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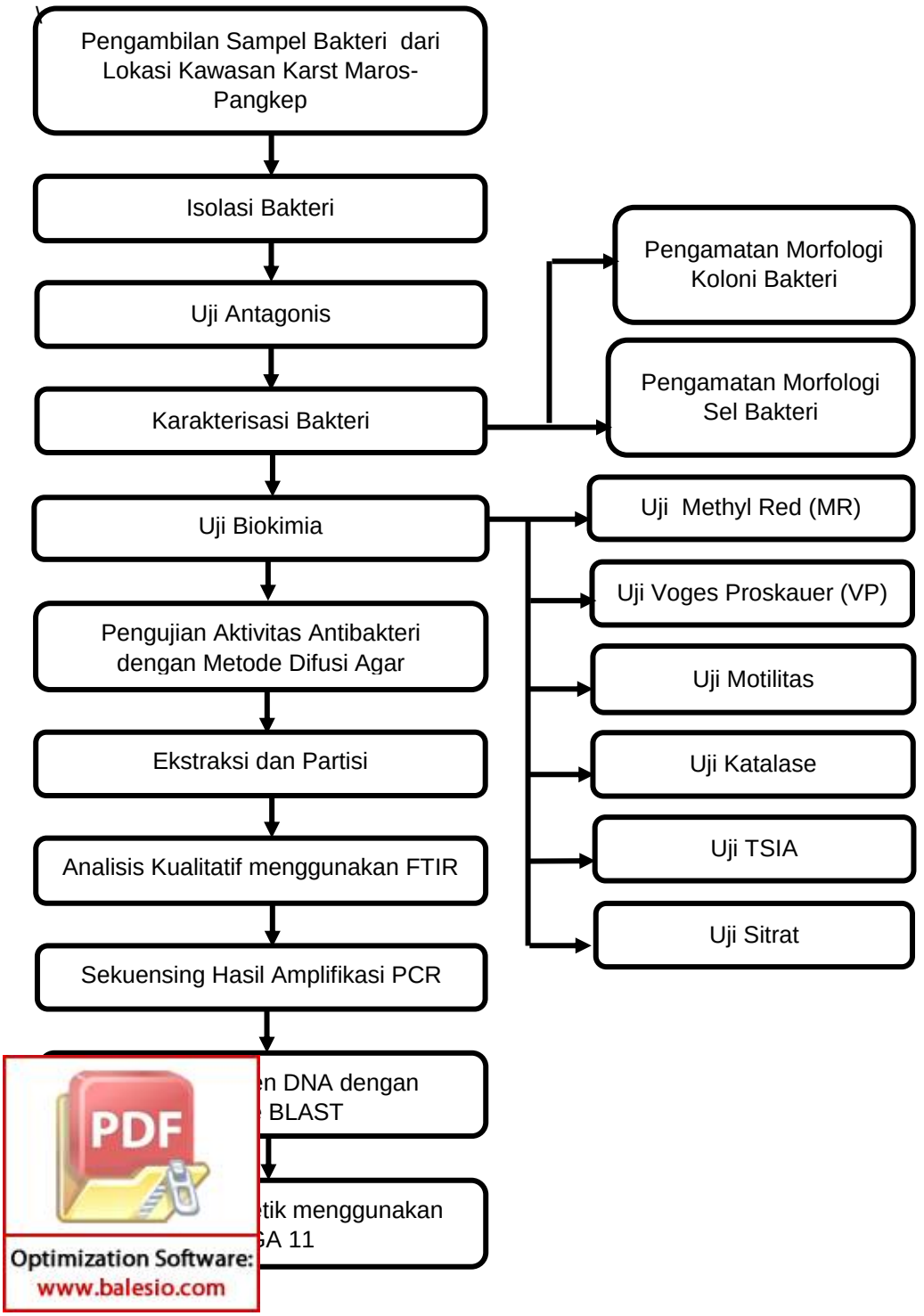
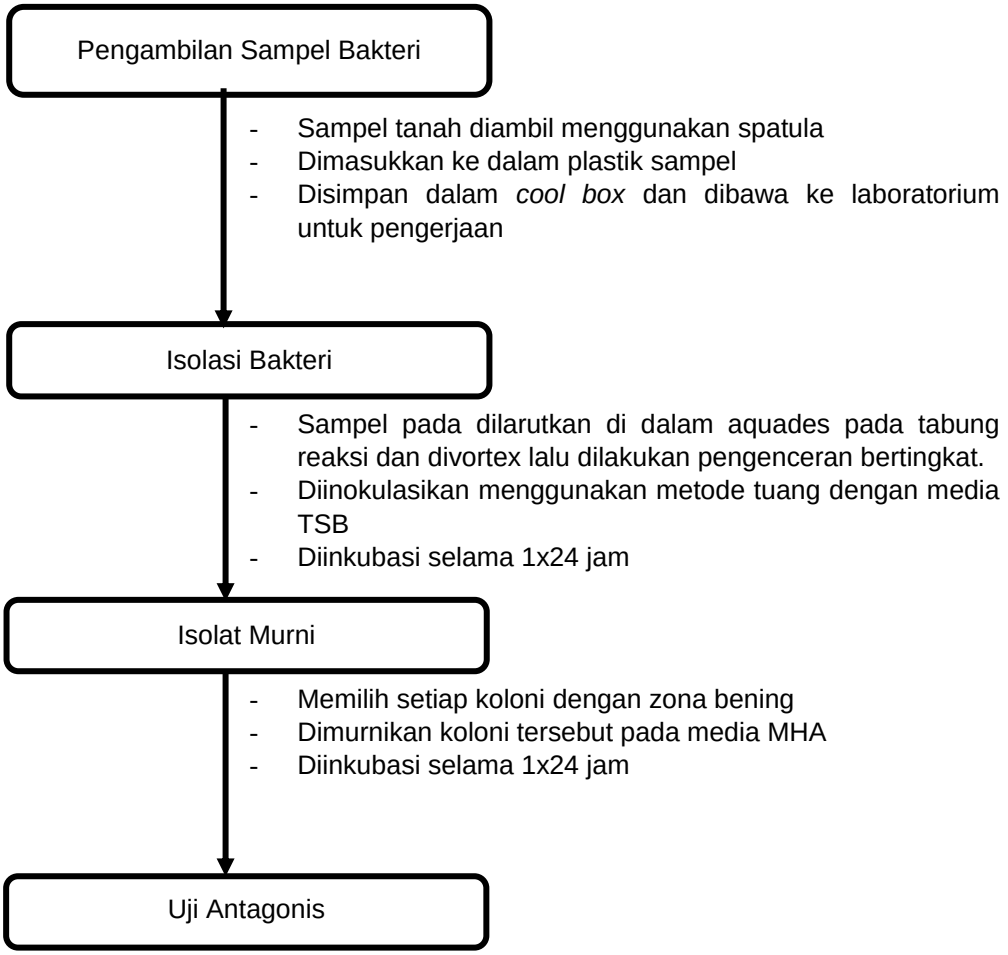
LAMPIRAN

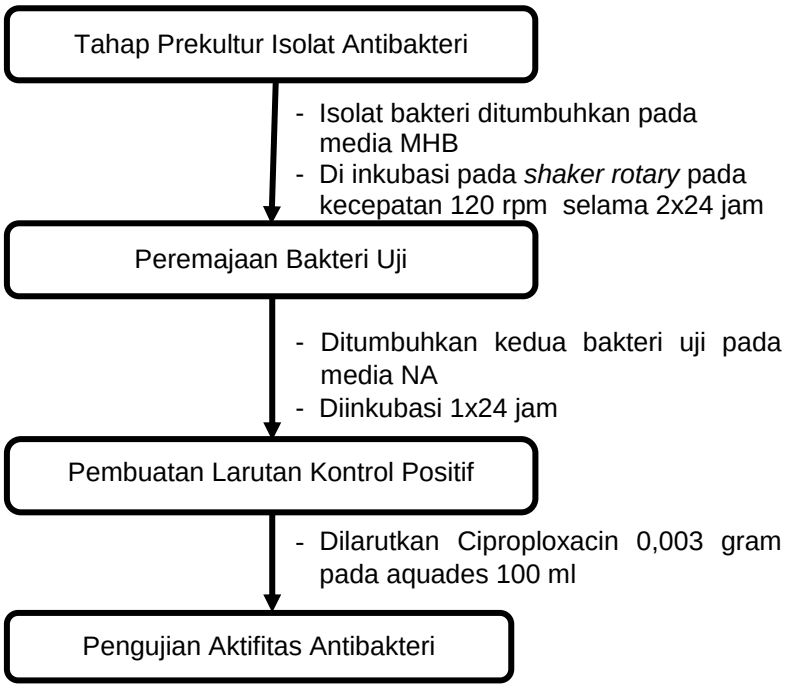
Lampiran 1. Skema Kerja Penelitian



Lampiran 2. Skema Kerja Pengambilan Sampel, Isolasi dan Seleksi Bakteri

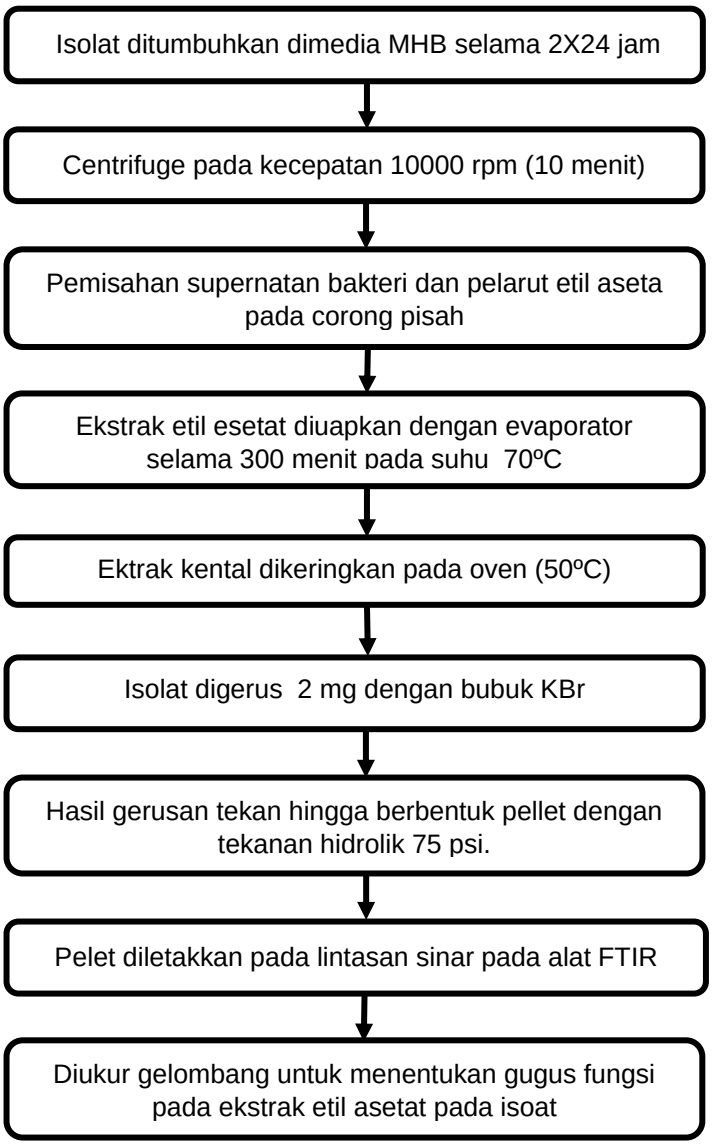


Lampiran 3. Skema Kerja Pengujian Aktivitas Antibakteri

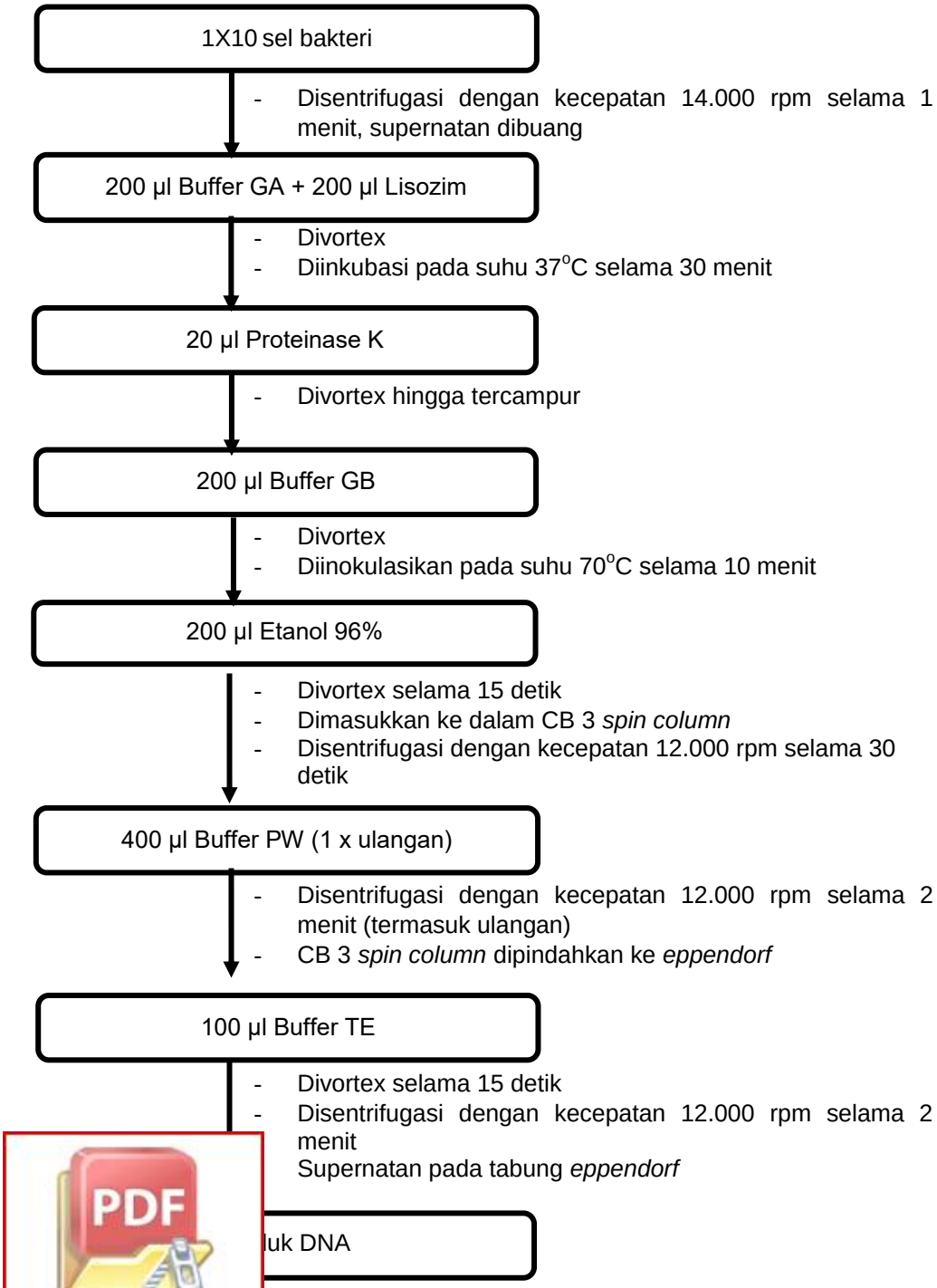


-Suspensi Bakteri uji dituang 1 ml pada masing-masing erlenmeyer media MHA
-Tuang media MHA yang telah tercmpur dengan bakteri uji hingga menutupi masing-masing dasar cawan petri.
-Rendam paper disk pada plat tetes sesuai dengan senyawa yang di ujikan (supernatan isolat bakteri dan Ciprofloxacin) selama 15 menit.
-Letakkan paper disk pada media MHA dengan jarak yang berjauhan dengan paper disk lainnya
-Di inkubasi selama 1x24 jam
-Diukur zona hambat yang terbentuk dengan satuan mm.

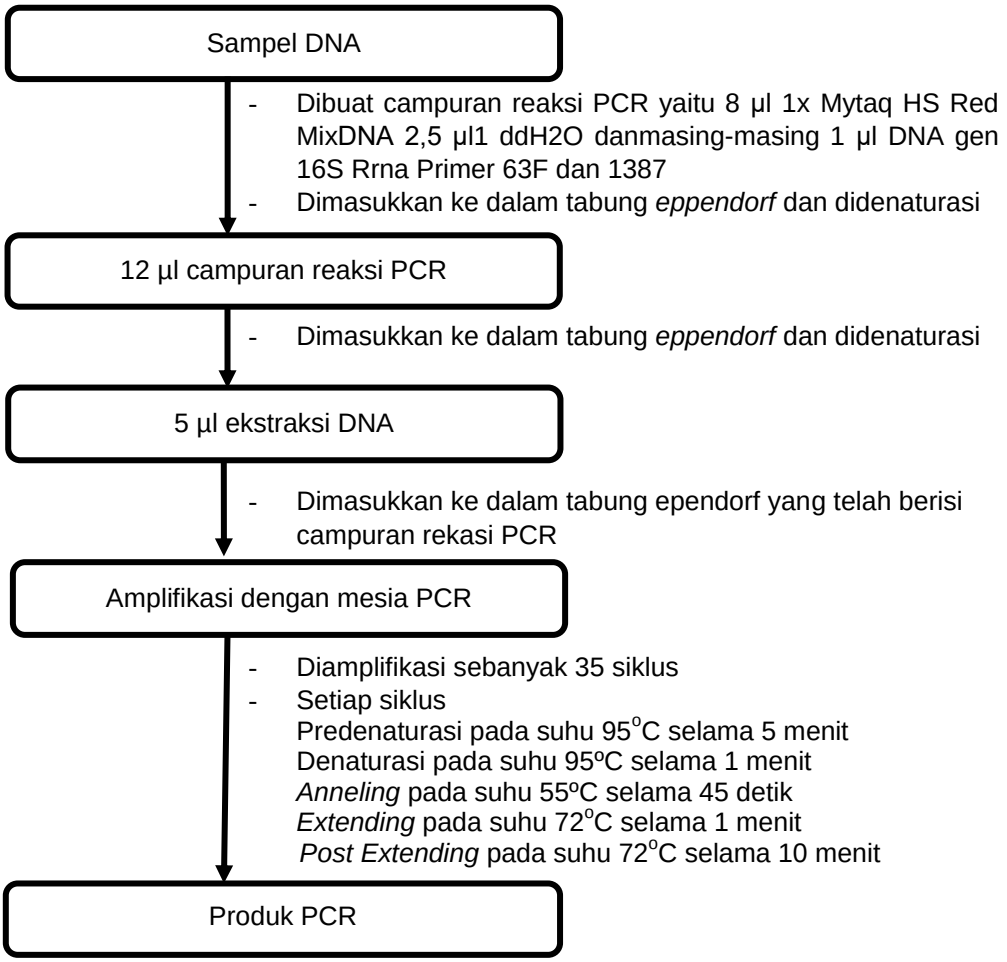
Lampiran 4. Skema Kerja Analisis Kuantitaf Menggunakan FTIR



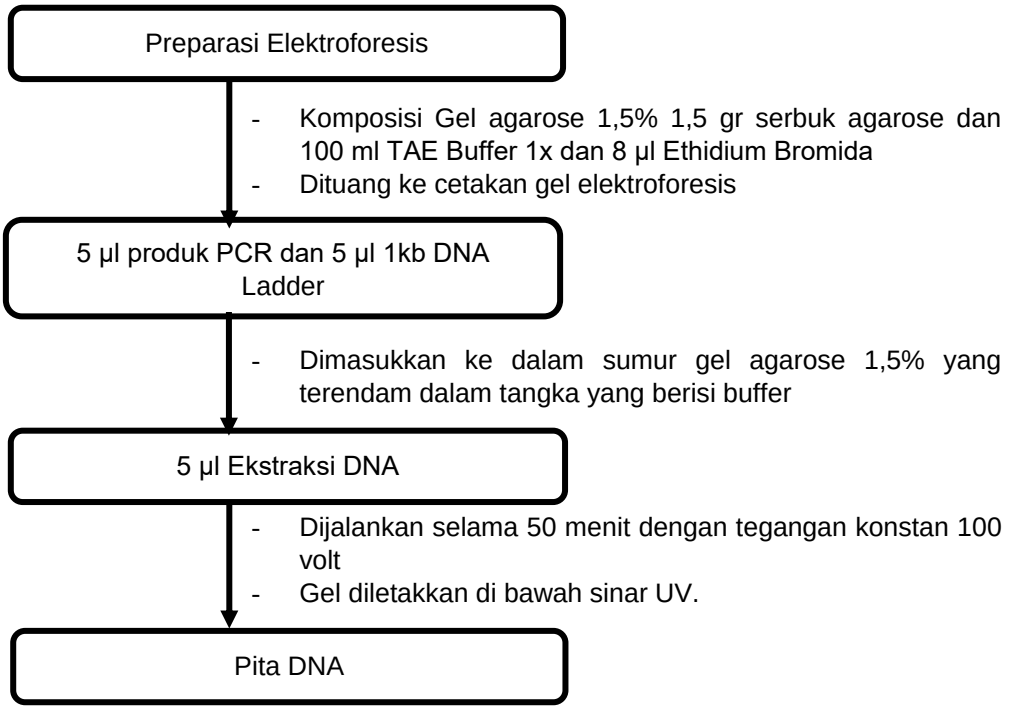
Lampiran 5. Skema Kerja Isolasi DNA Bakteri



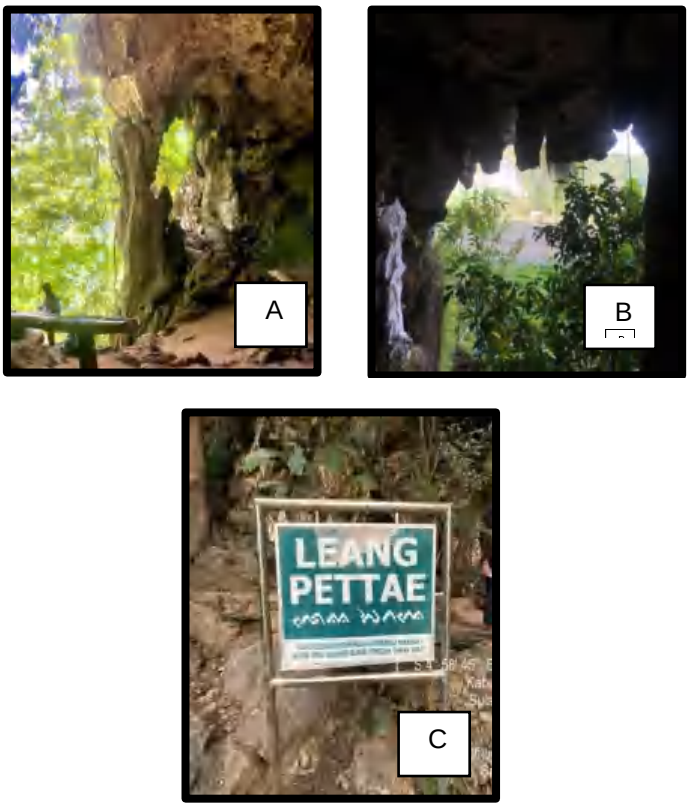
Lampiran 6. Skema Kerja Amplifikasi DNA dengan PCR



Lampiran 7. Skema Kerja Visualisasi Produk PCR dengan Elektroforesis

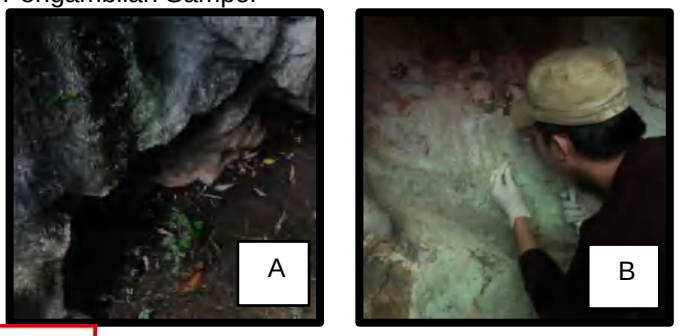


Lampiran 8. Tempat Pengambilan Sampel



Tempat Pengambilan Sampel (A) Gua Sumpang Bita, (B) Gua Leang Timpuseng dan (C) Gua Leang Pettae.

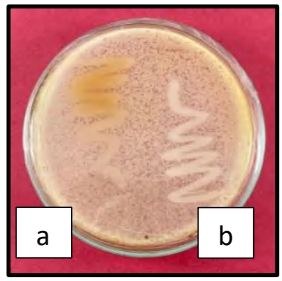
Lampiran 9. Pengambilan Sampel



pel (A) Sampel Bakteri pada Tanah, (B) Sampel bakteri pada Dinding Karst

Lampiran 10. Hasil Seleksi Bakteri Terhadap Bakteri *Escherichia coli*

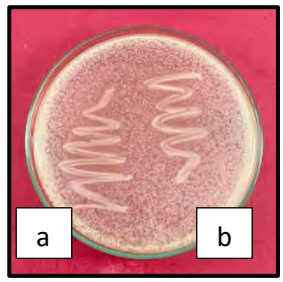
(a)SPB1, (b)SPB5



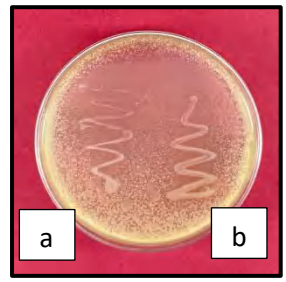
(a)LPE1, (b)LPE4

(a)LTP3, (b)TL2-8b

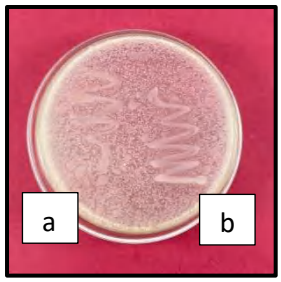
(a)TL3-3b,(b)TL2-8a



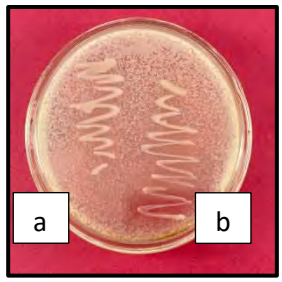
(a)TL2-8c, (b)TL2-8d



(a) TL3-3a, (b)TL3-3c



(a)TS1-6a, (b)TT1-3a

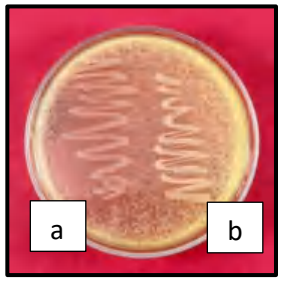


(a)TT5-3b, (b)TL6-6a

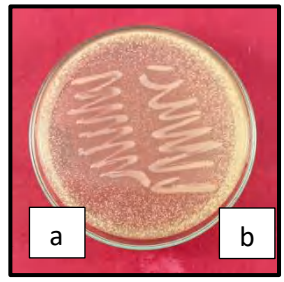
(a)TL2-8f, (b)TL-8e

(a)TL4-3a

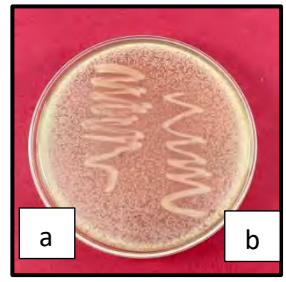
Lampiran 11. Hasil Seleksi Bakteri Terhadap Bakteri *Staphylococcus aureus*



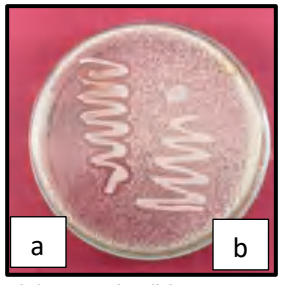
(a)SPB1, (b)SPB5



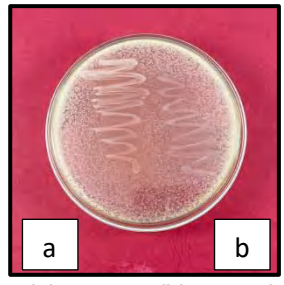
(a)LPE1, (b)LPE4



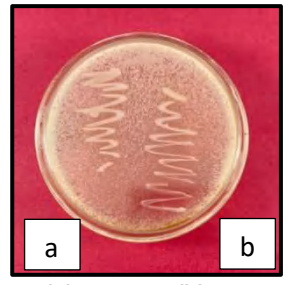
(a)LTP3, (b)TL2-8b



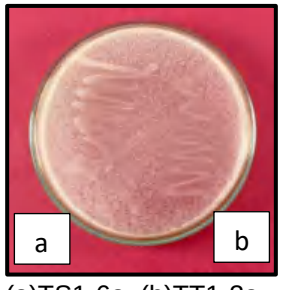
(a)TL3-3b, (b)TL2-8a



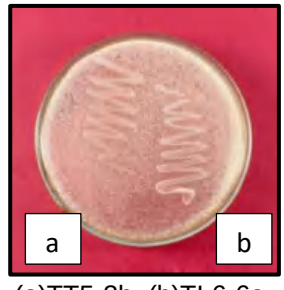
(a)TL2-8c, (b)TL3-8d



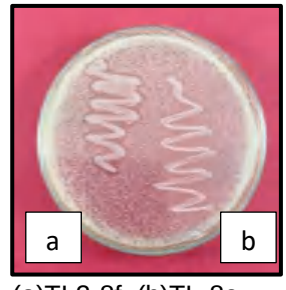
(a)TL3-3a, (b)TL3-3c



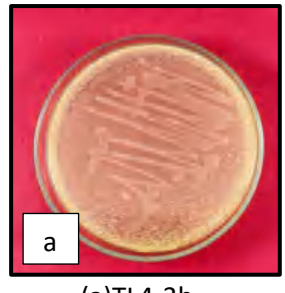
(a)TS1-6a, (b)TT1-3a



(a)TT5-3b, (b)TL6-6a

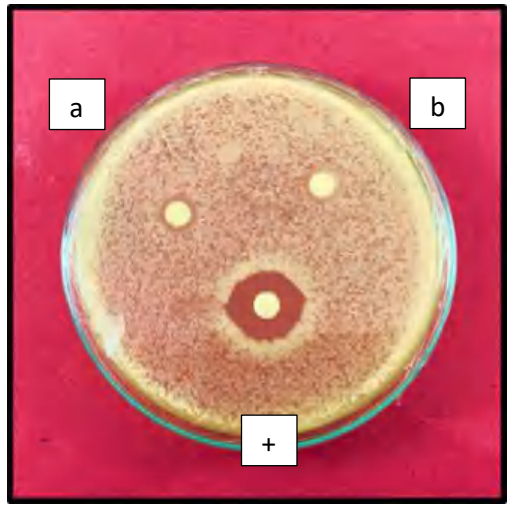


(a)TL2-8f, (b)TL-8e



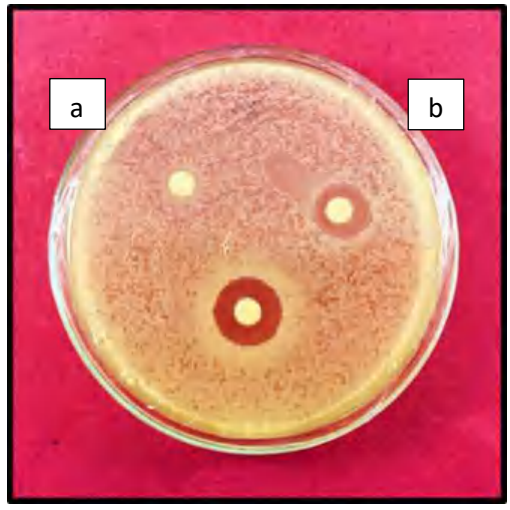
(a)TL4-3b

Lampiran 12. Hasil Uji Daya Hambat pada pada Bakteri Uji *Staphylococcus aureus*



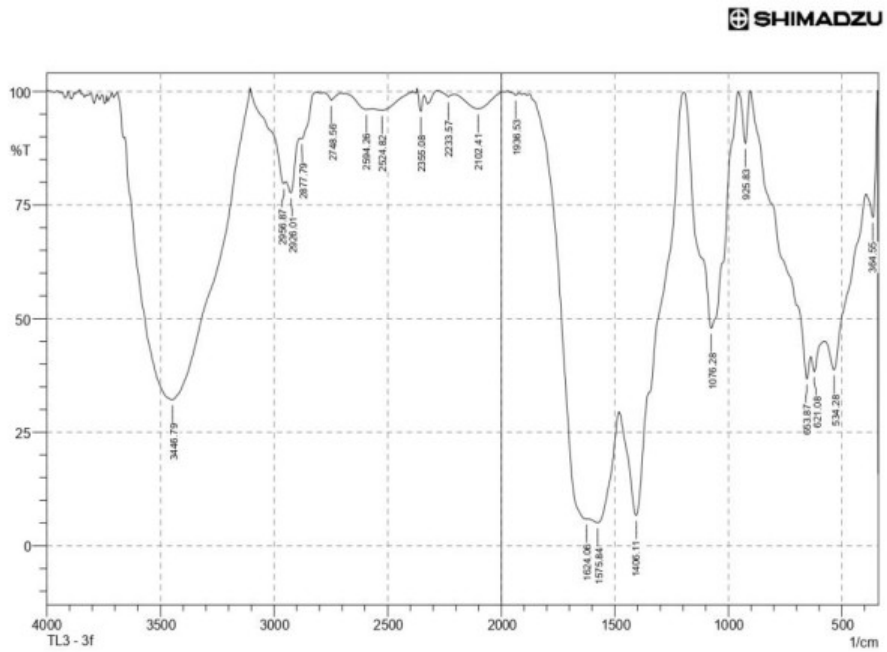
Isolat TL3-3b (b), TL2-8f (a) dan Kontrol + Ciprofoxacin (+)

Lampiran 13. Hasil Uji Daya Hambat) pada Bakteri Uji *Escherichia coli*



Isolat TL3-3b (b), TL2-8f (a) dan Kontrol + Ciprofoxacin (+)

Lampiran 14. Hasil Analisis Kualitatif Menggunakan FTIR isolate TL3-3b

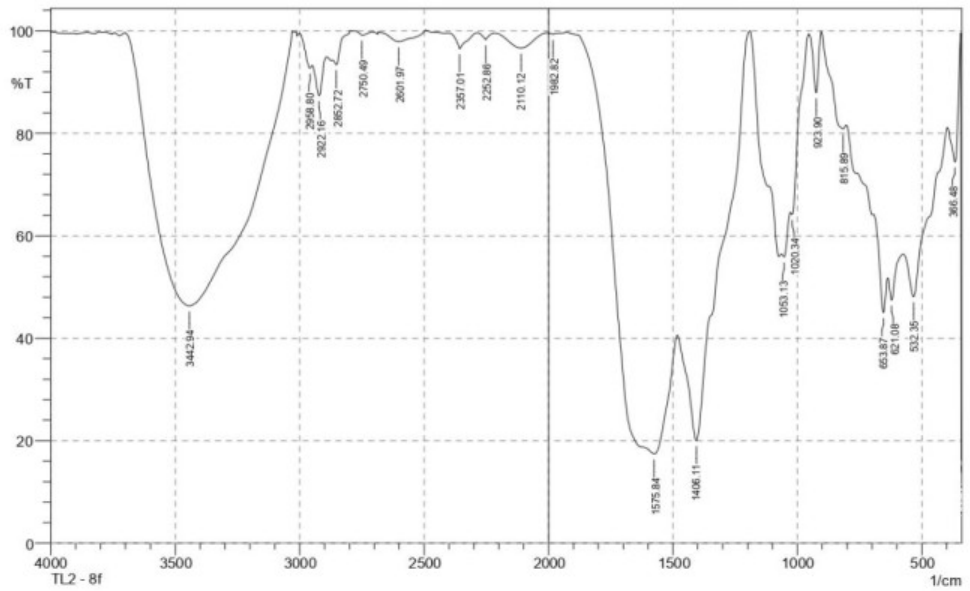


No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	364.55	72.288	16.844	393.48	345.26	5.279	2.366
2	534.28	38.723	13.851	576.72	395.41	49.364	8.048
3	621.08	38.343	4.174	636.51	578.64	21.753	0.79
4	653.87	36.721	8.258	902.69	638.44	50.428	1.804
5	925.83	88.544	11.405	954.76	904.61	1.208	1.194
6	1076.28	47.854	51.95	1195.87	956.69	38.525	38.322
7	1406.11	6.735	41.373	1481.33	1197.79	133.446	58.747
8	1575.84	5.095	8.431	1620.21	1483.26	140.224	20.51
9	1624.06	5.924	0.717	1874.81	1622.13	109.482	-45.89
10	1936.53	99.15	0.651	1971.25	1923.03	0.089	0.064
11	2102.41	96.146	3.479	2200.78	1996.32	2.046	1.725
12	2233.57	98.774	0.898	2279.86	2202.71	0.193	0.111
13	2355.08	95.585	4.257	2370.51	2339.65	0.319	0.297
14	2524.82	95.824	1.254	2567.25	2389.8	2.035	0.561
15	2594.26	96.023	0.825	2688.77	2569.18	1.33	0.207
16	2748.56	98.034	1.616	2779.42	2704.2	0.325	0.208
17	2877.79	89.566	1.199	2885.51	2814.14	1.799	0.254
18	2926.01	77.643	5.839	2947.23	2887.44	5.02	0.8
19	2956.87	79.718	1.363	3103.46	2949.16	6.545	0.176
20	3446.79	32.156	61.834	3657.04	3105.39	153.148	141.207

Date/Time; 5/17/2024 9:09:54 AM
No. of Scans;
Resolution;
Apodization;

Lampiran 15. Hasil Analisis Kualitatif Menggunakan FTIR pada TL2-8f

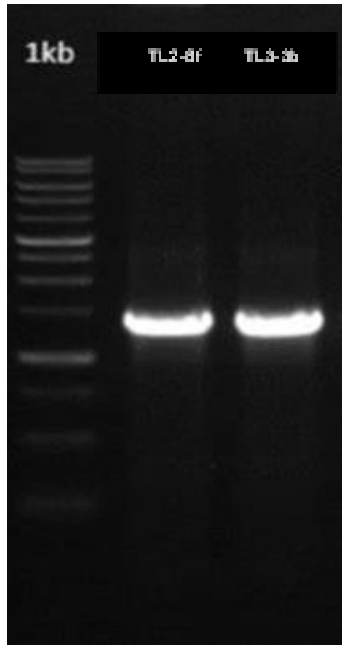
SHIMADZU



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	341.4	16.323	41.729	343.33	339.47	3.027	0.762
2	366.48	74.442	16.056	395.41	345.26	4.818	2.325
3	532.35	48.114	13.966	572.86	397.34	36.775	7.106
4	621.08	47.464	5.207	634.58	574.79	16.721	0.799
5	653.87	45.013	10.587	692.44	636.51	15.465	2.011
6	815.89	80.859	2.874	902.69	804.32	5.787	1.315
7	923.9	87.937	11.678	952.84	904.61	1.259	1.169
8	1020.34	64.164	4.057	1028.06	954.76	6.414	0.377
9	1053.13	55.897	2.899	1062.78	1029.99	7.538	0.398
10	1406.11	20.054	35.968	1481.33	1192.01	95.181	39.02
11	1575.84	17.445	35.547	1924.96	1483.26	165.581	84.159
12	1982.82	99.302	0.352	2005.97	1926.89	0.161	0.05
13	2110.12	96.649	2.934	2216.21	2005.97	1.731	1.349
14	2252.86	98.271	1.316	2285.65	2216.21	0.27	0.145
15	2357.01	96.529	3.061	2403.3	2285.65	0.809	0.602
16	2601.97	97.891	2.038	2682.98	2493.96	1.004	0.973
17	2750.49	99.141	0.762	2781.35	2708.06	0.144	0.108
18	2852.72	93.387	1.767	2866.22	2781.35	0.923	-0.173
19	2922.16	87.366	6.686	2949.16	2893.22	2.309	0.833
20	2958.8	92.736	1.457	2999.31	2951.09	0.971	0.165
21	3442.94	46.318	53.429	3701.4	3030.17	130.552	129.889

Date/Time; 5/17/2024 9:03:12 AM
No. of Scans;
Resolution;
Apodization;

Lampiran 16. Hasil Elektroforesis Gen 16rRNA dengan Peimer 63F dan 1387R Isolat TL3-3B dan TL2-8f



Condition:			0.8%	agarose gel								
Amount of DNA ladder loaded per lane:			0.1ug	each								
Volume of sample loaded per lane:			1uL	each								
1kb DNA Ladder (bp):	250	500	750	**1,000**	1,500	2,000	2,500	**3,000**	4,000	5,000	6,000	8,000	10,000
1kb DNA Ladder (ng/0.1ug):	9	6	4.6	18.4	4	6.8	6.8	**18.4**	3.6	5.6	5.6	5.6	5.6

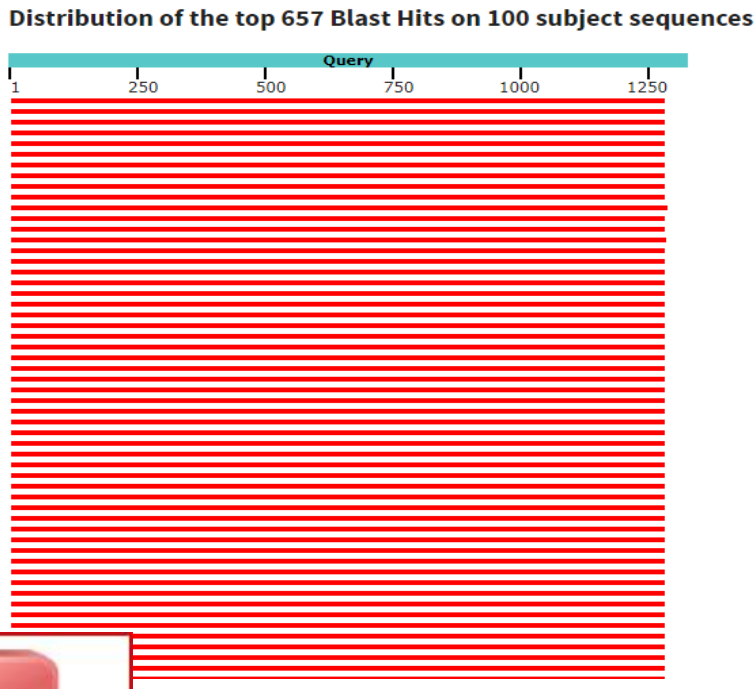
Note: The DNA ladder is not applicable for sizing comparison of non-linear DNA samples (e.g. plasmid DNA)

Rank	SampleID	OrderID	S.Name	S.Type	S.Size	CommentsAQ	AQ Status	SuggestionAQ
28	3159770	237445	TL28F	Unpurified PCR Product	1300	PCR Cleanup	PASS	
29	3159771	237445	TL33B	Unpurified PCR Product	1300	PCR Cleanup	PASS	
30	3159772	237445	LTP6A	Unpurified PCR Product	1300	PCR Cleanup	PASS	
31	3159773	237445	LTP6B	Unpurified PCR Product	1300	PCR Cleanup	PASS	
32	3159774	237445	LTP6C	Unpurified PCR Product	1300	PCR Cleanup	PASS	
33	3159775	237445	SPB3D	Unpurified PCR Product	1300	PCR Cleanup	PASS	
			LTP3B	Unpurified PCR Product	1300	PCR Cleanup	PASS	
			LPE4a	Unpurified PCR Product	1300	PCR Cleanup	PASS	
			LPE2a	Unpurified PCR Product	600	PCR Cleanup	PASS	
			LTP1b	Unpurified PCR Product	600	PCR Cleanup	PASS	

Lampiran 17. Identifikasi Jenis Bakteri Menggunakan Marka Molekuler

1. Hasi Sekuensing Isolat Bakteri Isolat TL3-3b

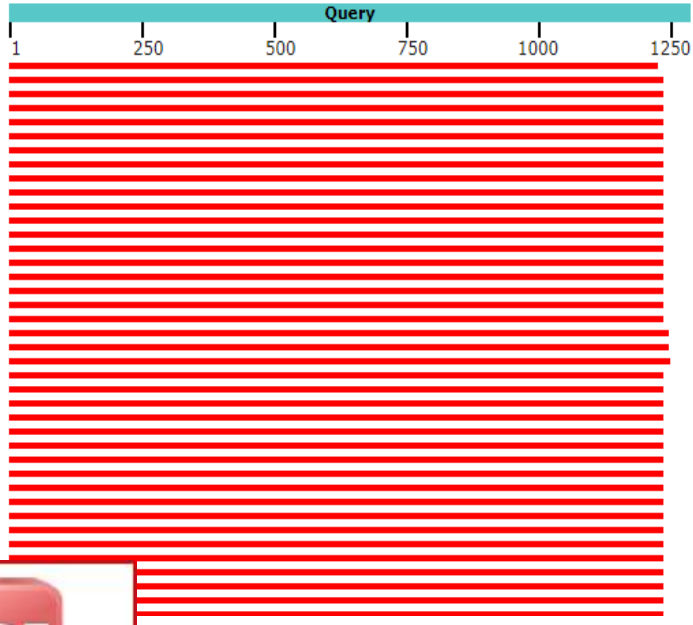
Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Bacillus cereus strain FDAARGOS_780 chromosome, complete genome	Bacillus cereus	2222	28783	96%	0.0	97.75%	5271040	CP053997.1
Bacillus cereus strain FDAARGOS_781 chromosome, complete genome	Bacillus cereus	2222	28783	96%	0.0	97.75%	5271029	CP053991.1
Bacillus cereus strain MH19 chromosome, complete genome	Bacillus cereus	2222	31030	96%	0.0	97.75%	5247580	CP039269.1
Bacillus thuringiensis strain BM-BT15426, complete genome	Bacillus thuringiensis	2222	30934	96%	0.0	97.75%	5246329	CP020723.1
Bacillus cereus strain NW6 chromosome, complete genome	Bacillus cereus	2222	30969	96%	0.0	97.75%	5197767	CP113428.1
Bacillus cereus strain S2-8, complete genome	Bacillus cereus	2222	28766	96%	0.0	97.75%	5271178	CP009605.1
Bacillus cereus strain 3a, complete genome	Bacillus cereus	2222	28768	96%	0.0	97.75%	5270991	CP009596.1
Bacillus sp. SPS5 16S ribosomal RNA gene, partial sequence	Bacillus sp. SPS5	2222	2222	96%	0.0	97.75%	1513	KF824500.3
Bacillus cereus strain XWH120710-2 16S ribosomal RNA gene, partial sequence	Bacillus cereus	2222	2222	96%	0.0	97.75%	1474	KF022231.1
Bacillus cereus strain BC06 chromosome, complete genome	Bacillus cereus	2222	31000	96%	0.0	97.75%	5211756	CP072766.1
Bacillus sp. (in: Bacteria) strain 66 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: firmicutes)	2222	2222	96%	0.0	97.68%	1451	MW092698.1
Bacillus sp. ABP14 chromosome, complete genome	Bacillus sp. ABP14	2220	28696	96%	0.0	97.75%	5141367	CP017016.1
Bacillus anthracis strain WRY1 16S ribosomal RNA gene, partial sequence	Bacillus anthracis	2218	2218	96%	0.0	97.75%	1450	KX098464.1
Bacillus sp. (in: firmicutes) strain nts-11 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: firmicutes)	2218	2218	96%	0.0	97.67%	1457	OR392979.1
Bacillus paramycoides strain 2883 16S ribosomal RNA gene, partial sequence	Bacillus paramycoides	2217	2217	96%	0.0	97.67%	1454	MT611845.1



2. Hasi Sekuensing Isolat Bakteri Isolat TL2-8f

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per Ident	Acc. Len	Accession
Bacillus sp. (in: firmicutes) strain BCIVER 16S ribosomal RNA gene, partial sequence	Bacillus sp. (in: firmicutes)	2087	2087	95%	0.0	96.95%	1288	MF294744
Bacillus thuringiensis strain FDAARGOS_791 chromosome, complete genome	Bacillus thuringiensis	2084	29078	96%	0.0	96.59%	5281841	CP063468
Bacillus cereus strain FDAARGOS_862 chromosome, complete genome	Bacillus cereus	2084	29089	96%	0.0	96.59%	5342923	CP063965
Bacillus thuringiensis strain FDAARGOS_793 chromosome, complete genome	Bacillus thuringiensis	2084	29078	96%	0.0	96.59%	5256259	CP063681
Bacillus sp. HRCD-stu chromosome, complete genome	Bacillus sp. HRCD-stu	2084	26968	96%	0.0	96.59%	5230501	CP025122
Campylobacter lari strain 11643.16S ribosomal RNA gene, partial sequence	Campylobacter lari	2084	2084	96%	0.0	96.59%	1485	MF372578
Bacillus cereus strain ISSFR-3F, complete genome	Bacillus cereus	2084	31151	96%	0.0	96.59%	5242668	CP018031
Bacillus cereus 03BB108, complete genome	Bacillus cereus 03BB108	2084	29078	96%	0.0	96.59%	5342933	CP009641
Bacillus cereus 3952 DNA, complete genome	Bacillus cereus	2084	29089	96%	0.0	96.59%	5269264	AP022936
Bacillus cereus J62 DNA, complete genome	Bacillus cereus	2084	24937	96%	0.0	96.59%	5459613	AP022964
Bacillus cereus J7 DNA, complete genome	Bacillus cereus	2084	27010	96%	0.0	96.59%	5356432	AP022934
Bacillus cereus J2 DNA, complete genome	Bacillus cereus	2084	26914	96%	0.0	96.59%	5241522	AP022927

Distribution of the top 596 Blast Hits on 100 subject sequences



Lampiran 18. Foto Prosedur Penelitian

Tahapan isolasi bakteri

Tahapan seleksi bakateri (Uji Antagonis)

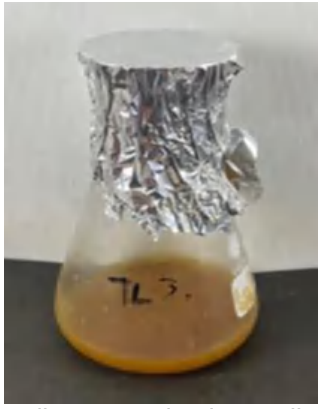
Tahapan uji daya hambat

Tahapan uji karakterisasi

straksi dan partisi

Hasil pemisahan supernatan dan pelarut etil asetat


Proses evaporasi pelarut etil asetat dari suspensi bakteri



Hasil evaporasi pelarut etil asetat isolat bakteri TL3-3bdan TL2-8b