

## V.2 Saran

Perlu dilakukan pengukuran jumlah kuantitas DNA terlebih dahulu pada tahap ekstraksi DNA.

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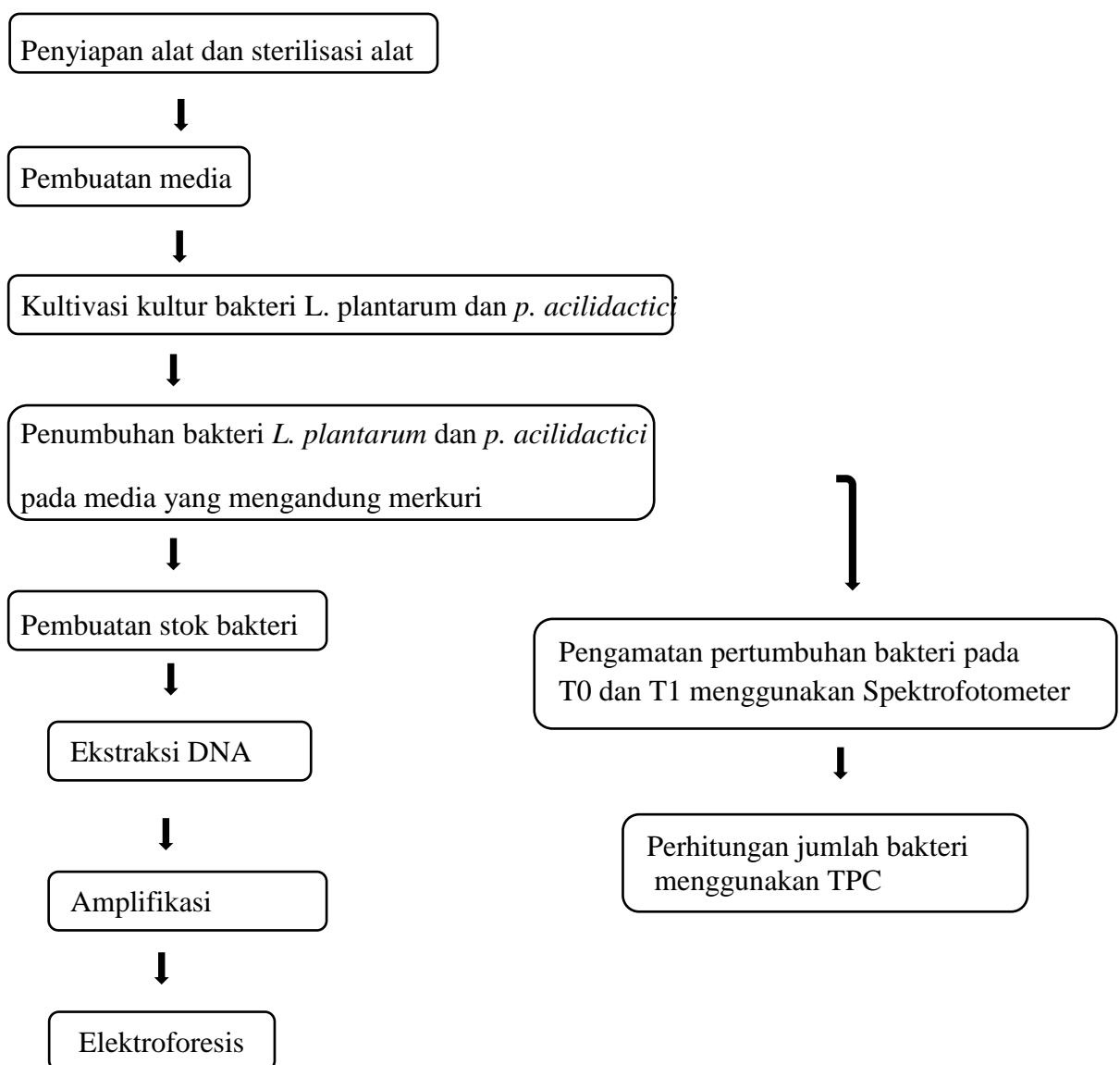
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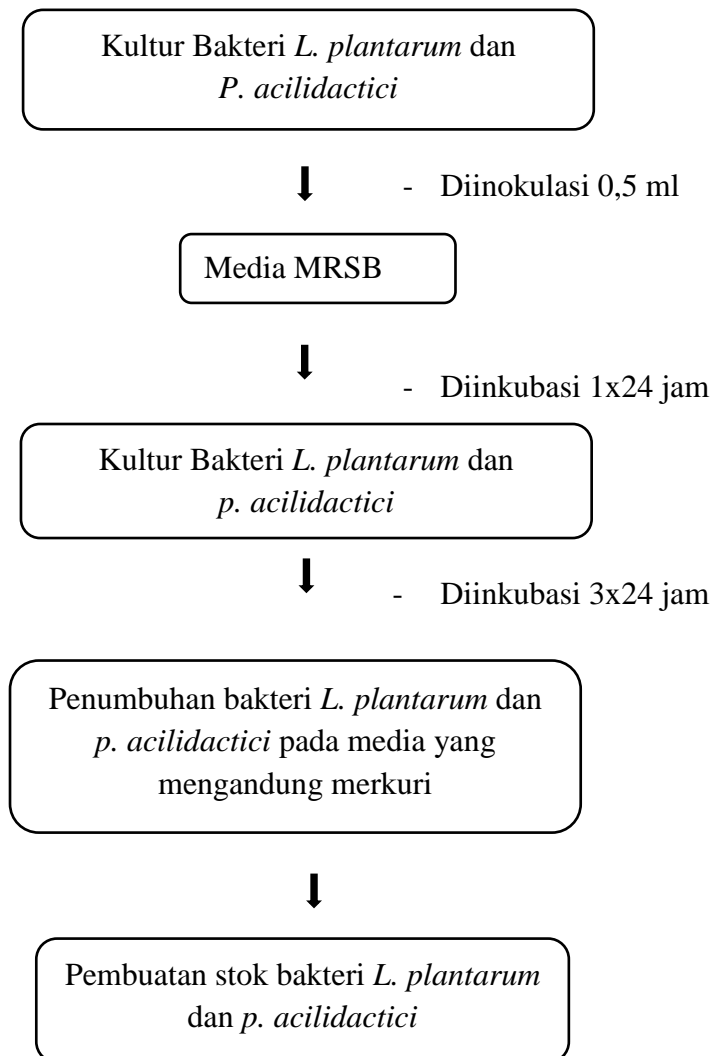
## **LAMPIRAN**



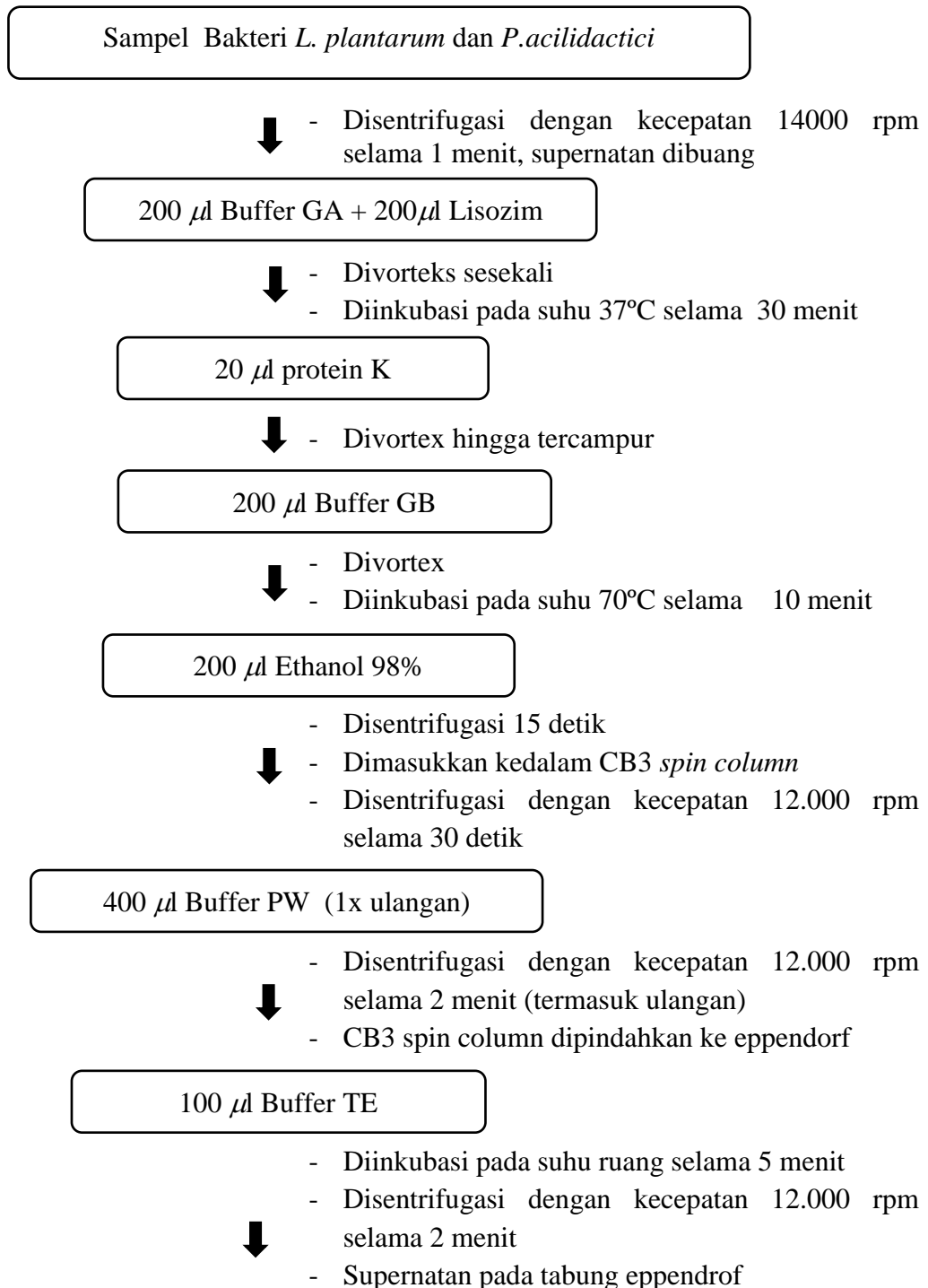
**Lampiran 1. Skema Kerja Deteksi Gen Merkuri Reduktase (*MerA*) Pada Bakteri *Lactobacillus plantarum* Dan *Pediococcus acilidactici* Sebagai Bakteri Pereduksi Merkuri**



**Lampiran 2. Skema Kerja Uji resistensi *Lactobacillus plantarum* dan *Pediococcus acilidactici***

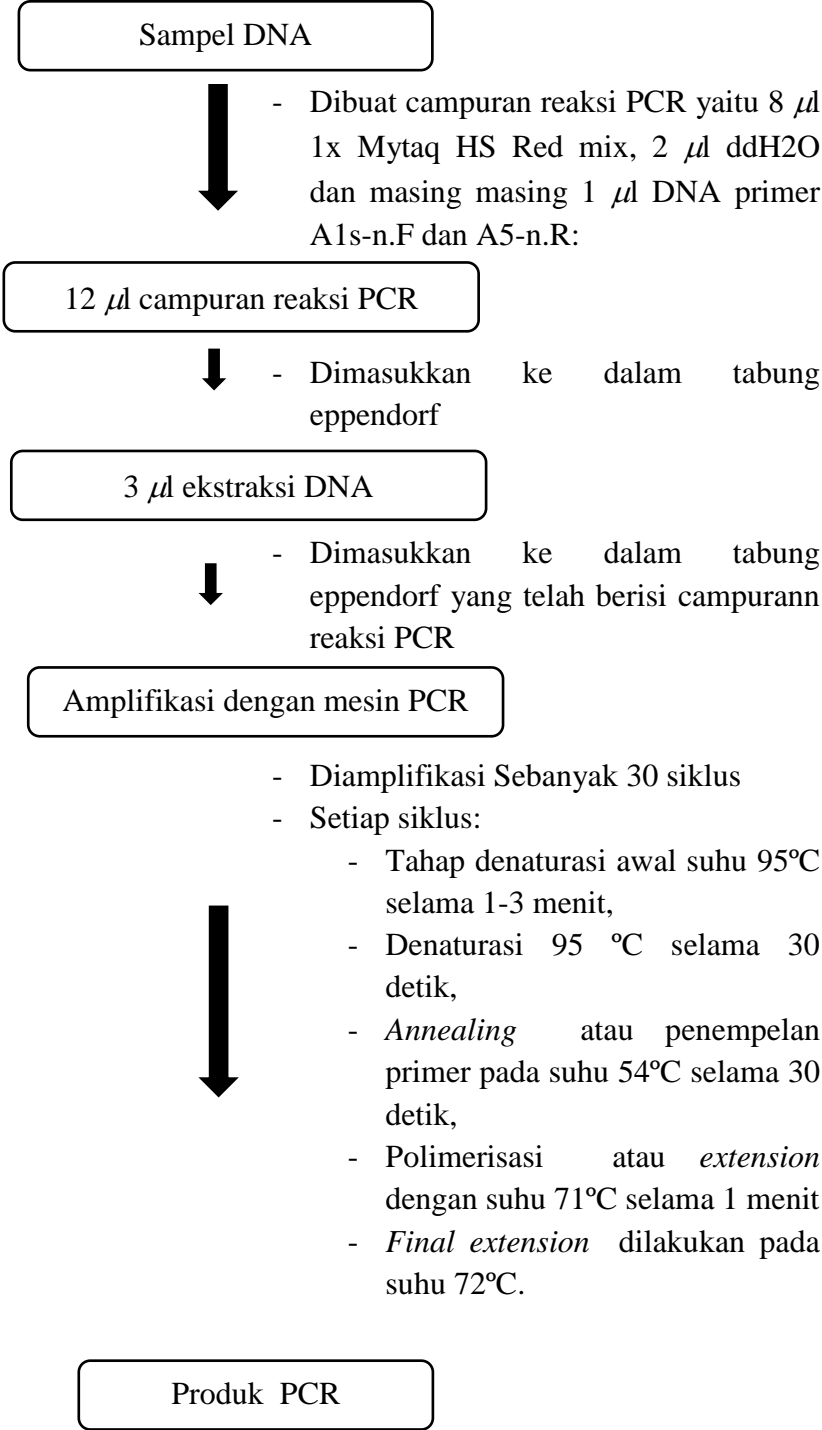


### Lampiran 3. Skema Kerja Ekstraksi DNA Bakteri

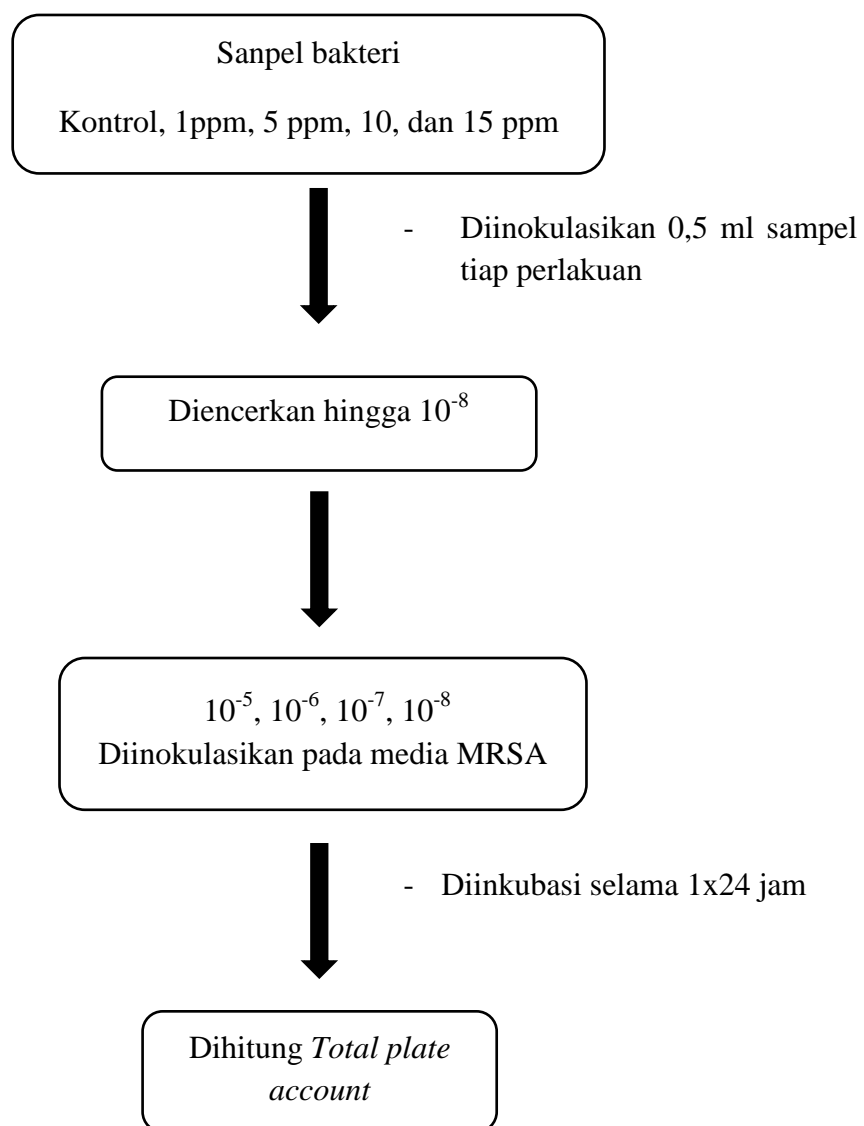


Produk DNA

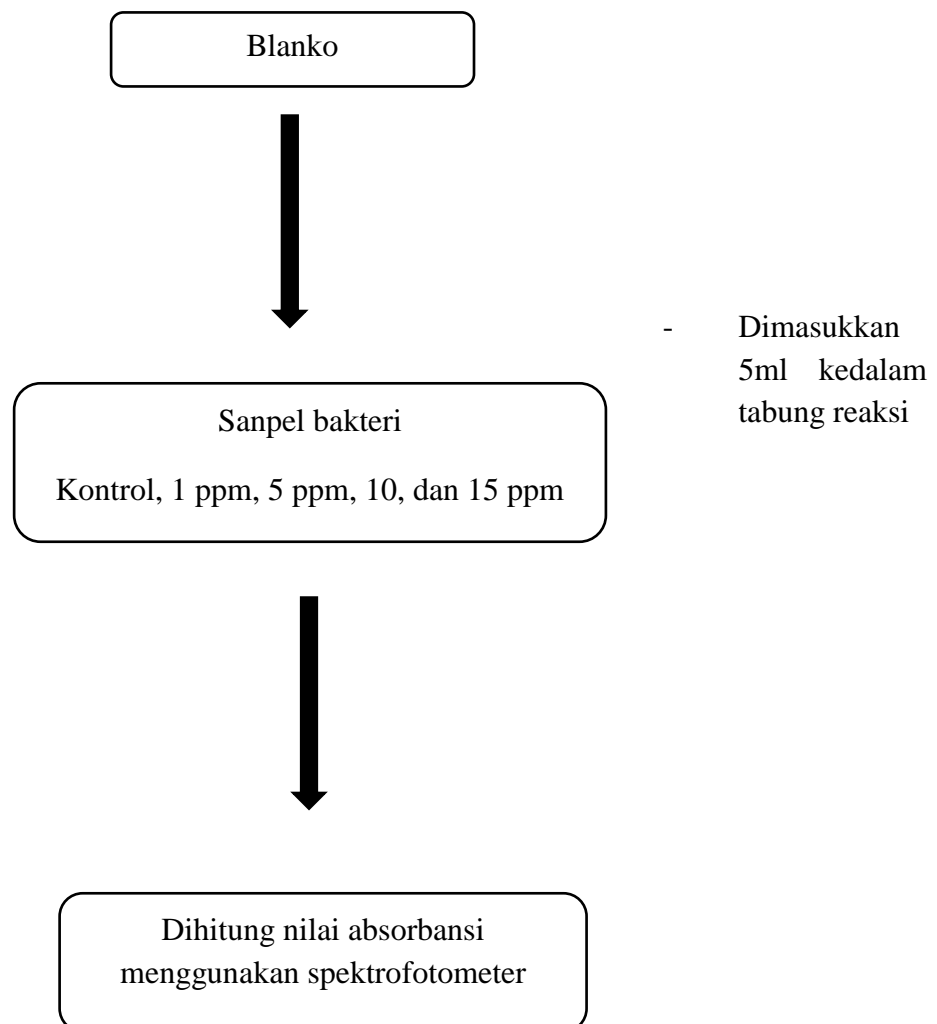
**Lampiran 4. Skema Kerja Amplifikasi DNA dengan PCR**



### Lampiran 5. Skema Kerja Total Plate Account



**Lampiran 6. Skema Kerja Spektrofotometer T0 dan T1**



## Lampiran 7. Lampiran Daftar Tabel

**Tabel 3.** Hasil Perhitungan Nilai *Optic Density* (OD)

Nama Spesies	Kontrol		1ppm		5ppm		10ppm		15ppm	
	T0	T1	T0	T1	T0	T1	T0	T1	T0	T1
<i>L. plantarum</i>	90	0,5	90	1	90	30	90	51	90	70
	2,04	4,3	2,04	4	2,04	2,52	2,04	2,29	2,04	2,15
<i>P. acilidactici</i>	90	1	90	0,5	90	10	90	80	90	81
	2,04	4,3	2,04	4	2,04	3	2,04	2,09	2,04	2,09
Konsentrasi	<i>Lactobacillus plantarum</i>					<i>Pediococcus acilidactici</i>				

Keterangan : T0: Sebelum Inkubasi, T1: Setelah Inkubasi (3x24 jam)

**Tabel 4.** Hasil Perhitungan (TPC) *Total Plate Count*

	T0	T1	T0	T1
Kontrol	$1,04 \times 10^9$ CFU	$2,4 \times 10^7$ CFU	$1,8 \times 10^8$ CFU	$7,8 \times 10^7$ CFU
	9,017	7,380	8,255	7,892
1ppm	$2,5 \times 10^7$ CFU	$2,2 \times 10^7$ CFU	$1,4 \times 10^7$ CFU	$1,0 \times 10^7$ CFU
	7,397	7,342	7,146	7
5ppm	$2,0 \times 10^7$ CFU	$3,1 \times 10^6$ CFU	$1,9 \times 10^7$ CFU	$3,9 \times 10^6$ CFU
	7,301	6,491	7,278	6,591
10ppm	$1,0 \times 10^7$ CFU	$6,4 \times 10^6$ CFU	$8,6 \times 10^6$ CFU	$3,7 \times 10^6$ CFU
	7	6,806	6,934	6,568
15ppm	$8,11 \times 10^6$ CFU	$3,9 \times 10^6$ CFU	$7,6 \times 10^6$ CFU	$3,1 \times 10^6$ CFU
	6,909	6,591	6,880	6,491

**Tabel 5.** Hubungan *Optical Density* (OD) dengan *Total Plate Count* (TPC)

Konsentrasi	<i>Total Plate Count</i>		<i>Optic Density</i>		<i>Total Plate Count</i>		<i>Optic Density</i>	
	<i>Lactobacillus plantarum</i>				<i>Pediococcus acilidactici</i>			
	T0	T1	T0	T1	T0	T1	T0	T1
Kontrol	$1,04 \times 10^9$ CFU	$2,4 \times 10^7$ CFU	2,04	4,3	$1,8 \times 10^8$ CFU	$7,8 \times 10^7$ CFU	2,04	4,3
	9,017	7,380			8,255	7,892		
1ppm	$2,5 \times 10^7$ CFU	$2,2 \times 10^7$ CFU	2,04	4	$1,4 \times 10^7$ CFU	$1,0 \times 10^7$ CFU	2,04	4
	7,397	7,342			7,146	7		
5ppm	$2,0 \times 10^7$	$3,1 \times 10^6$			$1,9 \times 10^7$	$3,9 \times 10^6$		



	CFU	CFU	2,04	2,52	CFU	CFU	2,04	3
	7,301	6,491			7,278	6,591		
10ppm	$1,0 \times 10^7$ CFU	$6,4 \times 10^6$ CFU			$8,6 \times 10^6$ CFU	$3,7 \times 10^6$ CFU		
	7	6,806	2,04	2,29	6,934	6,568	2,04	2,09
15ppm	$8,11 \times 10^6$ CFU	$3,9 \times 10^6$ CFU			$7,6 \times 10^6$ CFU	$3,1 \times 10^6$ CFU		
	6,909	6,591	2,04	2,15	6,880	6,491	2,04	2,09

### Lampiran 8. Dokumentaasi Proses Pembuatan Media Peremajaan



**Gambar 1.** Proses Penimbangan media MRSB



**Gambar 2.** Media MRSB

### Lampiran 9. Dokumentasi Proses Pembuatan Media Uji Bakteri Resistensi Merkuri

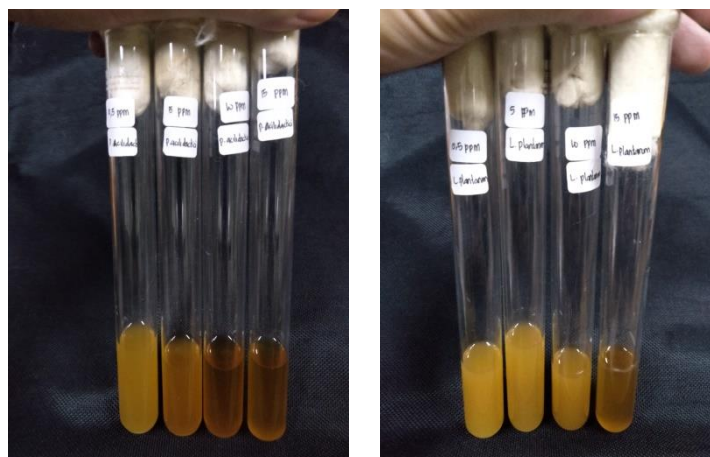


**Gambar 1.** Proses Penimbangan Media dan Merkuri



**Gambar 2.** Proses Inokulasi Merkuri Kedalam Media MRSB

**Lampiran 10. Dokumentasi Ekstraksi DNA *L. plantarum* dan *P. acilidactici***



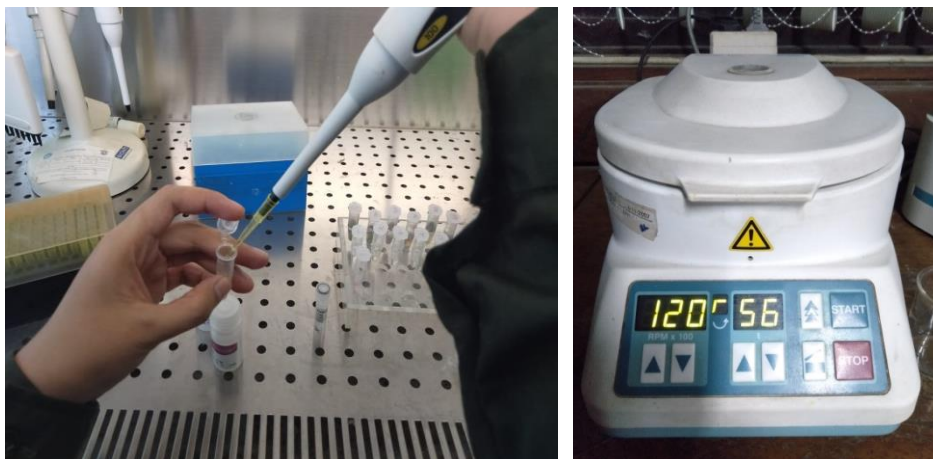
**Gambar 1.** Preparasi Kultur *L. plantarum* dan *P. acilidactici*



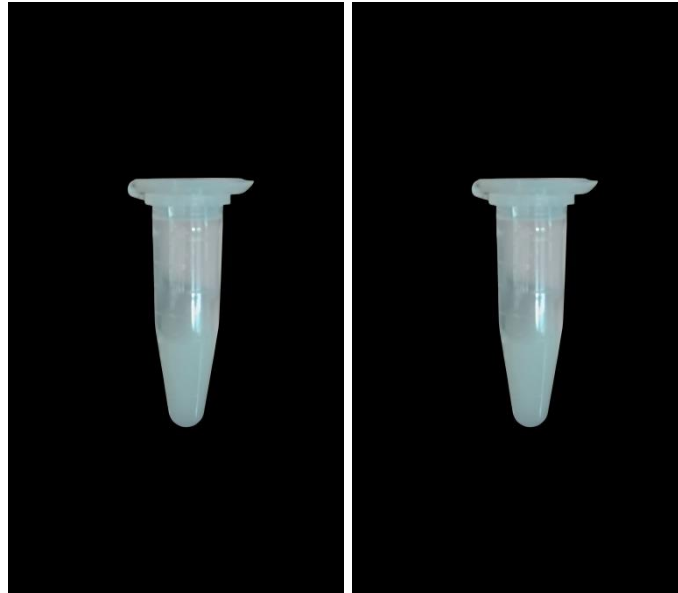
**Gambar.2** Sentrifugasi Awal Untuk Memisahkan Natan Dengan Supernatan



**Gambar 3** Tahap Preparasi Lisis Sel



**Gambar 4.** Tahap Pencucian dan Elusi

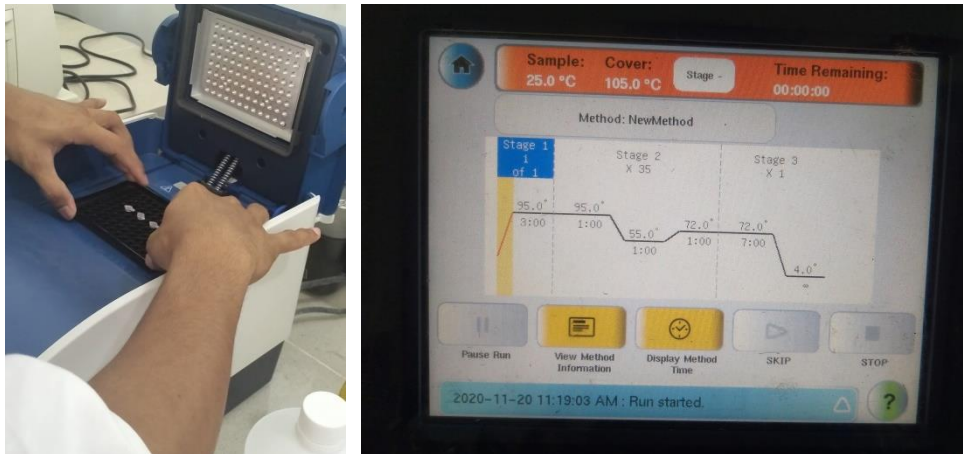


**Gambar 5.** Hasil Ekstraksi DNA Murni *L. plantarum* dan *P. acilidactici*

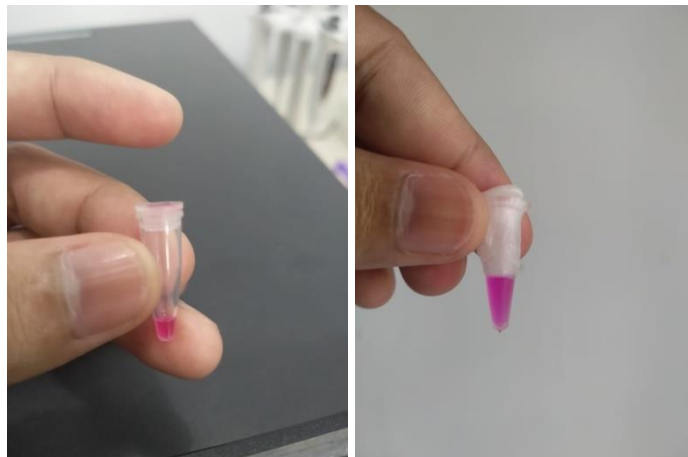
### Lampiran 11. Dokumentasi Amplifikasi DNA dengan PCR



**Gambar 1.** Proses Pembuatan Campuran reaksi PCR

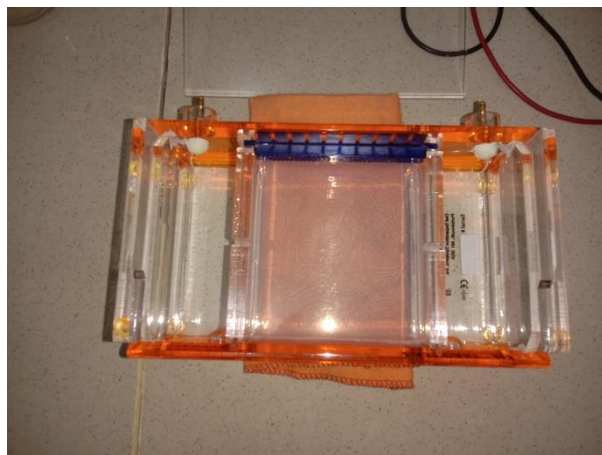


**Gambar 2.** Optimasi dan Proses Amplifikasi Sampel DNA *L. plantarum* dan *P. acilidactici* Dengan Primer



**Gambar 3.** Produk PCR

**Lampiran 12. Dokumentasi Visualisasi Produk PCR dengan Elektrovorensis**



**Gambar 1.** Preparasi Bahan dan Media Elektrofresis



**Gambar 2.** Proses Elektroforesis Produk PCR



**Gambar 3.** Visualisasi Produk PCR Hasil Elektroforesis

### **Lampiran 13. Dokumentasi Gambar Hasil Blast Primer**

#### **Hasil Blast Primer Pertama**

NCBI BlastX60065:B.bovis beta-1 x +

blast.ncbi.nlm.nih.gov/Blast.cgi

Accession	Query Length	Subject Length	Identical	Similar	Score	E-value	Bits	Accession
Lactobacillus plantarum strain KG11 pIV gene locus... complete sequence	243	243	41%	329	100.00%	2760	GU322924.2	
Lactobacillus plantarum strain RG14 pIV gene locus... complete sequence	243	243	41%	329	100.00%	2761	GU322923.2	
Lactobacillus plantarum strain TL1 pIV gene locus... complete sequence	243	243	41%	329	100.00%	2759	GU322922.2	
Lactobacillus plantarum strain UL4 pIV gene locus... complete sequence	243	243	41%	329	100.00%	2771	GU322921.2	
Lactiplantibacillus plantarum strain PC518 chromosome... complete genome	243	243	41%	329	100.00%	3143149	CP066817.1	
Lactiplantibacillus plantarum strain PC518 chromosome... complete genome	243	243	41%	329	100.00%	3143410	CP065802.1	
Lactiplantibacillus plantarum strain TK-P2A chromosome... complete genome	243	243	41%	329	100.00%	3199525	CP045593.1	
Lactiplantibacillus plantarum strain DSM 20174 chromosome... complete genome	243	243	41%	329	100.00%	3242936	CP039121.1	
Lactiplantibacillus plantarum strain SK156 chromosome... complete genome	243	243	41%	329	100.00%	3231383	CP059473.1	
Lactobacillus plantarum JDM1 complete genome	243	243	41%	329	100.00%	3197759	CP001617.1	
Lactobacillus plantarum strain CCM3626 CarA (carA), CarB (carB), Abc3 (abc3), Abc...	243	243	55%	329	93.75%	8454	AF514870.1	
Lactobacillus plantarum plantaricin W beta precursor, plantaricin W alpha precursor...	243	243	41%	329	100.00%	2795	AY007251.1	
Lactiplantibacillus plantarum strain SPC-SNU 72-2 plasmid pLBP443 complete sequ...	243	243	41%	329	100.00%	44357	CP050809.1	
Lactiplantibacillus plantarum strain LS/07 chromosome... complete genome	243	243	41%	329	100.00%	3182330	CP034997.1	
Lactiplantibacillus plantarum strain KCCP11226 plasmid pKCCP11226_01 complete...	243	243	41%	329	100.00%	80744	CP046263.1	
Lactiplantibacillus plantarum subsp. plantarum strain BNH17 chromosome... complete...	243	243	41%	329	100.00%	3198645	CP040374.1	
Lactiplantibacillus plantarum strain J26 chromosome... complete genome	243	486	62%	329	100.00%	3096468	CP033616.1	
Lactiplantibacillus plantarum strain DSR_M2 chromosome... complete genome	243	243	41%	329	100.00%	3182556	CP022294.1	
Lactiplantibacillus plantarum strain KC28 chromosome... complete genome	243	243	41%	329	100.00%	3291849	CP026743.1	
Lactiplantibacillus plantarum subsp. plantarum strain LB1-2 chromosome... complete...	243	243	41%	329	100.00%	3359427	CP025991.1	
Lactiplantibacillus plantarum strain KC1 plasmid unnamed3 complete sequence	243	486	41%	329	100.00%	55784	CP025589.1	
Lactobacillus plantarum strain Y7071 chromosome... complete genome	243	243	41%	329	100.00%	3166500	CP015589.1	

31 sequences selected

Designing or Testing PCR Primers? Try your search in [Primer-BLAST](#)

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**Pediococcus acidilactici strain PMC65 chromosome, complete genome**  
 Sequence ID: [CP053421.1](#) Length: 2044083 Number of Matches: 39

Range 1: 1156335 to 1156346 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	33	12/12(100%)	0/12(0%)	Plus/Minus

Query 2 TTCCATCGAAGA 13  
 Sbjct 1156346 TTCCATCGAAGA 1156335

Range 2: 25300 to 25310 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
22.3 bits(11)	130	11/11(100%)	0/11(0%)	Plus/Minus

Query 1 GTTCCATCGAA 11  
 Sbjct 25310 GTTCCATCGAA 25300

Range 3: 155046 to 155056 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
22.3 bits(11)	130	11/11(100%)	0/11(0%)	Plus/Minus

Query 13 AGAATGTCTAG 23  
 Sbjct 155056 AGAATGTCTAG 155046

Range 4: 585345 to 585355 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
22.3 bits(11)	130	11/11(100%)	0/11(0%)	Plus/Minus

Query 2 TTCCATCGAAG 12  
 Sbjct 585355 TTCCATCGAAG 585345

*Lactobacillus plantarum*



NCBI Blast: X60065.B.bovis beta-2 x +

blast.ncbi.nlm.nih.gov/Blast.cgi

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**Sequences producing significant alignments** Download **New** Select columns Show 100 ?

select all 31 sequences selected GenBank Graphics Distance tree of results **New** MSA Viewer

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain PMC65 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	816	96%	33	100.00%	2044083	<a href="#">CP053421.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain PMC48 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	816	96%	33	100.00%	2043929	<a href="#">CP050079.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM102732 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	854	100%	33	100.00%	2018117	<a href="#">CP028249.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain JQII-5 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	832	100%	33	100.00%	2085679	<a href="#">CP023654.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM103444 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	812	96%	33	100.00%	1970727	<a href="#">CP035266.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM103367 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	879	100%	33	100.00%	1852892	<a href="#">CP035151.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM103387 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	856	100%	33	100.00%	2001079	<a href="#">CP035154.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain PB22 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	692	93%	33	100.00%	1955616	<a href="#">CP025471.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM101189, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	751	96%	33	100.00%	2025732	<a href="#">CP021529.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM100313, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	751	96%	33	100.00%	2025575	<a href="#">CP021487.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain SRCM100424, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	751	96%	33	100.00%	2025714	<a href="#">CP021484.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain RCC1, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	941	100%	33	100.00%	2096059	<a href="#">CP018763.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain ZPA017, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	830	96%	33	100.00%	2131361	<a href="#">CP015206.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain ZY271 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	728	96%	33	100.00%	1779925	<a href="#">CP082111.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain PMC202 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	816	96%	33	100.00%	2044111	<a href="#">CP080397.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acidilactici strain FDAARGOS_1133 chromosome, complete genome</a>	<a href="#">Pediococcus acidilactici</a>	24.3	671	93%	33	100.00%	1953377	<a href="#">CP068106.1</a>

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**Lactobacillus plantarum strain BLS41, complete genome**  
 Sequence ID: [CP018209.1](#) Length: 3249216 Number of Matches: 1

Range 1: 3028936 to 3028947 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	329	12/12(100%)	0/12(0%)	Plus/Minus

Query 15 AATGTCTAGAAT 26  
 Sbjct 3028947 AATGTCTAGAAT 3028936

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**Lactiplantibacillus plantarum strain LZ227 chromosome, complete genome**  
 Sequence ID: [CP015857.1](#) Length: 3131750 Number of Matches: 1

Range 1: 1978555 to 1978570 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	329	15/16(94%)	0/16(0%)	Plus/Minus

Query 1 GTTCCATCGAAGAGAA 16  
 Sbjct 1978570 GTTCCATCGGAGAGAA 1978555

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**Lactiplantibacillus plantarum strain LZ206 chromosome, complete genome**  
 Sequence ID: [CP015966.1](#) Length: 3212951 Number of Matches: 1

Range 1: 2073999 to 2074014 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	329	15/16(94%)	0/16(0%)	Plus/Minus

Query 1 GTTCCATCGAAGAGAA 16  
 Sbjct 2074014 GTTCCATCGGAGAGAA 2073999

*Pediococcus acilidactici*

## Hasil Blast Primer Kedua

Sequence ID	Length	Number of Matches	E-value	Other Parameters
CP022373.1	28.2	643	96%	23 100.00% 3325676
CP021997.1	28.2	275	96%	23 100.00% 3186859
CP021528.1	28.2	398	96%	23 100.00% 3223596
CP021501.1	28.2	347	96%	23 100.00% 3252258
CP018209.1	28.2	400	96%	23 100.00% 3249216
CP020816.1	28.2	568	96%	23 100.00% 3284622
CP017406.1	28.2	299	96%	23 100.00% 3249180
CP013149.1	28.2	446	96%	23 100.00% 3235952
CP013753.1	28.2	618	96%	23 100.00% 3423963
CP013749.1	28.2	618	96%	23 100.00% 3418468
CP016071.1	28.2	347	96%	23 100.00% 3354689
CP015126.1	28.2	544	96%	23 100.00% 3254946
CP014780.1	28.2	347	96%	23 100.00% 3262611
CP012122.1	28.2	594	96%	23 100.00% 3261418
CP012343.1	28.2	469	96%	23 100.00% 3198337
CP009236.1	28.2	398	96%	23 100.00% 3237652
CP010528.1	28.2	275	96%	23 100.00% 3284260
CP004406.1	28.2	275	96%	23 100.00% 3198796
CP050257.1	28.2	347	96%	23 100.00% 3079648
CP058967.1	28.2	372	96%	23 100.00% 3217574
CP026330.1	28.2	347	96%	23 100.00% 3210905

Alignment view **Pairwise**  CDS feature [?](#)  
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42 sequences selected [?](#)

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**Pediococcus acidilactici strain PMC65 chromosome, complete genome**  
 Sequence ID: [CP053421.1](#) Length: 2044083 Number of Matches: 181

Range 1: 408207 to 408220 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
28.2 bits(14)	2.3	14/14(100%)	0/14(0%)	Plus/Plus

Query 2 TAGGAATTTCCAATT 15  
 Sbjct 408207 TAGGAATTTCCAATT 408220

Range 2: 806874 to 806886 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
26.3 bits(13)	8.9	13/13(100%)	0/13(0%)	Plus/Plus

Query 3 AGGAATTTCCAATT 15  
 Sbjct 806874 AGGAATTTCCAATT 806886

Range 3: 170354 to 170365 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	35	12/12(100%)	0/12(0%)	Plus/Minus

Query 12 AATTCATTTGTA 23  
 Sbjct 170365 AATTCATTTGTA 170354

Range 4: 240841 to 240852 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
24.3 bits(12)	35	12/12(100%)	0/12(0%)	Plus/Plus

Query 13 ATTCATTTGTAA 24  
 Sbjct 240841 ATTCATTTGTAA 240852

*Lactobacillus plantarum*

NCBI BlastX600658.bovis beta- x +

blast.ncbi.nlm.nih.gov/Blast.cgi

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Descriptions Graphic Summary Alignments Taxonomy

Sequences producing significant alignments Download Select columns Show 100

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Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per Ident	Acc. Len	Accession
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain PMC65 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3798	100%	2.3	100.00%	2044083	<a href="#">CP053421.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain PMC48 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3798	100%	2.3	100.00%	2043929	<a href="#">CP050079.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain CACC 537 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3836	96%	2.3	100.00%	2035984	<a href="#">CP048019.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM102732 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	4141	100%	2.3	100.00%	2018117	<a href="#">CP028249.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM102731 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	4098	100%	2.3	100.00%	2015015	<a href="#">CP028247.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain JQII-5 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3680	100%	2.3	100.00%	2085679	<a href="#">CP023654.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain ATCC 8042 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3682	93%	2.3	100.00%	2009598	<a href="#">CP033438.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM103444 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3956	100%	2.3	100.00%	1970727	<a href="#">CP035266.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM103367 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3374	100%	2.3	100.00%	1852892	<a href="#">CP035151.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM103387 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3623	100%	2.3	100.00%	2001079	<a href="#">CP035154.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain PB22 chromosome, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3900	100%	2.3	100.00%	1955616	<a href="#">CP025471.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM101189, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3593	100%	2.3	100.00%	2025732	<a href="#">CP021529.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM100313, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3593	100%	2.3	100.00%	2025575	<a href="#">CP021487.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain SRM100424, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3593	100%	2.3	100.00%	2025714	<a href="#">CP021484.1</a>
<input checked="" type="checkbox"/> <a href="#">Pediococcus acilidactici strain BCC1, complete genome</a>	<a href="#">Pediococcus aci...</a>	28.2	3771	100%	2.3	100.00%	2096059	<a href="#">CP021484.1</a>

Feedback

100 sequences selected

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**Lactobacillus plantarum SN13T DNA, complete genome**  
Sequence ID: [AP019815.1](#) Length: 3612790 Number of Matches: 17

Range 1: 1606445 to 1606458 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#)

Score	Expect	Identities	Gaps	Strand
28.2 bits(14)	23	14/14(100%)	0/14(0%)	Plus/Minus

Query 11 CAATTCATTTGTAA 24  
Sbjct 1606458 CAATTCATTTGTAA 1606445

Range 2: 795913 to 795925 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
26.3 bits(13)	90	13/13(100%)	0/13(0%)	Plus/Minus

Query 5 GAATTCCAATTCA 17  
Sbjct 795925 GAATTCCAATTCA 795913

Range 3: 1153204 to 1153216 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
26.3 bits(13)	90	13/13(100%)	0/13(0%)	Plus/Plus

Query 6 AATTCCAATTCAT 18  
Sbjct 1153204 AATTCCAATTCAT 1153216

Range 4: 3020093 to 3020105 [GenBank](#) [Graphics](#) [Next Match](#) [Previous Match](#) [First Match](#)

Score	Expect	Identities	Gaps	Strand
26.3 bits(13)	90	13/13(100%)	0/13(0%)	Plus/Plus

Query 7 ATTCCAATTCATT 19  
Sbjct 3020093 ATTCCAATTCATT 3020105

*Pediococcus acilidactici*

# Hasil Blast Primer Ketiga

Sequences producing significant alignments

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per Ident	Acc. Len	Accession
Lactobacillus plantarum SN13T DNA complete genome	Lactiplantibacillus plantarum	25.3	1027	50%	112	100.00%	3612790	AP019815.1
Lactiplantibacillus plantarum strain Heal19 chromosome complete genome	Lactiplantibacillus plantarum	25.3	818	63%	112	100.00%	3265930	CP055123.1
Lactiplantibacillus plantarum strain TCI507 chromosome complete genome	Lactiplantibacillus plantarum	25.3	774	63%	112	100.00%	3171824	CP054259.1
Lactiplantibacillus plantarum subsp. plantarum strain G1 chromosome complete genome	Lactiplantibacillus plantarum subsp...	25.3	795	63%	112	100.00%	3191656	CP053912.1
Lactiplantibacillus plantarum strain CNEI-KCA4 chromosome complete genome	Lactiplantibacillus plantarum	25.3	820	63%	112	100.00%	3327596	CP053571.1
Lactiplantibacillus plantarum strain AMT74419 chromosome complete genome	Lactiplantibacillus plantarum	25.3	818	77%	112	100.00%	3227194	CP052869.1
Lactiplantibacillus plantarum strain SPC-SNU 172-2 chromosome complete genome	Lactiplantibacillus plantarum	25.3	845	63%	112	100.00%	3037092	CP050805.1
Lactiplantibacillus plantarum strain LS/07 chromosome complete genome	Lactiplantibacillus plantarum	25.3	864	77%	112	100.00%	3182330	CP034997.1
Lactiplantibacillus plantarum strain XT022 chromosome complete genome	Lactiplantibacillus plantarum	25.3	797	63%	112	100.00%	3085008	CP048921.1
Lactiplantibacillus plantarum strain 202195 chromosome complete genome	Lactiplantibacillus plantarum	25.3	818	63%	112	100.00%	3295668	CP040858.1
Lactiplantibacillus plantarum strain CACC 558 chromosome complete genome	Lactiplantibacillus plantarum	25.3	841	63%	112	100.00%	3250114	CP048022.1
Lactiplantibacillus plantarum strain SRCM101511 chromosome complete genome	Lactiplantibacillus plantarum	25.3	774	63%	112	100.00%	3074489	CP028235.1
Lactiplantibacillus plantarum strain SRCM102737 chromosome complete genome	Lactiplantibacillus plantarum	25.3	887	77%	112	100.00%	3249738	CP028261.1
Lactiplantibacillus plantarum strain SRCM101518 chromosome complete genome	Lactiplantibacillus plantarum	25.3	843	63%	112	100.00%	3213319	
Lactiplantibacillus plantarum strain SRCM101519 chromosome complete genome	Lactiplantibacillus plantarum	25.3	866	63%	112	100.00%	3170940	

Download GenBank Graphics sort by: E value Descriptions

**Pedococcus acidilactici strain PMC65 chromosome, complete genome**  
 Sequence ID: [CP053421.1](#) Length: 2044083 Number of Matches: 25

Range 1: 24416 to 24424 GenBank Graphics Next Match Previous Match

Score	Expect	Identities	Gaps	Strand
19.7 bits(9)	444	9/9(100%)	0/9(0%)	Plus/Plus

Query 1 TCCGCAAGT 9  
 Sbjct 24416 TCCGCAAGT 24424

Range 2: 65785 to 65793 GenBank Graphics Next Match Previous Match First Match

Score	Expect	Identities	Gaps	Strand
19.7 bits(9)	444	9/9(100%)	0/9(0%)	Plus/Plus

Query 1 TCCGCAAGT 9  
 Sbjct 65785 TCCGCAAGT 65793

Range 3: 215267 to 215275 GenBank Graphics Next Match Previous Match First Match

Score	Expect	Identities	Gaps	Strand
19.7 bits(9)	444	9/9(100%)	0/9(0%)	Plus/Plus

Query 1 TCCGCAAGT 9  
 Sbjct 215267 TCCGCAAGT 215275

Range 4: 489367 to 489375 GenBank Graphics Next Match Previous Match First Match

Score	Expect	Identities	Gaps	Strand
19.7 bits(9)	444	9/9(100%)	0/9(0%)	Plus/Plus

Query 1 TCCGCAAGT 9  
 Sbjct 489367 TCCGCAAGT 489375

*Lactobacillus plantarum*

**Lampiran 14. Dokumentasi Uji Resistensi Bakteri *L. plantarum* dan *P. acilidactici* pada Media Hg**



**Gambar 1.** Media MRSB yang Berisi Merkuri dengan Konsentrasi 1 ppm, 5 ppm, 10 ppm, dan 15 ppm



**Gambar 2.** Inokulasi kultur *L. plantarum* dan *P. acilidactici* kedalam Media

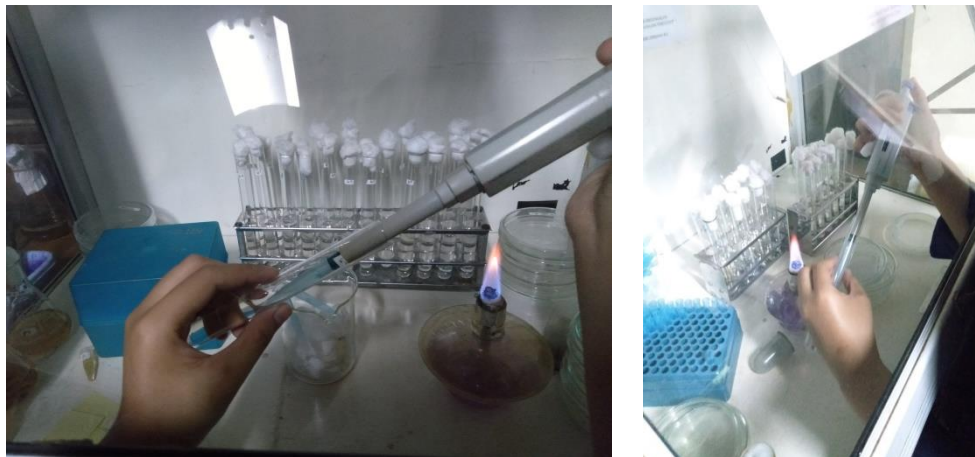


**Gambar 3.** Inkubasi Kultur *L. plantarum* dan *P. acilidactici*

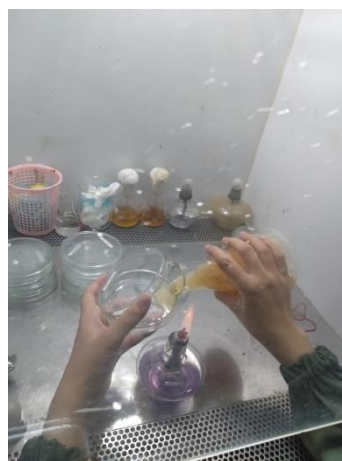
**Lampiran 15. Dokumentasi Perhitungan *Total Plate Count***



**Gambar 1.** Preparasi Sampel dan Perhitungan 28% T



**Gambar 3.** Proses Pengenceran Hingga  $10^{-8}$



**Gambar 4.** Sampel Pengenceran  $10^{-5}$   $10^{-6}$   $10^{-7}$   $10^{-8}$  di Tumbuhkan pada Cawan Petri dan Diinkubasi Selama 1x24 jam

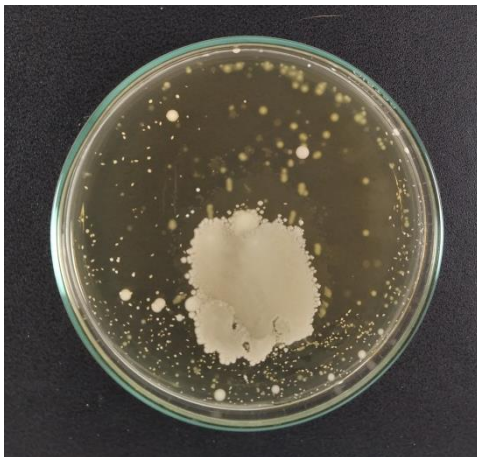
Lampiran 16. Dokumentasi Hasil *Total Plate Count*



(a)



(b)



(c)



(d)

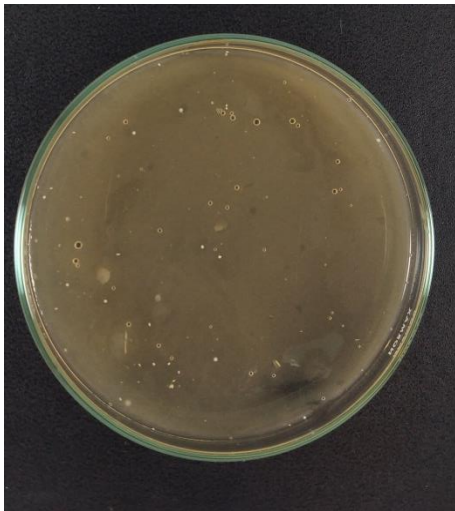
**Gambar 1.** (a) *P.acilidactici* kontrol  $10^{-8}$ , (b) *P.acilidactici* kontrol  $10^{-7}$ , (c) *P.acilidactici* kontrol  $10^{-6}$ , (d) *P.acilidactici* kontrol  $10^{-5}$ .



(a)



(b)



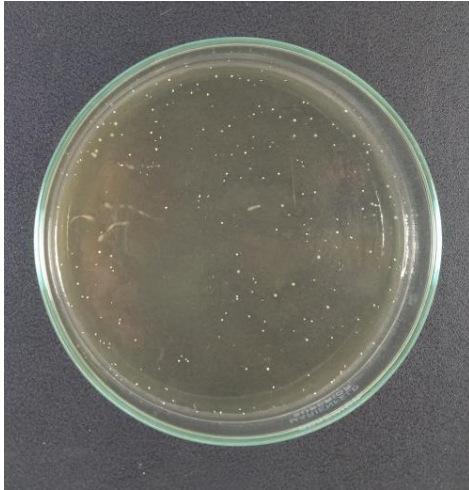
(c)



(d)

**Gambar 2.** (a) *P.acilidactici* 1 ppm  $10^{-8}$ , (b) *P.acilidactici* 1 ppm  $10^{-7}$ ,  
(c) *P.acilidactici* 1 ppm  $10^{-6}$ , (d) *P.acilidactici* 1 ppm  $10^{-5}$ .

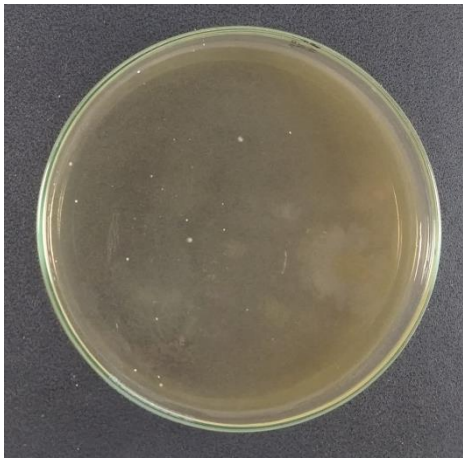




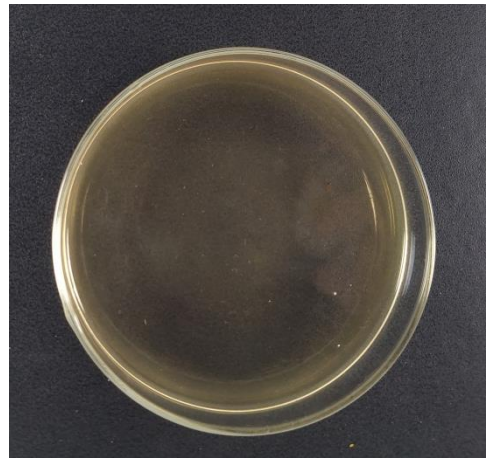
(a)



(b)

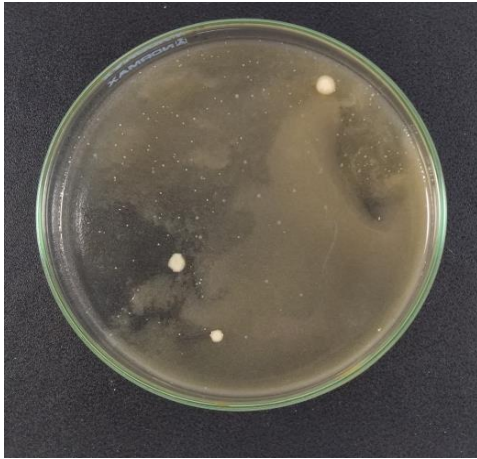


(c)

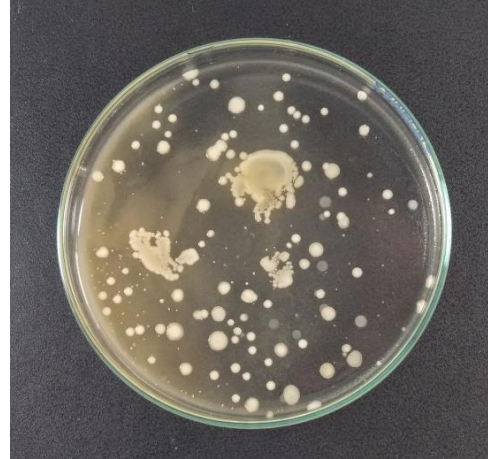


(d)

**Gambar 3.** (a) *P.acilidactici* 5 ppm  $10^{-5}$ , (b) *P.acilidactici* 5 ppm  $10^{-6}$ ,  
(c) *P.acilidactici* 5 ppm  $10^{-7}$ , (d) *P.acilidactici* 5 ppm  $10^{-8}$ .



(a)



(b)

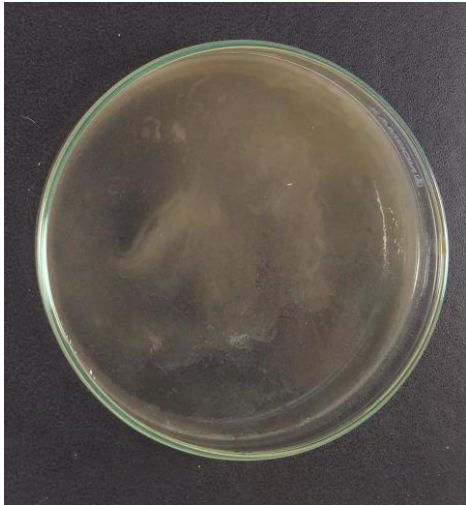


(c)

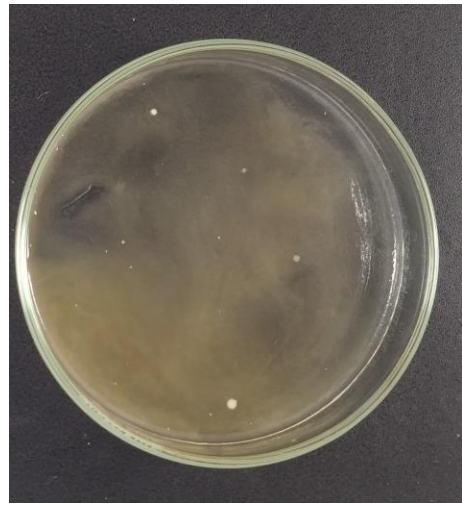


(d)

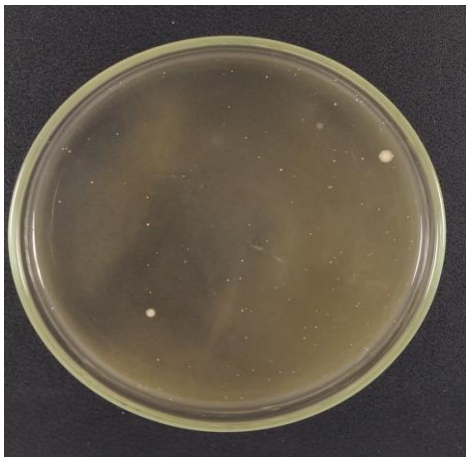
**Gambar 4.** (a) *P.acilidactici* 10 ppm  $10^{-5}$ , (b) *P.acilidactici* 10 ppm  $10^{-6}$ , (c) *P.acilidactici* 10 ppm  $10^{-7}$ , (d) *P.acilidactici* 10 ppm  $10^{-8}$ .



(a)



(b)

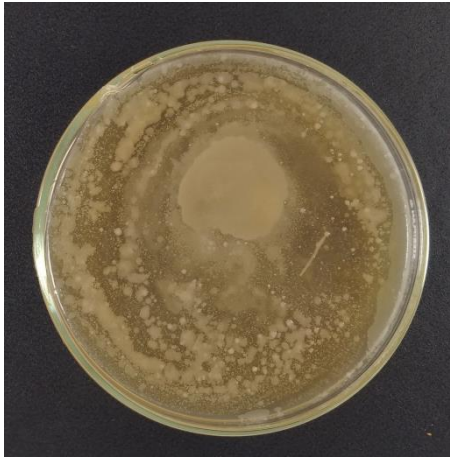


(c)



(d)

**Gambar 5.** (a) *P.acilidactici* 15 ppm  $10^{-8}$ , (b) *P.acilidactici* 15 ppm  $10^{-7}$ , (c) *P.acilidactici* 15 ppm  $10^{-6}$ , (d) *P.acilidactici* 15 ppm  $10^{-5}$ .



(a)



(b)

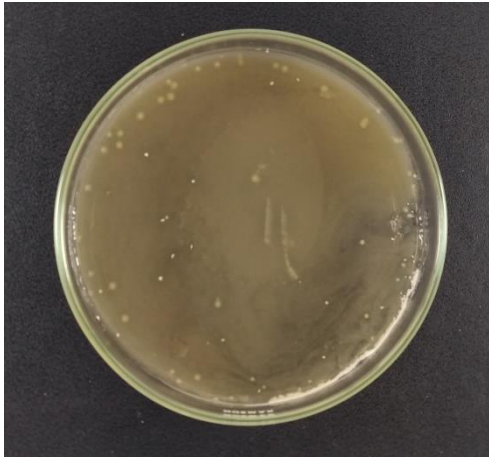


(c)



(d)

**Gambar 6.** (a) *L.plantarum* kontrol  $10^{-5}$ , (b) *L.plantarum* kontrol  $10^{-6}$ ,  
(c) *L.plantarum* kontrol  $10^{-7}$ , (d) *L.plantarum* kontrol  $10^{-8}$ .



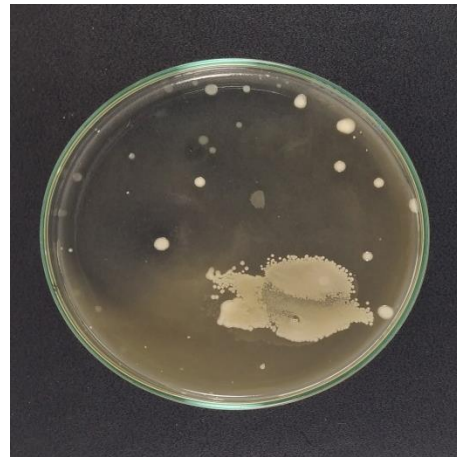
(a)



(b)

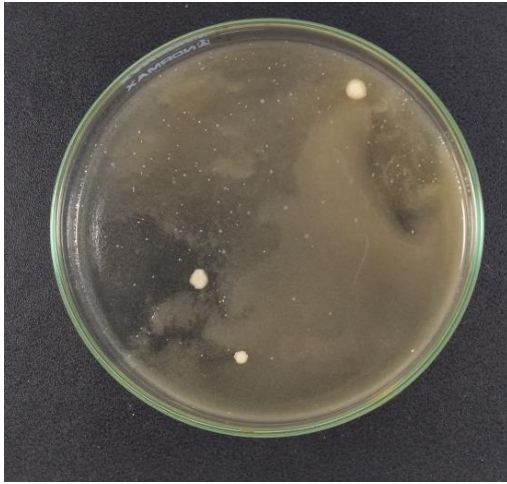


(a)



(d)

**Gambar 5.** (a) *L.plantarum* 1 ppm  $10^{-5}$ , (b) *L.plantarum* 1 ppm  $10^{-6}$ , (c) *L.plantarum* 1 ppm  $10^{-7}$ , (d) *L.plantarum* 1 ppm  $10^{-8}$ .



(a)



(b)

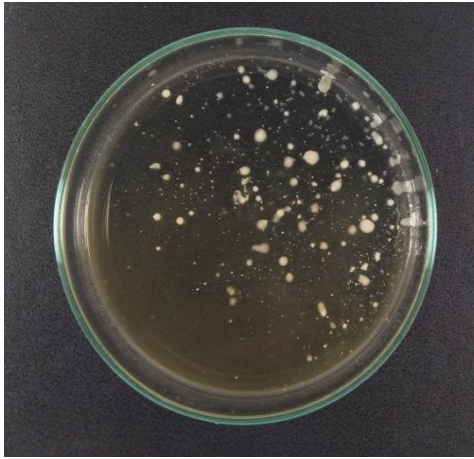


(c)

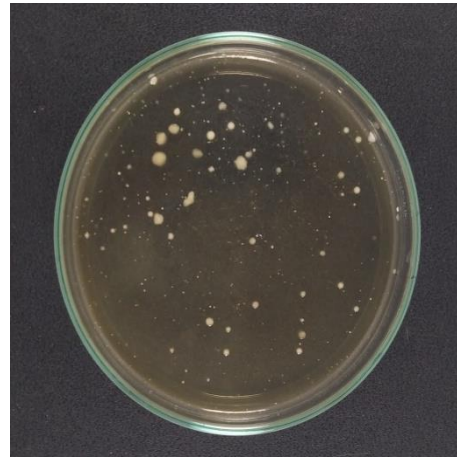


(d)

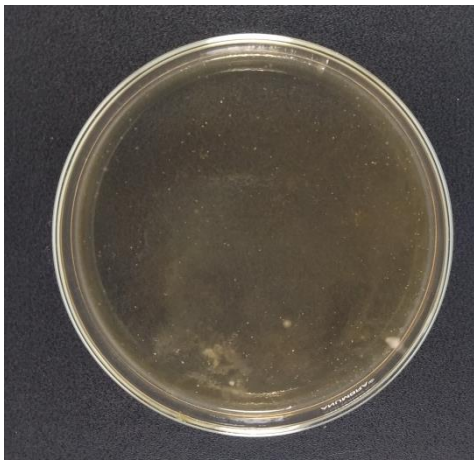
**Gambar 5.** (a) *L.plantarum* 10 ppm  $10^{-5}$ , (b) *L.plantarum* 10 ppm  $10^{-6}$ , (c) *L.plantarum* 10 ppm  $10^{-7}$ , (d) *L.plantarum* 10 ppm  $10^{-8}$ .



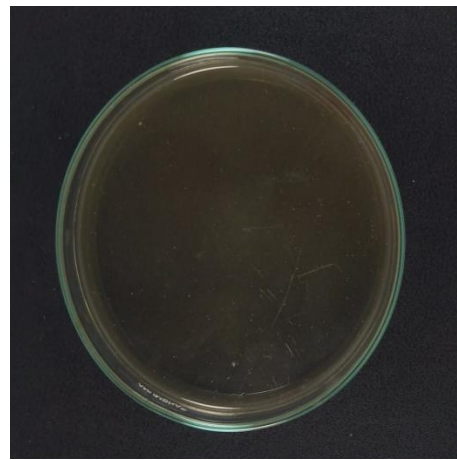
(a)



(b)



(c)



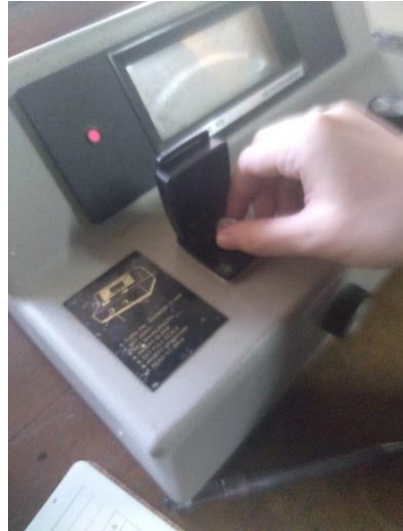
(d)

**Gambar 5.** (a) *L.plantarum* 15 ppm  $10^{-5}$ , (b) *L.plantarum* 15 ppm  $10^{-6}$ , (c) *L.plantarum* 15 ppm  $10^{-7}$ , (d) *L.plantarum* 15 ppm  $10^{-8}$ .

## Lampiran 17. Dokumentasi Spektrofotometer



**Gambar 1.** Prepaasi sampel



**Gambar 2.** Perhitungan nilai absorbansi



## Lampiran 18. Dokumentasi Hasil Spektrofotometer



(a)



(b)



(c)



(d)

**Gambar 1.** (a) *P. acilidactici* dan *L. plantarum* pada konsentrasi 1 ppm  
(b) *P. acilidactici* dan *L. plantarum* pada konsentrasi 5 ppm  
(c) *P. acilidactici* dan *L. plantarum* pada konsentrasi 10 ppm  
(d) *P. acilidactici* dan *L. plantarum* pada konsentrasi 15 ppm