0.0775	0.00572	0.00330
R.kultur	3	0	0.0639	0.0139	0.00802
R. kamar	3	0	0.0689	0.0157	0.00907

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.000285	0.000142	0.904	0.454
Residual	6	0.000945	0.000158		
Total	8	0.00123			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.454).

Power of performed test with alpha = 0.050: 0.050

The power of the performed test (0.050) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 12. Produktivitas Lipid Fase II (H2)-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.181)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.847)

Group Name	N	Missing	Mean	Std Dev	SEM
R.pendingin	3	0	0.0728	0.0139	0.00804
R. Kultur	3	0	0.0689	0.00665	0.00384
R. kamar	3	0	0.0632	0.00770	0.00444

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.000138	0.0000689	0.696	0.535
Residual	6	0.000594	0.0000991		
Total	8	0.000732			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.535).

Power of performed test with alpha = 0.050: 0.050

The power of the performed test (0.050) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 13. Produktivitas Lipid Fase II (H3)-One Way Analysis of Variance

Normality Test (Shapiro-Wilk): Passed (P = 0.673)

Equal Variance Test (Brown-Forsythe): Passed (P = 0.725)

Group Name	N	Missing	Mean	Std Dev	SEM
R. Pendingin	3	0	0.0728	0.0139	0.00804
R. Kultur	3	0	0.0595	0.00730	0.00421
R. Kamar	3	0	0.0689	0.0157	0.00907

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.000280	0.000140	0.850	0.473
Residual	6	0.000988	0.000165		
Total	8	0.00127			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.473).

Power of performed test with $\alpha = 0.050$: 0.050

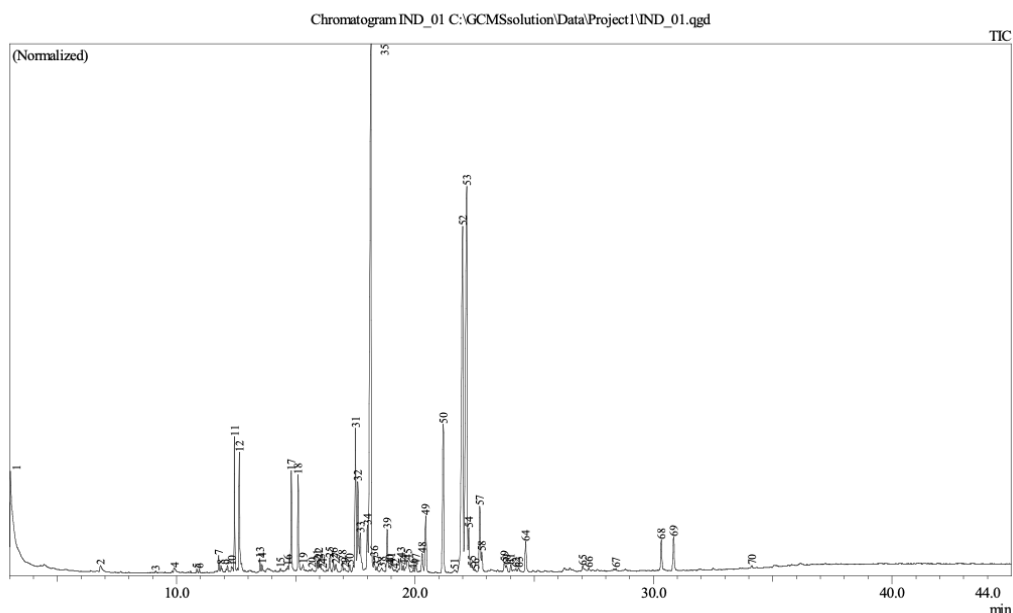
The power of the performed test (0.050) is below the desired power of 0.800. Less than desired power indicates you are less likely to detect a difference when one exists. Negative results should be interpreted cautiously.

Lampiran 14. Uji GC-MS Komposisi Asam Lemak Mikroalga Isolate UNM IND-01

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

Analyzed by : Admin
 Analyzed : 8/11/2023 3:33:44 PM
 Sample Type : Unknown
 Level # : 1
 Sample Name : IND_01
 Sample ID : IND_01
 IS Amount : [1]=1
 Sample Amount : 1

Sample Information



Peak Report TIC					
Peak#	R.Time	Area	Area%	A/H	Name
1	3.035	13540228	4.91	7.40	Benzyl oxy tridecanoic acid
2	6.811	942631	0.34	6.56	Octanoic acid, methyl ester (CAS)
3	9.121	116114	0.04	2.39	Hexadecane, 2,6,10,14-tetramethyl- (CAS)
4	9.907	550264	0.20	5.31	DECANOIC ACID, METHYL ESTER
5	10.849	253815	0.09	2.59	1-Pentadecene
6	10.953	237619	0.09	2.46	Tetradecane (CAS)
7	11.767	817922	0.30	2.15	2,6,10-Trimethyltridecane
8	11.862	507766	0.18	3.39	2,6-di(t-butyl)-4-hydroxy-4-methyl-2,5-cyclohexadien-1-one
9	12.136	561220	0.20	3.57	Eicosane
10	12.309	579595	0.21	4.38	Nonanoic acid, 3,5-difluorophenyl ester
11	12.431	6873279	2.49	2.13	Butylated Hydroxytoluene
12	12.629	8259890	3.00	2.89	Dodecanoic acid, methyl ester (CAS)
13	13.500	663474	0.24	2.09	1-Nonadecene
14	13.587	326240	0.12	2.06	Hexadecane
15	14.361	176738	0.06	2.57	Octyl tetradecyl ether
16	14.664	196619	0.07	2.15	Tetradecanoic acid, methyl ester (CAS)
17	14.811	6767787	2.46	2.85	Heptyl triacontyl ether
18	15.100	5268925	1.91	2.30	Tetradecanoic acid, methyl ester (CAS)
19	15.306	571515	0.21	3.88	OCTADECANE
20	15.678	239228	0.09	3.37	TRIDECAANOIC ACID, 4,8,12-TRIMETHYL-, METHYL ESTER
21	15.900	622480	0.23	2.46	Pentadecanoic acid, methyl ester (CAS)
22	15.964	727836	0.26	2.47	1-Nonadecene
23	16.050	499614	0.18	3.34	Octadecane
24	16.125	190856	0.07	3.81	Nonyl tetradecyl ether
25	16.421	994021	0.36	3.17	Pentadecanoic acid, methyl ester
26	16.578	721509	0.26	2.49	Neophytadiene

Peak#	R.Time	Area	Area%	A/H	Name
27	16.680	795645	0.29	4.40	2-Pentadecanone, 6,10,14-trimethyl- (CAS)
28	16.956	539570	0.20	2.35	2-HEXADECEN-1-OL, 3,7,11,15-TETRAMETHYL-, [R-[R*,R*-(E)]]-
29	17.053	324241	0.12	4.48	Phthalic acid, isobutyl undecyl ester
30	17.262	472013	0.17	2.90	2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(E)]]- (CAS)
31	17.503	10340654	3.75	3.01	7,10-Hexadecadienoic acid, methyl ester
32	17.604	8045039	2.92	3.73	9,12,15-Octadecatrienoic acid, methyl ester, (Z,Z,Z)- (CAS)
33	17.704	3688245	1.34	3.96	9-Hexadecenoic acid, methyl ester, (Z)- (CAS)
34	18.002	4063293	1.47	3.61	14-.BETA.-H-PREGNA
35	18.147	53559604	19.44	4.24	Hexadecanoic acid, methyl ester (CAS)
36	18.293	1161212	0.42	3.38	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, methyl ester
37	18.413	479368	0.17	3.70	(2-Methyloxan-2-yl)methanol
38	18.603	526894	0.19	5.37	2-Methylhexacosane
39	18.836	3582461	1.30	3.49	4-Hexen-3-ol, 2,5-dimethyl-
40	18.930	495106	0.18	3.14	Tetrahydrofuran-2-one, 3-[2-pentenyl]-4-methyl-
41	19.007	951643	0.35	4.95	Estra-1,3,5(10)-trien-17.beta.-ol
42	19.183	275108	0.10	4.53	Sulfurous acid, cyclohexylmethyl heptyl ester
43	19.400	1527294	0.55	4.53	Hexadecanoic acid, 15-methyl-, methyl ester
44	19.508	534085	0.19	3.47	1-Nonadecene
45	19.684	2097392	0.76	7.63	8,11-Eicosadienoic acid, methyl ester (CAS)
46	19.917	217173	0.08	4.22	cis-10-Heptadecenoic acid, methyl ester
47	20.041	636961	0.23	3.65	Decane, 5,6-bis(2,2-dimethylpropylidene)-, (E,Z)-
48	20.300	1911528	0.69	4.27	Heptadecanoic acid, methyl ester
49	20.451	4967793	1.80	3.68	2(3H)-Furanone, 5-heptyldihydro- (CAS)
50	21.183	13500864	4.90	3.80	2(3H)-FURANONE, 5-HEPTYLDIHYDRO-
51	21.650	280233	0.10	5.78	2(3H)-Furanone, 5-heptyldihydro- (CAS)
52	21.996	41203956	14.95	4.98	9,12-Octadecadienoic acid (Z,Z)-, methyl ester
53	22.165	44703515	16.22	4.85	9,12,15-OCTADECATRIENOIC ACID, METHYL ESTER
54	22.250	3740713	1.36	3.57	9-Octadecenoic acid (Z)-, methyl ester
55	22.392	603640	0.22	5.50	ETHYL LINOLEOLATE
56	22.525	184955	0.07	4.38	Nonadecane, 2,6,10,14-tetramethyl- (CAS)
57	22.715	5638498	2.05	3.62	Methyl stearate
58	22.800	1535114	0.56	3.32	(E)-methyl 11-methyloctadec-12-enoate
59	23.750	900567	0.33	3.98	3-(DIDEUTEROMETHOXYMETHOXY)-2-METHYL-1-NONENE
60	23.833	523052	0.19	3.58	trans-1,10-Dimethyl-trans-9-decalol
61	24.017	583061	0.21	3.47	14-.BETA.-H-PREGNA
62	24.219	394499	0.14	5.69	1-Nonadecene
63	24.347	275480	0.10	3.60	Tetrapentacontane, 1,54-dibromo-
64	24.639	2647750	0.96	3.66	cis-10-Nonadecenoic acid, methyl ester
65	27.036	353734	0.13	3.52	EICOSANOIC ACID, METHYL ESTER
66	27.286	212633	0.08	3.53	Cyclopropanedecanoic acid, 2-hexyl-.alpha.-hydroxy-, methyl ester
67	28.422	316798	0.11	6.71	Nonacosane (CAS)
68	30.328	2403944	0.87	3.36	13-Docosenoic acid, methyl ester, (Z)-
69	30.842	2932246	1.06	3.67	Bis(2-ethylhexyl) phthalate
70	34.117	221711	0.08	3.74	Tetracosanoic acid, methyl ester
		275556470	100.00		

Lampiran 15. Dokumentasi Kegiatan



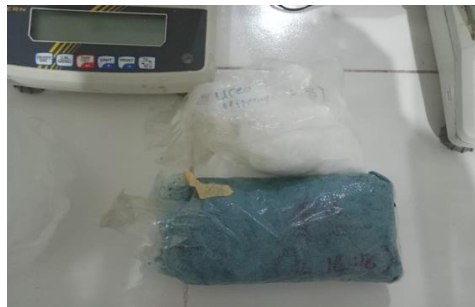
Penyaringan Air Tawar



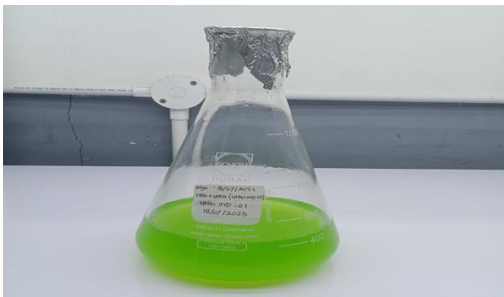
Pengisian air ke Erlemenyer



Sterilisasi Alat dan Media Kultur



Pupuk Urea dan NPK



Inokulum Mikroalga Isolate UNM IND-1.



Media Pupuk Urea+NPK



Persiapan Ruang Kultur



Proses Penebaran Mikroalga



Media yang telah ditebari Mikroalga

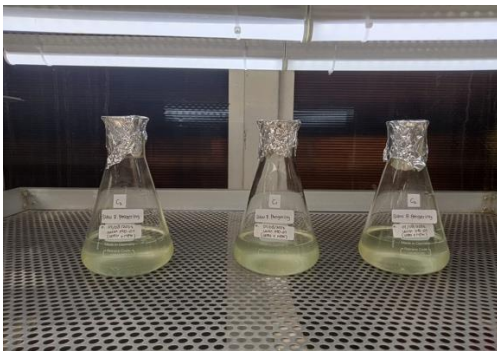
Pemberian Label Perlakuan



Penambahan nutrisi (Trast Eleman)



mikroalga pada perlakuan suhu kamar



Mikroalga perlakuan suhu Pengering



mikroalga pada perlakuan suhu kultur



Pengamatan Sel Mikroalga



Hasil filter sel mikroalga

Pengambilan Sampel Biomassa



Biomassa mikroalga yang terfilter



Hasil Filter Mikroalga diambil dan lipat



Pengeringan Biomassa Mikroalga



Mikroalga di dinginkan didesikator



Menimbang berat biomassa mikroalga



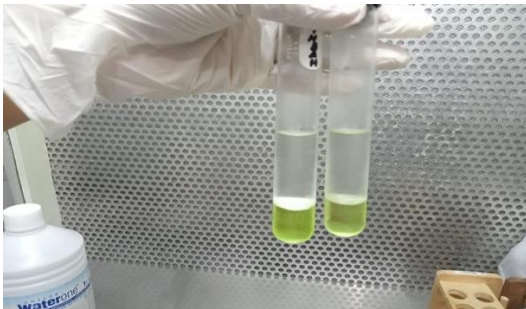
Persiapan Ekstraksi Lipid



Penghancuran Sel Mikroalga



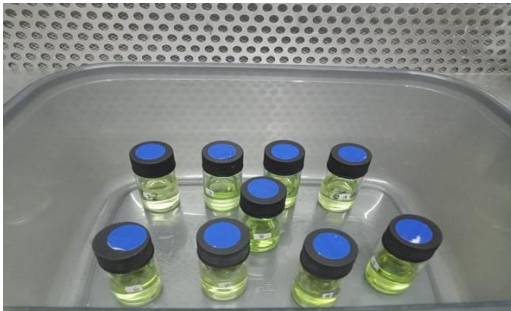
Penambahan (Methanol+Chloroform+air). Sampel dipindahkan ke tabung reaksi



Sampel yang sudah diinkubasi 24 jam.



Sampe lipid dipindahkan ke vial



Sampel Lipid



Sampel Lipid dievaporasi



Sampel Lipid Yang sudah Diekstraksi



toluene ditambahkan kedalam lipid



Sampel diinkubasi pada penangas air.



Sampel yang sudah diinkubasi



Pemindahan fase organic teratas.



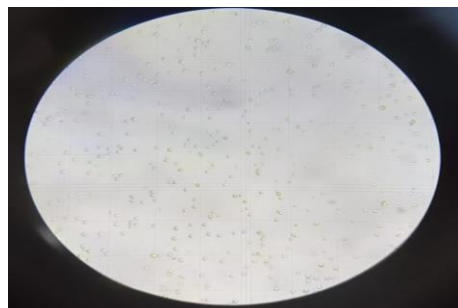
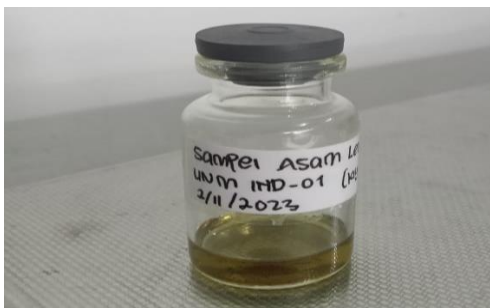
Lapisan sampel yang sudah dipisahkan



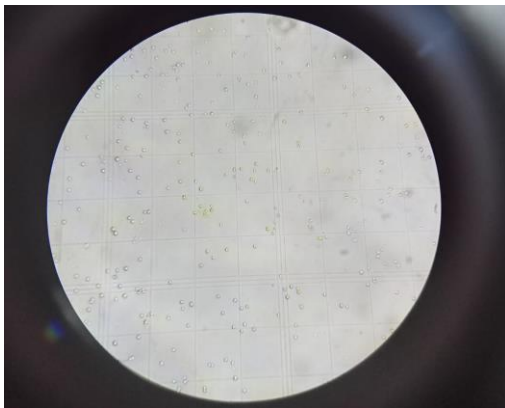
Sampel yang telah dicuci



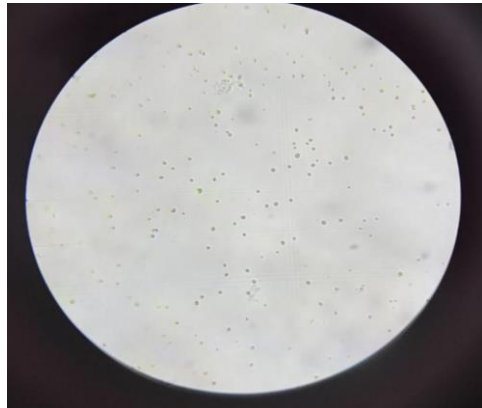
Sampel diuapkan dibawah sinar matahari



Sampel Asam lemak siapkan dianalisis Sel Mikroalga pada Suhu Kultur



Sel Mikroalga pada Suhu Kamar



Sel Mikroalga pada Suhu Pengering



Mikroalga pada suhu kulkas



Kultur mikroalga pada awal penebaran



Kultur Mikroalga Pada H1



Kultur Mikroalga Pada H2



Kultur Mikroalga Pada H3



Kultur Mikroalga Pada H4



Kultur Mikroalga Pada H5



Kultur Mikroalga Pada H6



Kultur Mikroalga Pada H7