



Lampiran 1. Dokumentasi Observasi Tambak Garam



Gambar 1. Tambak untuk proses pemekatan air laut dengan media tanah



Gambar 2. Kolam pemekatan air garam setelah penyaringan dengan tinjung



Gambar 3. Wadah penampungan air garam hasil penyaringan dengan tinjung



Gambar 4. Alat penyaringan air laut (Tinjung) yang terbuat dari batang bambu dan berbentuk corong

Lampiran 2. Data Skrining Bakteri Halofilik Isolat TG 1

Waktu	Abs. Sampel	Abs. Kontrol	Abs. Net	$\mu\text{g/ml}$	μg	μmol	x 4	Unit	Unit/mL
4	0,281	0,1	0,181	31,206	20,285	0,146	0,583	0,058	1,167
8	1,094	0,119	0,975	168,10	109,27	0,786	3,142	0,314	0,628
10	0,483	0,134	0,349	60,172	39,112	0,281	1,125	0,113	0,225
12	0,584	0,164	0,42	72,414	47,069	0,338	1,353	0,135	0,271
14	0,292	0,131	0,161	27,759	18,043	0,129	0,519	0,052	1,038
16	0,352	0,12	0,232	40,00	61,538	0,442	1,769	0,177	3,539
18	0,525	0,148	0,377	65,00	42,250	0,304	1,215	0,122	2,430
24	0,246	0,172	0,074	12,758	8,2931	0,059	0,239	0,024	0,477
28	0,519	0,165	0,354	61,034	39,672	0,286	1,141	0,114	2,282

Diketahui:

- Nilai regresi p-nitrofenol = $Y = 0,0058x$
- Substrat + *crude* lipase = 0,65 mL
- Crude* lipase = 0,05 mL
- Waktu inkubasi = 10 menit
- Berat molekul 4-nitrofenol = 139,11

Dihitung:

$$\begin{aligned} \text{a. Konsentrasi pNP} &= \frac{\text{absorbansi net}}{0,0058} \\ &= \frac{0,181}{0,0058} = 31,206 \mu\text{g/mL} \end{aligned}$$

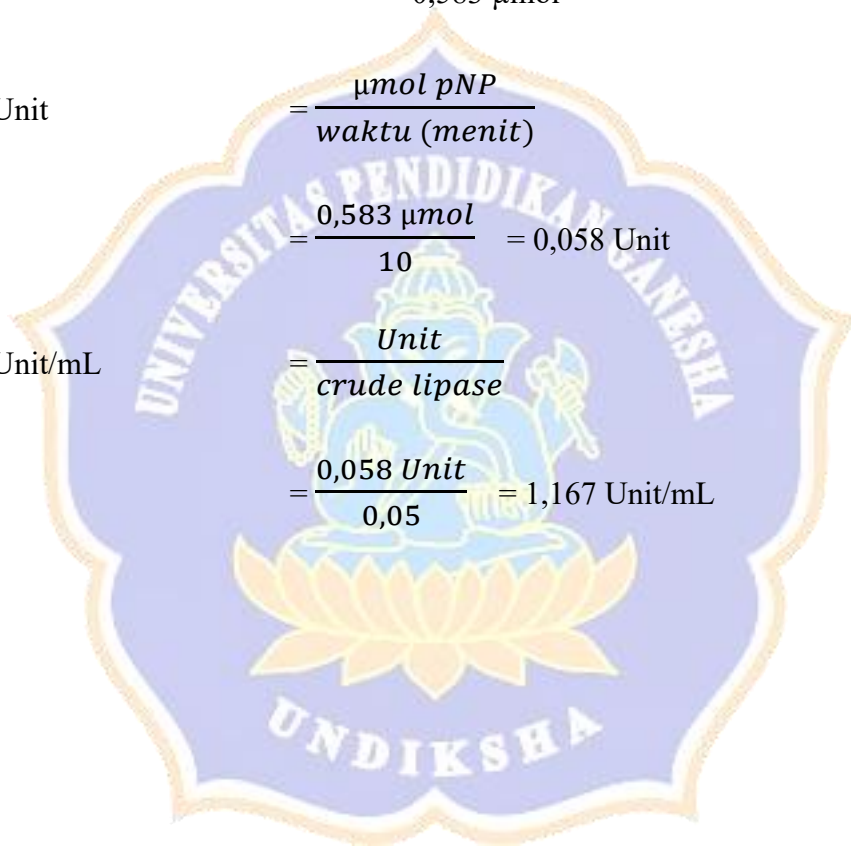
$$\begin{aligned} \text{b. Massa pNP} &= \text{konsentrasi pNP} \times (\text{substrat} + \text{crude lipase} + \\ &\text{etanol}) \\ &= 31,206 \mu\text{g/mL} \times 0,65 \text{ mL} = 20,285 \mu\text{g} \end{aligned}$$

$$\begin{aligned} \text{c. } \mu\text{mol pNP} &= \frac{\text{massa pNP}}{\text{berat molekul pNP}} \\ &= \frac{20,285 \mu\text{g}}{139,11} = 0,146 \mu\text{mol} \end{aligned}$$

$$\begin{aligned} \text{d. Pengenceran sebanyak } 4\times &= \text{Unit/mL} \times 4 \\ &= 1,146 \times 4 \\ &= 0,583 \mu\text{mol} \end{aligned}$$

$$\begin{aligned} \text{e. Unit} &= \frac{\mu\text{mol pNP}}{\text{waktu (menit)}} \\ &= \frac{0,583 \mu\text{mol}}{10} = 0,058 \text{ Unit} \end{aligned}$$

$$\begin{aligned} \text{f. Unit/mL} &= \frac{\text{Unit}}{\text{crude lipase}} \\ &= \frac{0,058 \text{ Unit}}{0,05} = 1,167 \text{ Unit/mL} \end{aligned}$$



Lampiran 3. Data Hasil Identifikasi Bakteri Halofilik Isolat TG 1

3.1 Urutan Gen 16s rRNA

Urutan gen 16s rRNA

>Contig LES TGB 1

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CTGCGATTACTAGCGATTCCGACTTCATGGAGT
CGAGTTGCAGACTCCAATCCGGACTACGACAACTTAAGGGATTTCGCTTAACATCGCTGTCTCGCTGCC
CTCTGTATCTGCCATTGTAGCACGTGTAGCCCTACTCGTAAGGGCCATGATGACTTGACGTCGTCGCC
ACCTTCTCCGGTTATACCGGCAGTCTCCCTGGAGTCCACCATTACGTGCTGGCAAACAAGGATAA
GGGTTGCGCTCGTTGCGGGACTTAACCCAACATTCACAACACGAGCTGACGACAGCCATGCAGCACCTG
TCTCAGCGCTCCCGAAGGCACTCCTCTATCTCTAAAGGATTCGCTGGATGTCAAGAGTAGGTAAGTTCT
TCGCGTTGCATCGAATTAACCACATGCTCCACCGCTGTGCGGGCCCCCGTCAATTCATTGAGTTTTA
ACCTTGCGGCCGTACTCCCAGGCGGTCTACTTAATGCGTTAGCTCCGAAAGCCAAAGTCTTAAACCTCA
GCCTCCAAGTAGACATCGTTTACGGCGTGACTACCAGGGTATCTAATCCTGTTTGTACCCACGCTTTC
GCATCTGAGCGTCAGTCTTTGTCCAGGGGGCCGCTTCGCCACTGGTATTCTTCAGATCTCTACGCATT
TCACCGTACACCTGAAATCTACCCCTCTACAAGACTCTAGCCTGCCAGTTTCAAATGCGGTTCCGA
GGTTGAGCCCCGGCTTTACATCTGACTTAACAAACCGCCTGCATGCGCTTACGCCAGTAATCCGA
TTAACGCTCGCACCTCCGTATTACCGCGGCTGCTGGCACGGAGTTAGCCGGTGCTTCTTGCAGCTAA
CGTCAAGCAATGCACGTATTAAGTACTACTCTCTCACTGCTGAAAGTGCTTTACAACCCGAAGGCCT
TCTCACACACGCGGCATGGCTGCATCAGGGTCTCCCCATTGTGCAATATCCCCACTGCTGCCTCCCG
TAGGAGTCTGGGCCGTGTCTCAGTCCCAGTGTGGCTGATCATCCTCTCAAACCAGCTAAGGATCGTCGCC
TTGGTAAGCCTTACCTTACCAACTAGCTAATCTAACTGGGCCCATCCCAACGCGATAGCTTACATGTAG
AGGCCACCTTTGGTCCGTAGACATTATGCGGTATTAGCCGTCGTTTCCAACGGTTATCCCCTCGTCAGG
GCAGGTTCCAGCCGTTACTCACCCGTCGCCGCTGACGCTCCAGTAAATCCACCGAAGCTCAATACTG
CCGTTCCGCTCGACTGCATGTGTAGC
  
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3.2 Hasil BLAST

Descriptions		Graphic Summary	Alignments	Taxonomy				
Sequences producing significant alignments								
Download Select columns Show 100								
select all 15 sequences selected								
GenBank Graphics Distance tree of results MSA Viewer								
Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per Ident	Acc. Len	Accession
<input checked="" type="checkbox"/> Salinivibrio sp. Bac58 16S ribosomal RNA gene, partial sequence	Salinivibrio sp. Bac58	2420	2420	99%	0.0	99.92%	1421	KP980784.1
<input checked="" type="checkbox"/> Salinivibrio sp. Bac267 16S ribosomal RNA gene, partial sequence	Salinivibrio sp. Bac267	2420	2420	99%	0.0	99.92%	1424	KP980741.1
<input checked="" type="checkbox"/> Salinivibrio budaii strain Xmb050 16S ribosomal RNA gene, partial sequence	Salinivibrio budaii	2418	2418	99%	0.0	99.77%	1460	KT986176.1
<input checked="" type="checkbox"/> Salinivibrio sp. D2-7M gene for 16S rRNA, partial sequence	Salinivibrio sp. D2-7M	2418	2418	99%	0.0	99.77%	1447	AB617568.1
<input checked="" type="checkbox"/> Vibrionaceae bacterium PH25 16S ribosomal RNA gene, partial sequence	Vibrionaceae bacterium P...	2418	2418	100%	0.0	99.70%	1448	AF513466.1
<input checked="" type="checkbox"/> Salinivibrio costicola strain M318 chromosome 1, complete sequence	Salinivibrio costicola	2416	21693	99%	0.0	99.77%	2883537	CP050266.1
<input checked="" type="checkbox"/> Salinivibrio costicola strain Ph-WC11147 16S ribosomal RNA gene, partial sequence	Salinivibrio costicola	2416	2416	99%	0.0	99.77%	1516	JX913853.1
<input checked="" type="checkbox"/> Salinivibrio sp. Bac83 16S ribosomal RNA gene, partial sequence	Salinivibrio sp. Bac83	2414	2414	99%	0.0	99.85%	1409	KP980795.1
<input checked="" type="checkbox"/> Salinivibrio sp. Bac217 16S ribosomal RNA gene, partial sequence	Salinivibrio sp. Bac217	2414	2414	99%	0.0	99.85%	1421	KP980734.1
<input checked="" type="checkbox"/> Salinivibrio sp. YCSC6 chromosome I, complete sequence	Salinivibrio sp. YCSC6	2410	21582	99%	0.0	99.70%	2952600	CP039516.1
<input checked="" type="checkbox"/> Salinivibrio sp. strain M316 16S ribosomal RNA gene, partial sequence	Salinivibrio sp.	2410	2410	99%	0.0	99.85%	1417	MH938326.1
<input checked="" type="checkbox"/> Salinivibrio sp. strain M7 16S ribosomal RNA gene, partial sequence	Salinivibrio sp.	2410	2410	99%	0.0	99.85%	1416	MH938322.1
<input checked="" type="checkbox"/> Salinivibrio costicola strain Ph-WC11132 16S ribosomal RNA gene, partial sequence	Salinivibrio costicola	2410	2410	99%	0.0	99.70%	1516	JX913852.1
<input checked="" type="checkbox"/> Salinivibrio costicola strain Ph-WC11129 16S ribosomal RNA gene, partial sequence	Salinivibrio costicola	2410	2410	99%	0.0	99.70%	1515	JX913851.1
<input checked="" type="checkbox"/> Salinivibrio budaii strain Xmb048 16S ribosomal RNA gene, partial sequence	Salinivibrio budaii	2409	2409	100%	0.0	99.62%	1462	KT986174.1

Lampiran 4. Data Hasil Optimalisasi Media Produksi Lipase Isolat TG 1

4.1 Rancangan Screening

RunOrder	Nutrient broth	MgSO ₄	CaCl ₂	NaCl	Olive oil
1	0.7	0.007	0.02	12	1.4
2	0.7	0.007	0.08	12	1.4
3	2.0	0.040	0.02	12	1.4
4	2.0	0.007	0.08	12	0.4
5	0.7	0.040	0.08	5	1.4
6	0.7	0.007	0.02	5	0.4
7	2.0	0.007	0.02	5	1.4
8	2.0	0.040	0.08	5	1.4
9	0.7	0.040	0.08	12	0.4
10	0.7	0.040	0.02	5	0.4
11	2.0	0.007	0.08	5	0.4
12	2.0	0.040	0.02	12	0.4

4.2 Data Hasil Screening

RO	Abs. Rataan	µg/mL	µg pNP	µmol pNP	× 4	Unit	Unit/mL
1	0,0495	8,534	5,547	0,039	0,160	0,02	0,32
2	0,0285	4,914	3,194	0,023	0,092	0,01	0,18
3	0,1105	19,052	12,384	0,089	0,356	0,04	0,71
4	0,1645	28,362	18,435	0,133	0,531	0,05	1,06
5	0,367	63,276	41,129	0,296	1,184	0,12	2,37
6	0,087	15,00	9,750	0,070	0,281	0,03	0,56
7	0,027	4,6552	3,026	0,022	0,087	0,01	0,17
8	0,241	41,552	27,009	0,194	0,777	0,08	1,55
9	0,1255	21,638	14,065	0,101	0,405	0,04	0,81
10	0,1205	20,776	13,504	0,097	0,389	0,04	0,78
11	0,372	64,138	41,689	0,299	1,199	0,12	2,40
12	0,0775	13,362	8,685	0,062	0,249	0,02	0,50

Diketahui:

a. Nilai regresi p-nitrofenol = $Y = 0,0058x$

b. Substrat + *crude* lipase = 0,65 mL

- c. *Crude lipase* = 0,05 mL
 d. Waktu inkubasi = 10 menit
 e. Berat molekul 4-nitrofenol = 139,11

Dihitung:

$$\begin{aligned} \text{a. Konsentrasi pNP} &= \frac{\text{absorbansi net}}{0,0058} \\ &= \frac{0,0495}{0,0058} = 8,534 \mu\text{g/mL} \end{aligned}$$

$$\begin{aligned} \text{b. Massa pNP} &= \text{konsentrasi pNP} \times (\text{substrat} + \text{crude lipase} + \text{etanol}) \\ &= 8,534 \mu\text{g/mL} \times 0,65 \text{ mL} = 5,547 \mu\text{g} \end{aligned}$$

$$\begin{aligned} \text{c. } \mu\text{mol pNP} &= \frac{\text{massa pNP}}{\text{berat molekul pNP}} \\ &= \frac{5,547 \mu\text{g}}{139,11} = 0,039 \mu\text{mol} \end{aligned}$$

$$\begin{aligned} \text{f. Pengenceran sebanyak } 4\times &= \mu\text{mol} \times 4 \\ &= 0,039 \times 4 = 0,160 \mu\text{mol} \end{aligned}$$

$$\begin{aligned} \text{d. Unit} &= \frac{\mu\text{mol pNP}}{\text{waktu (menit)}} \\ &= \frac{0,160 \mu\text{mol}}{10} = 0,02 \text{ Unit} \end{aligned}$$

$$\begin{aligned} \text{e. Unit/mL} &= \frac{\text{Unit}}{\text{crude lipase}} \\ &= \frac{0,02 \text{ Unit}}{0,05} = 0,32 \text{ Unit/mL} \end{aligned}$$

4.3 Rancangan RSM

RunOrder	CaCl ₂	NaCl
1	2,17	0,135
2	5,00	0,150
3	5,00	0,100
4	1,00	0,100
5	7,83	0,135
6	9,00	0,100
7	5,00	0,100
8	7,83	0,065
9	2,17	0,065
10	5,00	0,100
11	5,00	0,100
12	5,00	0,050
13	5,00	0,100

4.4 Data Hasil RSM

RO	Abs. Rataan	µg/mL	µg pNP	µmol pNP	× 4	Unit	Unit/mL
1	0,097	16,724	10,871	0,078	0,313	0,03	0,63
2	0,125	21,552	14,009	0,101	0,403	0,04	0,81
3	0,2555	44,052	28,634	0,206	0,824	0,08	1,65
4	0,1385	23,879	15,522	0,112	0,447	0,04	0,89
5	0,2425	41,810	27,177	0,196	0,782	0,08	1,56
6	0,2675	46,121	29,978	0,216	0,863	0,09	1,73
7	0,248	42,759	27,793	0,199	0,799	0,08	1,60
8	0,278	47,931	31,155	0,224	0,897	0,09	1,79
9	0,2455	42,328	27,513	0,198	0,792	0,08	1,58
10	0,2405	41,466	26,953	0,194	0,776	0,08	1,55
11	0,2635	45,431	29,530	0,212	0,849	0,08	1,70
12	0,275	47,414	30,819	0,222	0,887	0,09	1,77
13	0,267	46,034	29,922	0,215	0,861	0,09	1,72

Diketahui:

- Nilai regresi p-nitrofenol = $Y = 0,0058x$
- Substrat + *crude* lipase = 0,65 mL

- c. *Crude lipase* = 0,05 mL
 d. Waktu inkubasi = 10 menit
 e. Berat molekul 4-nitrofenol = 139,11

Dihitung:

a. Konsentrasi pNP = $\frac{\text{absorbansi rata-rata}}{0,0058}$

$$= \frac{0,097}{0,0058} = 16,724 \mu\text{g/mL}$$

b. Massa pNP = konsentrasi pNP \times (substrat + *crude lipase* + etanol)

$$= 16,724 \mu\text{g/mL} \times 0,65 \text{ mL} = 10,871 \mu\text{g}$$

c. $\mu\text{mol pNP}$ = $\frac{\text{massa pNP}}{\text{berat molekul pNP}}$

$$= \frac{10,8717 \mu\text{g}}{139,11} = 0,078 \mu\text{mol}$$

g. Pengenceran sebanyak 4 \times = $\mu\text{mol} \times 4$

$$= 0,078 \times 4 = 0,313 \mu\text{mol}$$

d. Unit = $\frac{\mu\text{mol pNP}}{\text{waktu (menit)}}$

$$= \frac{0,313 \mu\text{mol}}{10} = 0,0313 \text{ Unit}$$

e. Unit/mL = $\frac{\text{Unit}}{\text{crude lipase}}$

$$= \frac{0,0313 \text{ Unit}}{0,05} = 0,626 \text{ Unit/mL}$$

Lampiran 5. Data Hasil Optimalisasi Waktu Produksi

Waktu	Abs. Rataan	$\mu\text{g/mL}$	μg	μmol	$\times 4$	Unit	Unit/mL
4	0,350	60,35	39,22	0,282	1,128	0,113	2,26
8	0,289	49,83	32,39	0,233	0,931	0,093	1,86
10	0,349	60,17	39,11	0,281	1,125	0,112	2,25
12	0,420	72,41	47,07	0,338	1,353	0,135	2,71
14	0,161	27,76	18,04	0,130	0,519	0,052	1,04
16	0,232	40,00	61,54	0,442	1,769	0,177	3,54
18	0,377	65,00	42,25	0,304	1,215	0,122	2,43
24	0,074	12,76	8,293	0,059	0,238	0,024	0,48
28	0,354	61,04	39,67	0,285	1,141	0,114	2,28

Diketahui:

- f. Nilai regresi p-nitrofenol = $Y = 0,0058x$
- g. Substrat + *crude* lipase = 0,65 mL
- h. *Crude* lipase = 0,05 mL
- i. Waktu inkubasi = 10 menit
- j. Berat molekul 4-nitrofenol = 139,11

Dihitung:

$$\begin{aligned} \text{a. Konsentrasi pNP} &= \frac{\text{absorbansi rata-rata}}{0,0058} \\ &= \frac{0,350}{0,0058} = 60,35 \mu\text{g/mL} \end{aligned}$$

$$\begin{aligned} \text{b. Massa pNP} &= \text{konsentrasi pNP} \times (\text{substrat} + \text{crude lipase} + \text{etanol}) \\ &= 60,35 \mu\text{g/mL} \times 0,65 \text{ mL} = 39,22 \mu\text{g} \end{aligned}$$

$$\text{c. } \mu\text{mol pNP} = \frac{\text{massa pNP}}{\text{berat molekul pNP}}$$

$$= \frac{39,22 \mu\text{g}}{139,11} = 0,282 \mu\text{mol}$$

h. Pengenceran sebanyak $4\times = \mu\text{mol} \times 4$

$$= 0,282 \times 4 = 1,128 \mu\text{mol}$$

d. Unit $= \frac{\mu\text{mol pNP}}{\text{waktu (menit)}}$

$$= \frac{1,128 \mu\text{mol}}{10} = 0,113 \text{ Unit}$$

e. Unit/mL $= \frac{\text{Unit}}{\text{crude lipase}}$

$$= \frac{0,113 \text{ Unit}}{0,05} = 2,26 \text{ Unit/mL}$$

Lampiran 6. Karakterisasi Lipase

6.1 Rancangan Karakterisasi pH dan Temperatur

RunOrder	pH	Temperatur
1	7,00	55,00
2	7,00	55,00
3	7,00	55,00
4	4,00	55,00
5	7,00	55,00
6	9,12	72,7
7	10,00	55,00
8	4,87	37,3
9	4,87	72,7
10	7,00	55,00
11	7,00	80,00
12	9,12	37,3
13	7,00	30,00

6.2 Data Hasil Karakterisasi pH dan Temperatur

RO	Abs. Rataan	$\mu\text{g/mL}$	$\mu\text{g pNP}$	μmol pNP	$\times 4$	Unit	Unit/mL
1	0,2685	46,29	28,93	0,208	0,833	0,08	3,33
2	0,276	47,59	29,74	0,214	0,856	0,09	3,42
3	0,2625	45,26	28,29	0,204	0,814	0,08	3,26
4	0,002	0,348	0,216	0,002	0,006	0,00	0,02
5	0,253	43,62	27,26	0,196	0,785	0,08	3,14
6	0,314	54,14	33,84	0,243	0,974	0,10	3,89
7	0,1795	30,95	19,34	0,139	0,557	0,06	2,23
8	0,004	0,689	0,431	0,003	0,012	0,00	0,05
9	0,0045	0,776	0,485	0,004	0,014	0,00	0,06
10	0,259	44,66	27,91	0,201	0,803	0,08	3,21
11	0,1265	21,81	13,63	0,098	0,392	0,04	1,57
12	0,6805	117,3	73,33	0,528	2,110	0,21	8,44
13	0,3335	57,50	35,94	0,259	1,034	0,10	4,14

Diketahui:

- Nilai regresi p-nitrofenol = $Y = 0,0058x$
- Substrat + *crude* lipase = 0,625 mL
- Crude* lipase = 0,025 mL
- Waktu inkubasi = 10 menit
- Berat molekul 4-nitrofenol = 139,11

Dihitung:

$$\text{a. Konsentrasi pNP} = \frac{\text{absorbansi rataaan}}{0,0058}$$

$$= \frac{0,2685}{0,0058} = 46,29 \mu\text{g/mL}$$

b. Massa pNP = konsentrasi pNP \times (substrat + *crude* lipase + etanol)

$$= 46,29 \mu\text{g/mL} \times 0,625 \text{ mL} = 28,93 \mu\text{g}$$

c. $\mu\text{mol pNP} = \frac{\text{massa pNP}}{\text{berat molekul pNP}}$

$$= \frac{28,93 \mu\text{g}}{139,11} = 0,208 \mu\text{mol}$$

i. Pengenceran sebanyak $4\times = \mu\text{mol} \times 4$

$$= 0,208 \times 4 = 0,833 \mu\text{mol}$$

d. Unit = $\frac{\mu\text{mol pNP}}{\text{waktu (menit)}}$

$$= \frac{0,833 \mu\text{mol}}{10} = 0,08 \text{ Unit}$$

e. Unit/mL = $\frac{\text{Unit}}{\text{crude lipase}}$

$$= \frac{0,08 \text{ Unit}}{0,025} = 3,33 \text{ Unit/mL}$$

$$\text{Aktivitas Lipase (U/mL)} = -24,11 + 5,617 \text{ pH} + 0,1014 \text{ Temperatur} - 0,3116$$

$$\text{pH} \times \text{pH} - 0,000674 \text{ Temperatur} \times \text{Temperatur} - 0,00594$$

$$\text{pH} \times \text{Temperatur}$$

6.3 Data Karakterisasi Pengaruh Kadar Garam (NaCl)

NaCl	Abs. Rataan	$\mu\text{g/mL}$	$\mu\text{g pNP}$	$\mu\text{mol pNP}$	$\times 6$	Unit	Unit/mL	%
0	0,4925	84,914	53,07	0,382	2,291	0,23	9,16	100,0
2	0,5815	100,26	62,66	0,451	2,705	0,27	10,82	118,1
3	0,7865	135,60	84,75	0,609	3,658	0,37	14,63	159,7
4	0,6075	104,74	65,46	0,471	2,826	0,28	11,30	123,3
6	0,6060	104,48	65,30	0,469	2,819	0,28	11,28	123,0
8	0,1960	33,794	21,12	0,152	0,912	0,09	3,65	39,8
10	0,1945	33,535	20,96	0,151	0,905	0,09	3,62	39,5
12	0,1200	20,689	12,93	0,093	0,558	0,06	2,23	24,4

Diketahui:

- Nilai regresi p-nitrofenol = $Y = 0,0058x$
- Substrat + *crude* lipase = 0,625 mL
- Crude* lipase = 0,025 mL
- Waktu inkubasi = 10 menit
- Berat molekul 4-nitrofenol = 139,11

Dihitung:

$$\begin{aligned} \text{a. Konsentrasi pNP} &= \frac{\text{absorbansi rataaan}}{0,0058} \\ &= \frac{0,4925}{0,0058} = 84,914 \mu\text{g/mL} \end{aligned}$$

$$\begin{aligned} \text{b. Massa pNP} &= \text{konsentrasi pNP} \times (\text{substrat} + \text{crude lipase} + \text{etanol}) \\ &= 84,914 \mu\text{g/mL} \times 0,625 \text{ mL} = 53,07 \mu\text{g} \end{aligned}$$

$$\text{c. } \mu\text{mol pNP} = \frac{\text{massa pNP}}{\text{berat molekul pNP}}$$

$$= \frac{53,07 \mu\text{g}}{139,11} = 0,382 \mu\text{mol}$$

j. Pengenceran sebanyak $6\times = \mu\text{mol} \times 6$

$$= 0,382 \times 6 = 2,291 \mu\text{mol}$$

d. Unit $= \frac{\mu\text{mol pNP}}{\text{waktu (menit)}}$

$$= \frac{2,291 \mu\text{mol}}{10} = 0,23 \text{ Unit}$$

e. Unit/mL $= \frac{\text{Unit}}{\text{crude lipase}}$

$$= \frac{0,23 \text{ Unit}}{0,025} = 9,16 \text{ Unit/mL}$$

6.4 Data Karakterisasi Kation Divalen

Kation	Rataan	$\mu\text{g/mL}$	$\mu\text{g pNP}$	$\mu\text{mol pNP}$	X 6	Unit	Unit/ mL	Relatif
Kontrol	0,462	79,655	51,776	0,373	2,235	0,22	8,94	100
Ca²⁺	0,4755	81,983	53,289	0,383	2,300	0,23	9,20	103
Mg²⁺	0,475	81,897	53,233	0,383	2,298	0,23	9,19	103
Mn²⁺	0,403	69,483	45,164	0,325	1,950	0,19	7,80	87
Cu²⁺	0,1695	29,224	18,996	0,137	0,820	0,08	3,28	37
Pb²⁺	0,1415	24,397	15,858	0,114	0,685	0,07	2,74	31
Fe²⁺	0,048	8,2759	5,380	0,039	0,232	0,02	0,93	10
Sn²⁺	-0,0335	-5,776	-3,754	-0,027	-0,162	-0,02	0,00	0
EDTA	0,445	76,724	49,871	0,359	2,153	0,22	8,61	96

Diketahui:

a. Nilai regresi p-nitrofenol $= Y = 0,0058x$

- b. Substrat + *crude* lipase = 0,65 mL
 c. *Crude* lipase = 0,025 mL
 d. Waktu inkubasi = 10 menit
 e. Berat molekul 4-nitrofenol = 139,11

Dihitung:

a. Konsentrasi pNP = $\frac{\text{absorbansi rata-rata}}{0,0058}$

$$= \frac{0,462}{0,0058} = 79,655 \mu\text{g/mL}$$

b. Massa pNP = konsentrasi pNP × (substrat + *crude* lipase + etanol)

$$= 79,655 \mu\text{g/mL} \times 0,65 \text{ mL} = 51,775 \mu\text{g}$$

c. μmol pNP = $\frac{\text{massa pNP}}{\text{berat molekul pNP}}$

$$= \frac{51,775 \mu\text{g}}{139,11} = 0,373 \mu\text{mol}$$

k. Pengenceran sebanyak 6× = $\mu\text{mol} \times 6$

$$= 0,373 \times 6 = 2,235 \mu\text{mol}$$

d. Unit = $\frac{\mu\text{mol pNP}}{\text{waktu (menit)}}$

$$= \frac{2,235 \mu\text{mol}}{10} = 0,22 \text{ Unit}$$

e. Unit/mL = $\frac{\text{Unit}}{\text{crude lipase}}$

$$= \frac{0,22 \text{ Unit}}{0,025} = 8,94 \text{ Unit/mL}$$

f. Relatif (%) $= \frac{\frac{\text{Unit}}{\text{mL}} \times 100}{\frac{\text{Unit}}{\text{mL}}_{\text{kontrol}}}$

$$= \frac{8,94 \times 100}{8,94}$$

$$= 100\%$$

