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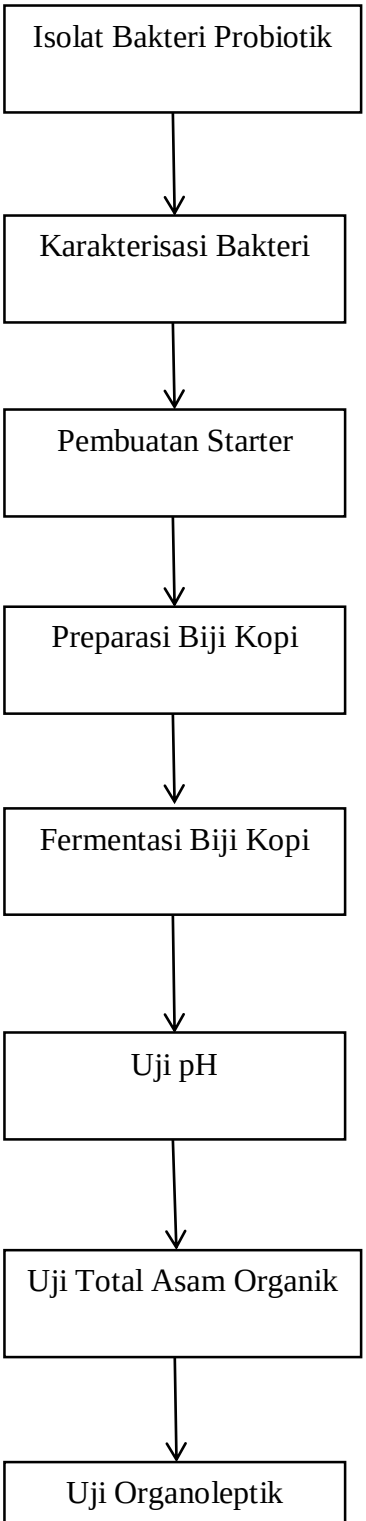
LAMPIRAN

Lampiran 1. Skema Penelitian



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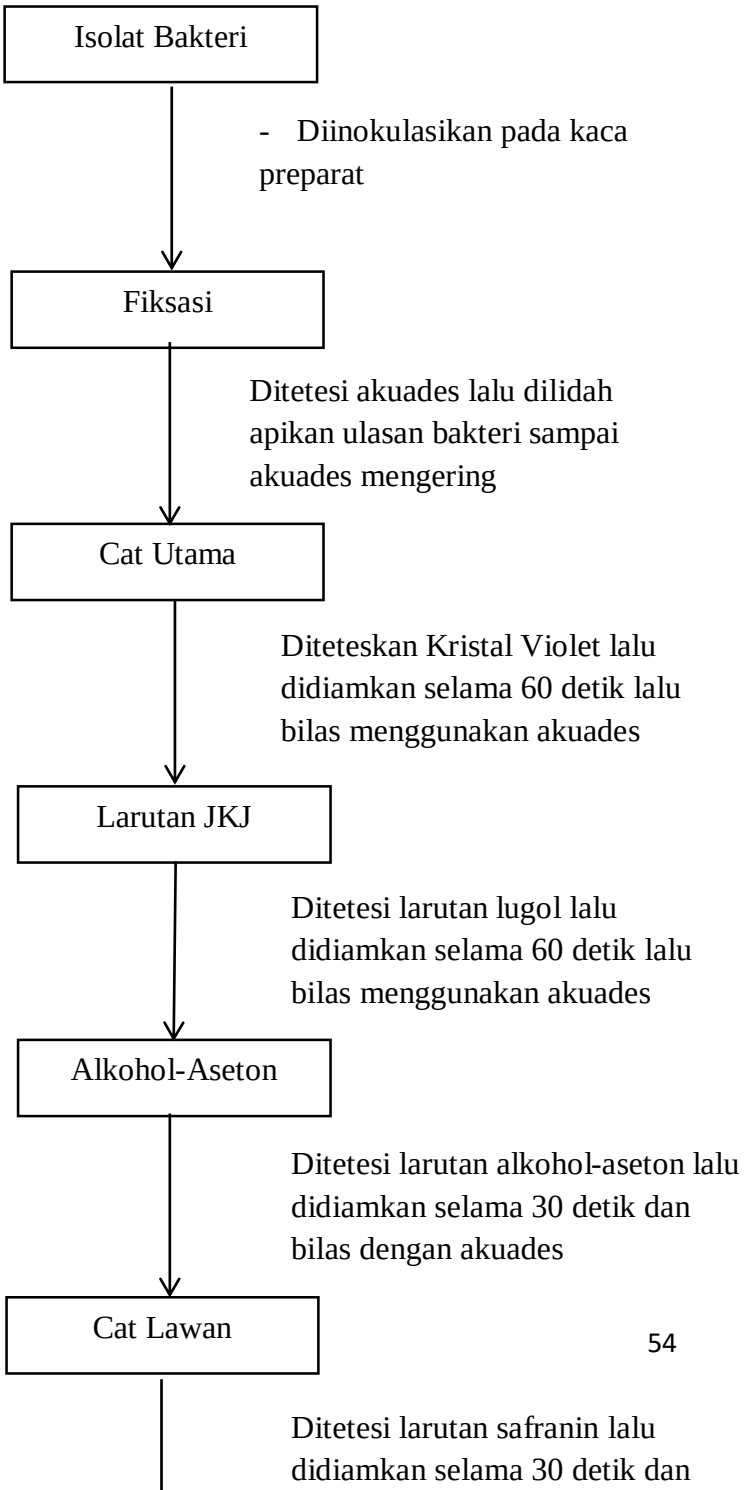

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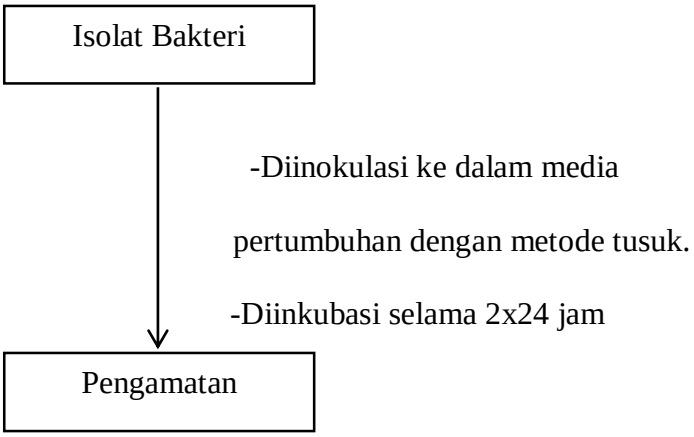

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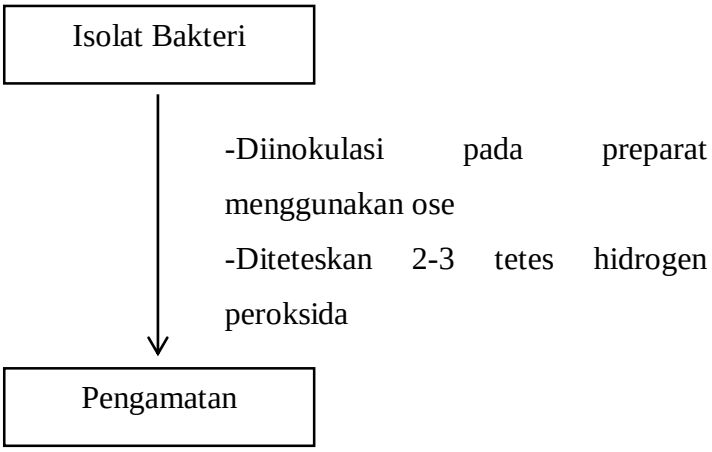

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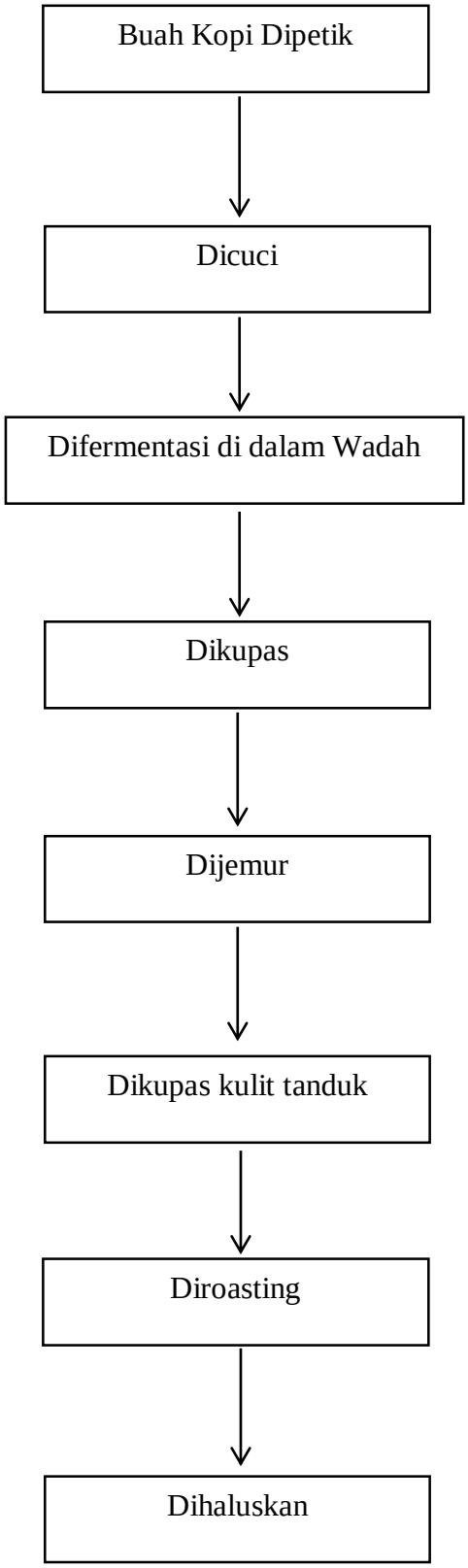

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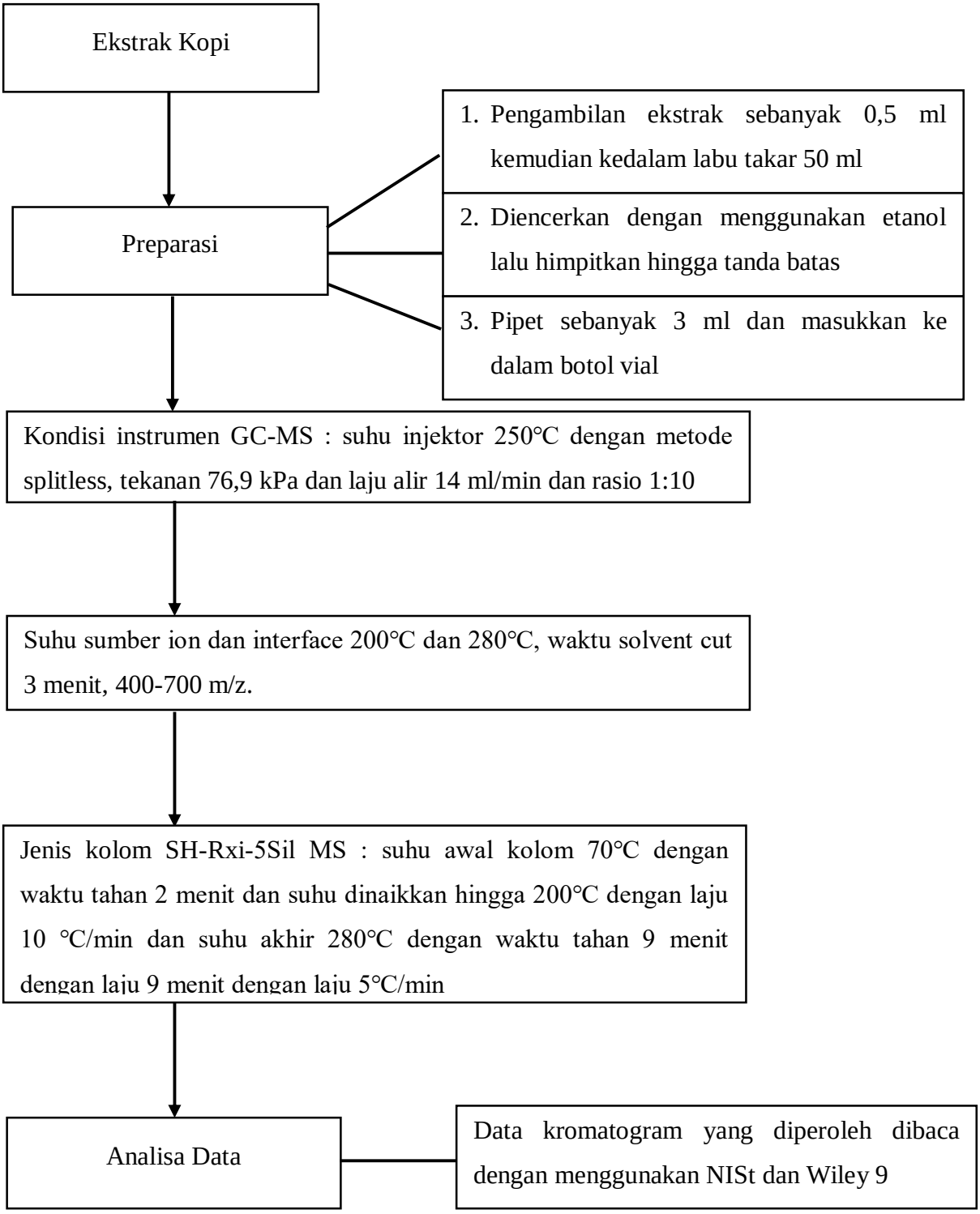

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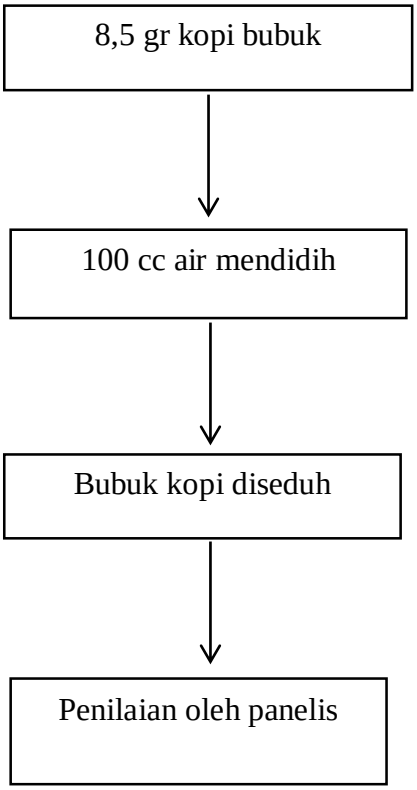

Meliputi:

1. Rasa
2. Aroma
3. Warna

Lampiran 8. Penanganan pasca panen kopi

Proses Pemetikan

Pengumpulan

Lampiran 9. Kultur bakteri pada media kulit kopi

Lampiran 10. Proses fermentasi kopi

Proses Fermentasi

Lampiran 11. Penanganan setelah fermentasi kopi

Pengupasan Kulit Luar

Pengeringan

Pengelupasan Kulit Tanduk

Proses Roasting

Bubuk Kopi

Lampiran 12. Proses maserasi

Hasil Maserasi Fermentasi Kopi Arabika dengan Penambahan Isolat Probiotik R1

Lampiran 13. Hasil uji GC-MS

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

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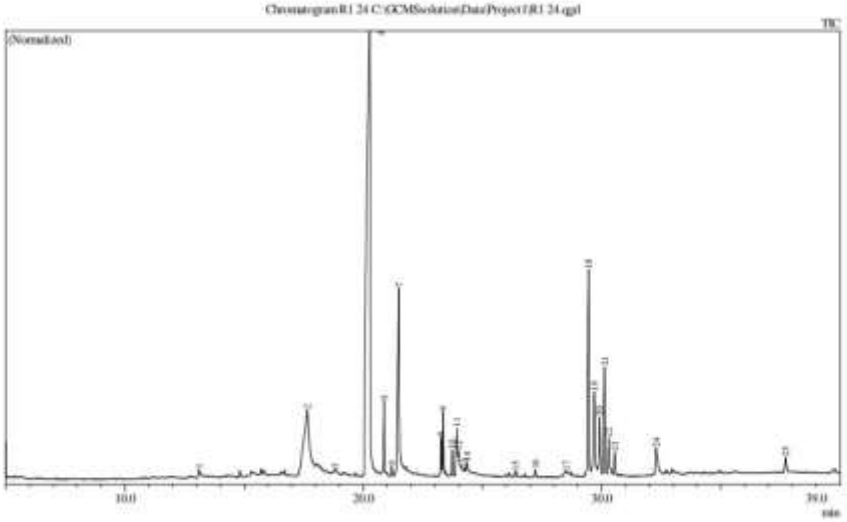

Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	13.101	1152194	0.37	4.84	2-METHOXY-4-VINYLPHENOL
2	17.661	28143984	9.13	15.58	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
3	18.823	669145	0.22	5.68	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
4	20.265	141757916	45.98	10.62	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
5	20.878	5952709	1.93	2.67	HEXADECANOIC ACID, METHYL ESTER
6	21.194	1037462	0.34	3.66	Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)-
7	21.490	29368797	9.53	5.22	l-(+)-Ascorbic acid 2,6-dihexadecanoate
8	23.264	3135570	1.02	2.66	9,12-OCTADECADIENOIC ACID (Z,Z)-, METHYL ESTER
9	23.358	5017532	1.63	2.59	9-OCTADECENOIC ACID, METHYL ESTER
10	23.735	2082331	0.68	2.67	Octadecanoic acid, methyl ester
11	23.925	5640373	1.83	3.93	9,12-Octadecadienoic acid (Z,Z)-
12	24.000	4396618	1.43	6.00	OCTADEC-9-ENOIC ACID
13	24.250	737690	0.24	4.40	ETHYL (9Z,12Z)-9,12-OCTADECADIENOATE #
14	24.337	1859886	0.60	5.31	Octadecanoic acid
15	26.395	705931	0.23	4.20	14-.BETA.-H-PREGNA
16	27.213	696900	0.23	3.11	PENTALENE, OCTAHYDRO-1-(2-OCTYLDECYL)-
17	28.504	1833555	0.59	12.34	STIGMAST-5-EN-3-OL, (3.BETA.,24S)-
18	29.454	25445185	8.25	4.10	2,3-DIMETHYLBENZOFURAN
19	29.693	14272025	4.63	5.63	Isoaurigiolene, 4,5-dehydro-
20	29.919	7246171	2.35	4.10	1H-INDENE, 2,3-DIHYDRO-4,7-DIMETHYL-
21	30.121	12044344	3.91	3.68	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
22	30.299	5276046	1.71	4.58	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
23	30.554	2650559	0.86	3.69	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
24	32.287	5116036	1.66	6.48	9,12-Octadecadienoic acid (Z,Z)-, 2,3-dihydroxypropyl ester
25	37.721	2084163	0.68	4.65	2H-1-BENZOPYRAN-6-OL, 3,4-DIHYDRO-2,5,8-TRIMETHYL-2-(4,8,12-TRIMETI
		308323122	100.00		

Hasil GC-MS Sampel Kopi Fermentasi Isolat Bakteri Probiotik R1 24 jam

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

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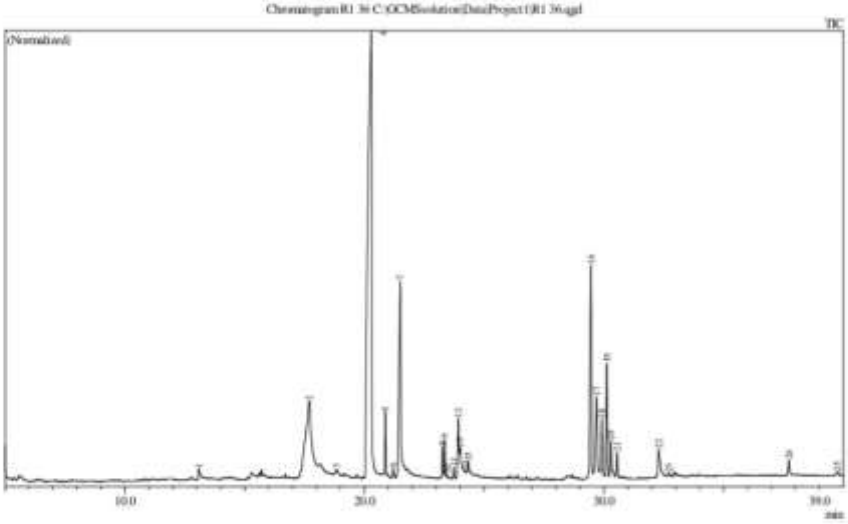

Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	13.087	1496723	0.45	4.53	2-METHOXY-4-VINYLPHENOL
2	17.706	35438346	10.74	16.46	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
3	18.829	913739	0.28	6.17	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
4	20.290	151496170	45.92	11.03	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
5	20.879	4661931	1.41	2.40	HEXADECANOIC ACID, METHYL ESTER
6	21.200	1133933	0.34	3.67	Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)-
7	21.500	33825988	10.25	5.61	l-(+)-Ascorbic acid 2,6-dihexadecanoate
8	23.264	2497542	0.76	2.54	9,12-OCTADECADIENOIC ACID (Z,Z)-, METHYL ESTER
9	23.358	3109178	0.94	2.60	9-OCTADECENOIC ACID, METHYL ESTER
10	23.450	447933	0.14	3.84	9-Octadecenoic acid (Z)-, methyl ester
11	23.736	827946	0.25	2.42	Octadecanoic acid, methyl ester
12	23.932	7212693	2.19	3.94	9,12-Octadecadienoic acid (Z,Z)-
13	24.005	5421115	1.64	5.96	9-OCTADECENOIC ACID
14	24.250	846739	0.26	4.52	ETHYL (9Z,12Z)-9,12-OCTADECADIENOATE #
15	24.338	2270680	0.69	5.27	Octadecanoic acid
16	29.457	26729486	8.10	4.07	2,3-DIMETHYLBENZOFURAN
17	29.694	14123080	4.28	5.63	ISOLONGIFOLEN, 4,5-DEHYDRO-
18	29.921	7609639	2.31	4.18	2,3-DIMETHYLBENZOFURAN
19	30.125	12738182	3.86	3.59	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
20	30.299	5450695	1.65	4.71	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
21	30.557	2824530	0.86	3.64	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
22	32.286	5656981	1.71	6.61	9,12-OCTADECADIENOIC ACID (Z,Z)-, 2,3-DIHYDROXYPROPYL ESTER
23	32.700	472085	0.14	5.22	Octadecanoic acid, 2,3-dihydroxypropyl ester
24	37.722	2145826	0.65	4.50	2H-1-BENZOPYRAN-6-OL, 3,4-DIHYDRO-2,5,8-TRIMETHYL-2-(4,8,12-TRIMET
25	39.773	560452	0.17	4.88	.alpha.-Tocopherol-.beta.-D-mannoside
		329911612	100.00		

Hasil GC-MS Sampel Kopi Fermentasi Isolat Bakteri Probiotik R1 36 jam

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

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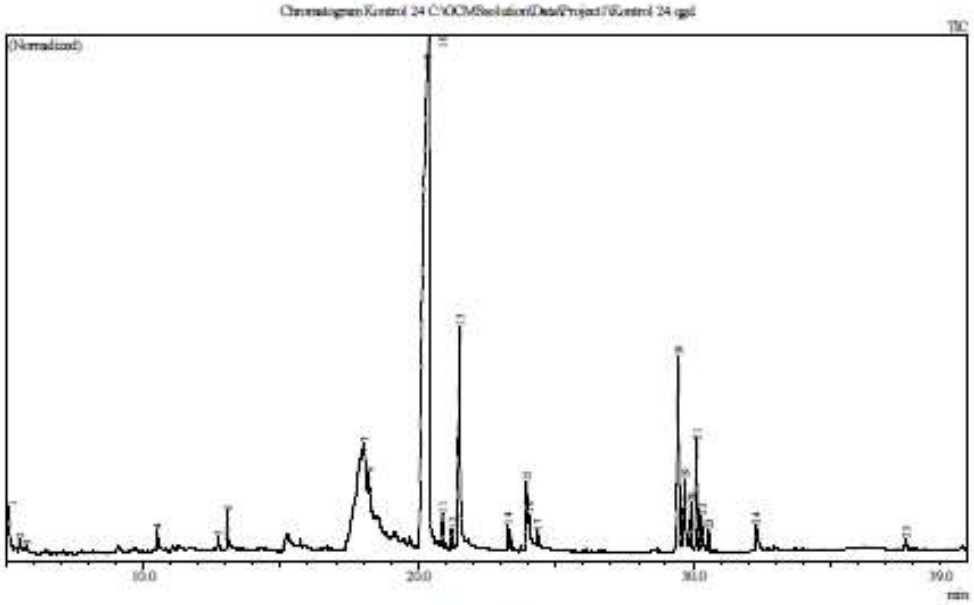


Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	5.109	6142065	1.38	5.25	3-Furanmethanol
2	5.507	1860187	0.42	4.49	2-FURANMETHANOL
3	5.765	1452581	0.33	6.25	PYRAZINE, 2,6-DIMETHYL-
4	10.500	2868430	0.65	5.01	4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl-
5	12.725	1521134	0.34	3.84	5-(Hydroxymethyl)-2-(dimethoxymethyl)furan
6	13.058	3958663	0.89	3.45	2-METHOXY-4-VINYLPHENOL
7	18.033	62796553	14.13	24.32	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
8	18.195	9516863	2.14	6.20	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
9	20.333	179491251	40.40	12.43	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
10	20.404	53417719	12.02	3.54	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
11	20.887	2233559	0.50	2.23	HEXADECANOIC ACID, METHYL ESTER
12	21.224	1889646	0.43	3.28	Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)-
13	21.516	31859430	7.17	4.86	l-(+)-Ascorbic acid 2,6-dihexadecanoate
14	23.269	1965109	0.44	2.51	9,12-OCTADECADIENOIC ACID (Z,Z)-, METHYL ESTER
15	23.942	8242859	1.86	4.00	9,12-Octadecadienoic acid (Z,Z)-
16	24.017	6215002	1.40	5.71	9-Octadecenoic acid, (E)-
17	24.345	2975689	0.67	5.78	Octadecanoic acid
18	29.459	23783304	5.35	4.08	2,3-DIMETHYLBENZOFURAN
19	29.696	12793507	2.88	5.97	ISOLONGIFOLEN, 4,5-DEHYDRO-
20	29.924	5588906	1.26	3.87	1H-INDENE, 2,3-DIHYDRO-4,7-DIMETHYL-
21	30.128	11631140	2.62	3.50	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
22	30.303	3311949	0.75	3.40	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
23	30.561	2222465	0.50	3.53	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
24	32.289	5033629	1.13	6.55	9,12-Octadecadienoic acid (Z,Z)-, 2,3-dihydroxypropyl ester
25	37.729	1536027	0.35	4.46	2H-1-BENZOPYRAN-6-OL, 3,4-DIHYDRO-2,5,8-TRIMETHYL-2-(4,8,12-TRIMETI
		444307667	100.00		

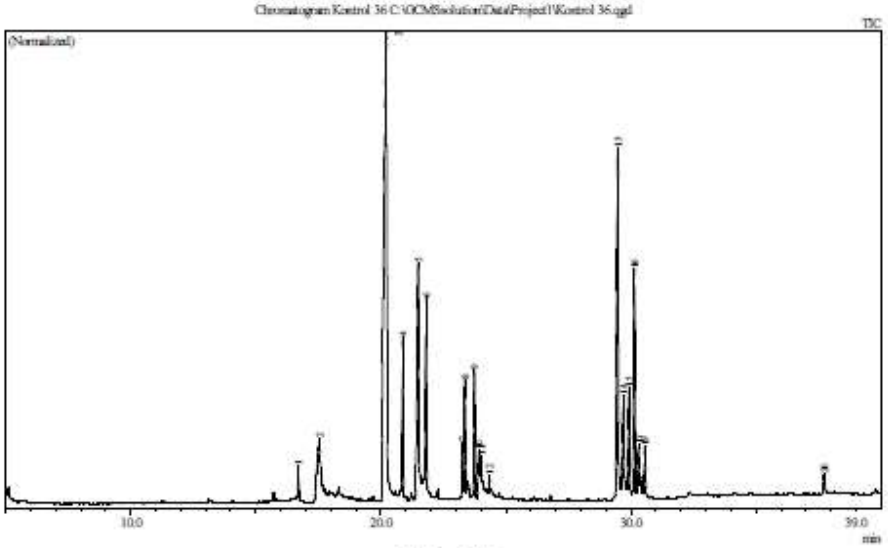
Hasil GC-MS Sampel Kopi Fermentasi Kontrol 24 jam

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

Sample Information

Analyzed by	: Admin
Analyzed	: 29/07/2020 7:14:39 PM
Sample Type	: Unknown
Level #	: 1
Sample Name	: Kontrol 36
Sample ID	:
IS Amount	: [1]=1
Sample Amount	: 1

Chromatogram Kontrol 36 C:\GCMSsolution\Data\Project1\Kontrol 36.qgd



Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	16.703	1595217	0.57	1.96	Propanoic acid, 2-methyl-, 1-(1,1-dimethylethyl)-2-methyl-1,3-propanediyl ester
2	17.541	14769102	5.23	10.24	1,3,4,5-TETRAHYDROXY-CYCLOHEXANECARBOXYLIC ACID
3	20.226	92245876	32.68	8.20	1H-PURINE-2,6-DIONE, 3,7-DIHYDRO-1,3,7-TRIMETHYL-
4	20.881	8843677	3.13	2.33	HEXADECANOIC ACID, METHYL ESTER
5	21.497	27370599	9.70	4.83	n-Hexadecanoic acid
6	21.812	15976296	5.66	3.36	HEXADECANOIC ACID, ETHYL ESTER
7	23.271	3530550	1.25	2.64	9,12-OCTADECADIENOIC ACID (Z,Z)-, METHYL ESTER
8	23.365	7470856	2.65	2.60	9-OCTADECENOIC ACID, METHYL ESTER
9	23.744	8670813	3.07	2.78	Octadecanoic acid, methyl ester
10	23.926	3919422	1.39	3.52	9,12-Octadecadienoic acid (Z,Z)-
11	24.008	4080640	1.45	4.36	OCTADEC-9-ENOIC ACID
12	24.346	1116389	0.40	2.78	9-OCTADECENOIC ACID (Z)-
13	29.480	37804595	13.39	4.46	2,3-DIMETHYLBENZOFURAN
14	29.705	11281425	4.00	4.61	Bicyclo[4.2.0]oct-1-ene, exo-7-(1-cyclohexan-1-yl)-
15	29.933	10319845	3.66	3.88	2,3-DIMETHYLBENZOFURAN
16	30.140	20727516	7.34	3.74	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
17	30.307	4964625	1.76	3.93	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
18	30.408	1139761	0.40	4.25	Phenanthro[3,2-b]furan-7,11-dione, 1,2,3,4,8,9-hexahydro-4,4,8-trimethyl-, (+)-
19	30.564	4626190	1.64	3.76	PREGN-5-EN-20-ONE, 3-(ACETYLOXY)-, (3.BETA.)-
20	37.732	1796649	0.64	4.04	2H-1-BENZOPYRAN-6-OL, 3,4-DIHYDRO-2,5,8-TRIMETHYL-2-(4,8,12-TRIMET
		282250043	100.00		

Hasil GC-MS Sampel Kopi Fermentasi Kontrol 36 jam

Lampiran 14. Uji organoleptik




Proses Uji Organoleptik

Lampiran 15. Analisis Data Uji Cita Rasa

Frequency Table

Tingkat Aroma Kopi R1 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agak Kurang Tajam	8	57.1	57.1	57.1
	Aroma Normal	3	21.4	21.4	78.6
	Agak Tajam	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

TAA2 R1 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agak kurang tajam	6	42.9	42.9	42.9
	aroma normal	6	42.9	42.9	85.7
	agak tajam	1	7.1	7.1	92.9
	sangat tajam	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

TAD1 Kontrol 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang tajam	1	7.1	7.1	7.1
	agak kurang tajam	4	28.6	28.6	35.7
	aroma normal	5	35.7	35.7	71.4
	agak tajam	3	21.4	21.4	92.9
	sangat tajam	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

TAD2 Kontrol 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agak kurang tajam	4	28.6	28.6	28.6
	aroma normal	6	42.9	42.9	71.4
	agak tajam	1	7.1	7.1	78.6
	sangat tajam	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

Tingkat Rasa R1 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang asam	2	14.3	14.3	14.3
	agak kurang asam	5	35.7	35.7	50.0
	rasa normal	4	28.6	28.6	78.6
	agak asam	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

TRA2 R1 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang asam	2	14.3	14.3	14.3
	agak kurang asam	2	14.3	14.3	28.6
	rasa normal	3	21.4	21.4	50.0
	agak asam	5	35.7	35.7	85.7
	sangat asam	2	14.3	14.3	100.0
	Total	14	100.0	100.0	

TRD1 Kontrol 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang asam	1	7.1	7.1	7.1
	agak kurang asam	4	28.6	28.6	35.7
	rasa normal	2	14.3	14.3	50.0
	agak asam	6	42.9	42.9	92.9
	sangat asam	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

TRD2 Kontrol 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agak kurang asam	3	21.4	21.4	21.4
	rasa normal	4	28.6	28.6	50.0
	agak asam	6	42.9	42.9	92.9
	sangat asam	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Tingkat Warna R1 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang hitam	1	7.1	7.1	7.1
	agak kurang hitam	6	42.9	42.9	50.0
	hitam normal	5	35.7	35.7	85.7
	agak hitam	2	14.3	14.3	100.0
	Total	14	100.0	100.0	

TWA2 R1 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agak kurang hitam	7	50.0	50.0	50.0
	hitam normal	2	14.3	14.3	64.3
	agak hitam	5	35.7	35.7	100.0
	Total	14	100.0	100.0	

TWD1 Kontrol 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat kurang hitam	1	7.1	7.1	7.1
	agak kurang hitam	10	71.4	71.4	78.6
	agak hitam	2	14.3	14.3	92.9
	sangat hitam	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

TWD2 Kontrol 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agak kurang hitam	7	50.0	50.0	50.0
	hitam normal	5	35.7	35.7	85.7
	agak hitam	2	14.3	14.3	100.0
	Total	14	100.0	100.0	

Penerimaan Keseluruhan R1 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	tidak suka	1	7.1	7.1	7.1
	agak tidak suka	3	21.4	21.4	28.6
	biasa	4	28.6	28.6	57.1
	agak suka	3	21.4	21.4	78.6
	suka	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

PA2 R1 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	tidak suka	2	14.3	14.3	14.3
	agak tidak suka	2	14.3	14.3	28.6
	biasa	5	35.7	35.7	64.3
	agak suka	2	14.3	14.3	78.6
	suka	3	21.4	21.4	100.0
	Total	14	100.0	100.0	

PD1 Kontrol 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat tidak suka	2	14.3	14.3	14.3
	tidak suka	6	42.9	42.9	57.1
	agak tidak suka	2	14.3	14.3	71.4
	biasa	3	21.4	21.4	92.9
	suka	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

PD2 Kontrol 36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sangat tidak suka	2	14.3	14.3	14.3
	tidak suka	4	28.6	28.6	42.9
	agak tidak suka	2	14.3	14.3	57.1
	biasa	2	14.3	14.3	71.4
	agak suka	1	7.1	7.1	78.6
	suka	3	21.4	21.4	100.0
	Total	14	100.0	100.0	