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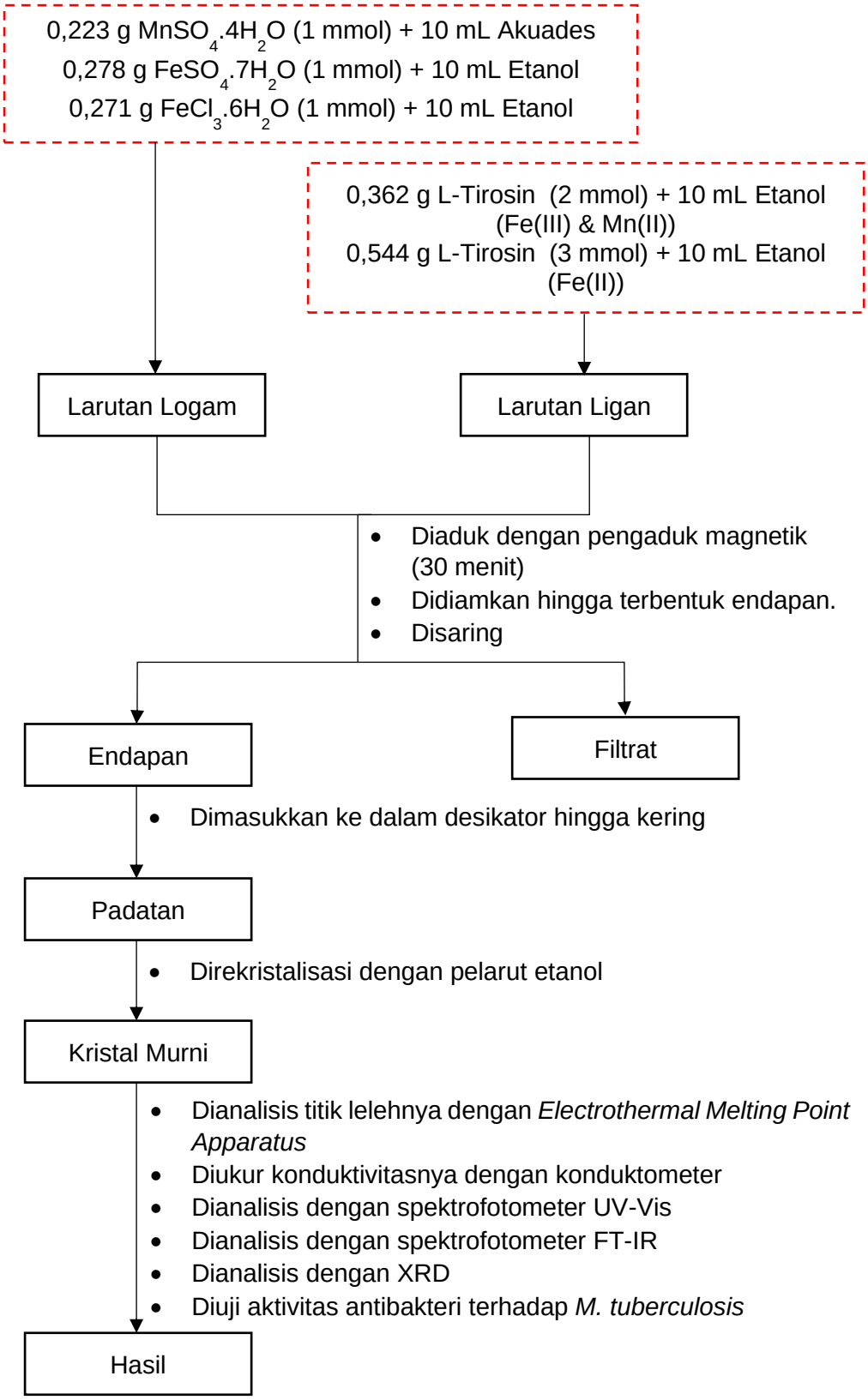
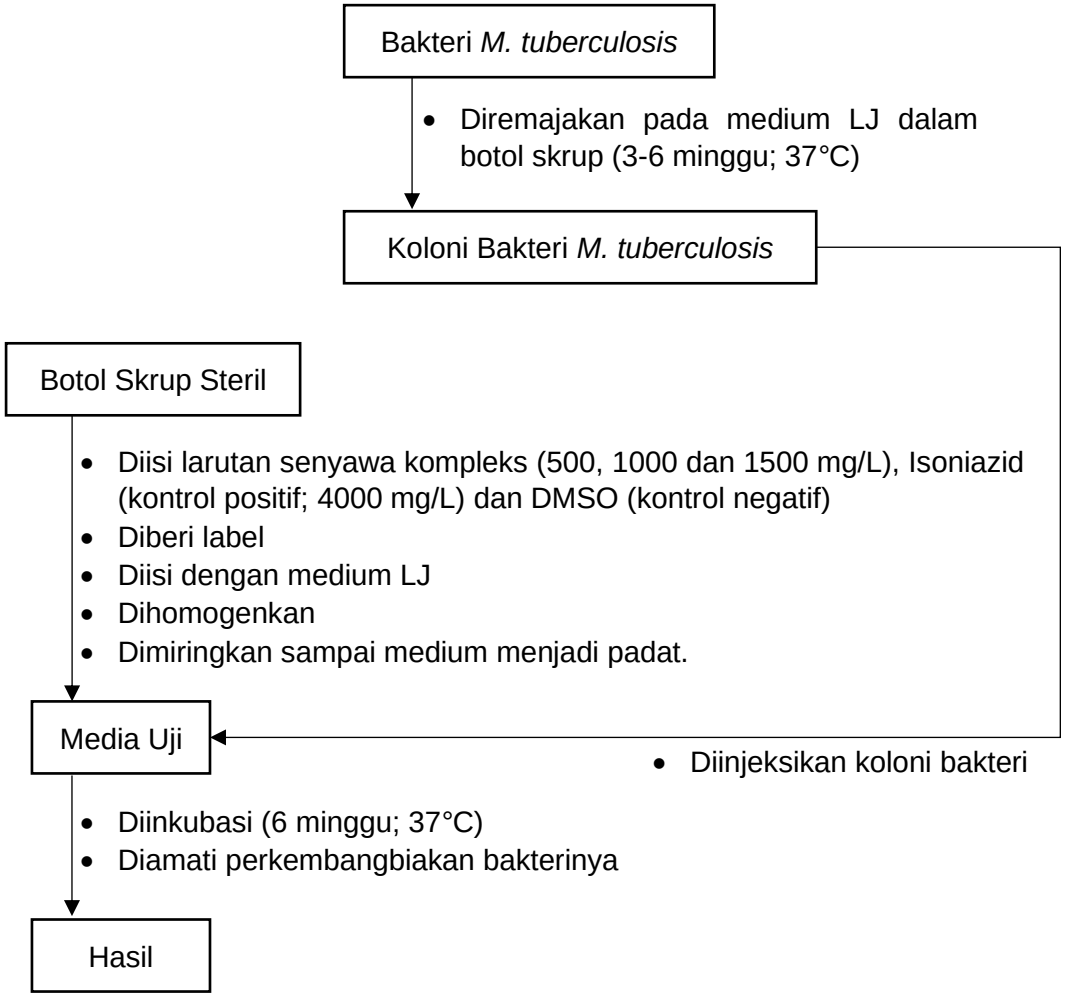
Lampiran 1. Bagan kerja penelitian



Lampiran 2. Skema kerja uji antibakteri



Lampiran 3. Perhitungan hasil rendemen senyawa kompleks Mn(II) Tirosin

Kompleks Mn(II) Tirosin

a. Massa logam yang diperlukan:

m = n x Mr

= 0,001 mol x 223 g/mol

= 0,223 g

b. Massa ligan yang diperlukan:

m = n x Mr

= 0,002 mol x 181,19 g/mol

= 0,362 g

c. Rendemen:

$MnSO_4.4H_2O$ + 2 L-tirosin ⟶ Kompleks Mn(II) tirosin

m	1 mmol	2 mmol	-
b	1 mmol	2 mmol	1 mmol
s	-	-	1 mmol

Massa secara teori = n x Mr

= 0,001 mol x 451,38 g/mol

= 0,451 g

Massa secara eksperimen = 0,312 g

$$\% \text{ Rendemen} = \frac{Massa\ eksperimen}{Massa\ teori}\ x\ 100\%$$

$$= \frac{0{,}312\ g}{0{,}451\ g}\ x\ 100\%$$

$$= 69{,}18\%$$

Lampiran 4. Perhitungan hasil rendemen senyawa kompleks Fe(II) Tirosin

Kompleks Fe(II) tirosin

a. Massa logam yang diperlukan:

m = n x Mr

= 0,001 mol x 278 g/mol

= 0,278 g

b. Massa ligan yang diperlukan:

m = n x Mr

= 0,003 mol x 181,19 g/mol

= 0,544 g

c. Rendemen:

$FeSO_4 . 7H_2O$ + 3 L-tirosin ⟶ Kompleks Fe(II) tirosin

M	1 mmol	3 mmol	-
B	1 mmol	3 mmol	1 mmol
S	-	-	1 mmol

Massa secara teori = n x Mr

= 0,001 mol x 726 g/mol

= 0,726 g

Massa secara eksperimen = 0,638 g

$$\% \text{ Rendemen} = \frac{Massa\ eksperimen}{Massa\ teori}\ x\ 100\%$$

$$= \frac{0{,}638\ g}{0{,}726\ g}\ x\ 100\%$$

$$= 87{,}88\%$$

Lampiran 5. Perhitungan hasil rendemen senyawa kompleks Fe(III) Tirosin

Kompleks Fe(III) Tirosin

a. Massa logam yang diperlukan:

m = n x Mr

= 0,001 mol x 271 g/mol

= 0,271 g

b. Massa ligan yang diperlukan:

m = n x Mr

= 0,002 mol x 181,19 g/mol

= 0,362 g

c. Rendemen:

$FeCl_3.6H_2O$ + 2 L-tirosin ⟶ Kompleks Fe(III) tirosin

M	1 mmol	2 mmol	-
B	1 mmol	2 mmol	1 mmol
S	-	-	1 mmol

Massa secara teori = n x Mr

= 0,001 mol x 596,57 g/mol

= 0,597 g

Massa secara eksperimen = 0,181 g

$$\% \text{ Rendemen} = \frac{Massa\ eksperimen}{Massa\ teori}\ x\ 100\%$$

$$= \frac{0{,}181\ g}{0{,}597\ g}\ x\ 100\%$$

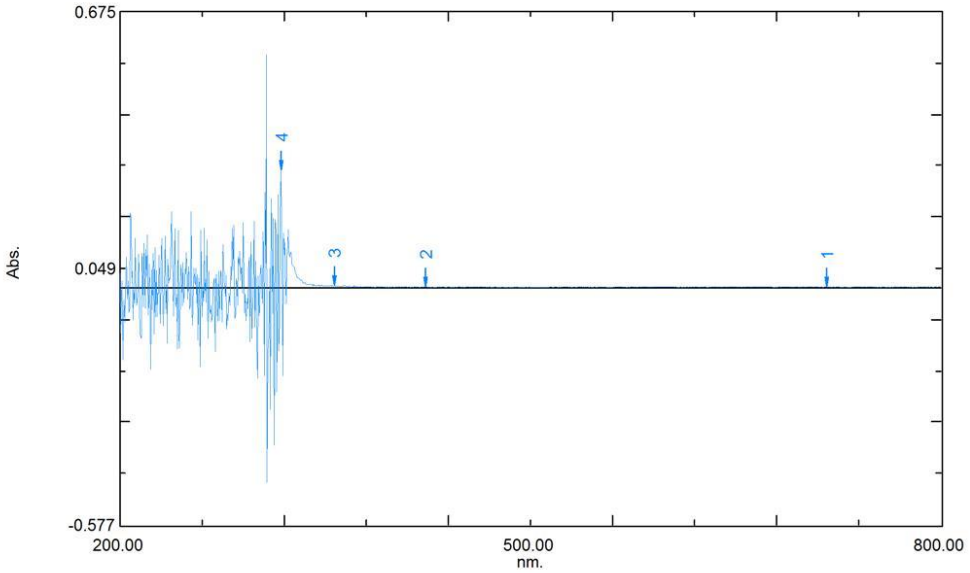
$$= 30{,}32\%$$

Lampiran 6. Hasil spektrum UV-Vis L-Tirosin

Spectrum Peak Pick Report

10/04/2021 01:42:47 PM

Data Set: L Tirosin.spc - RawData



No.	P/V	Wavelength	Abs.	Description
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2	↑	423.50	0.005	
3	↑	357.00	0.008	
4	↑	317.50	0.290	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 800.00
Scan Speed: Medium
Sampling Interval: 0.5
Auto Sampling Interval: Enabled
Scan Mode: Single

[Instrument Properties]
Instrument Type: UV-2600 Series
Measuring Mode: Absorbance
Slit Width: 0.2
Accumulation time: 0.1 sec.
Light Source Change Wavelength: 323.0 nm
Detector Unit: Direct
S/R Exchange: Normal
Stair Correction: OFF

[Attachment Properties]
Attachment: None

[Operation]
Threshold: 0.0010000
Points: 4
InterPolate: Disabled
Average: Disabled

[Sample Preparation Properties]
Weight:
Volume:
Dilution:
Path Length:
Additional Information:

Lampiran 7. Hasil spektrum UV-Vis Kompleks Mn(II) Tirosin

Spectrum Peak Pick Report

10/04/2021 01:44:03 PM

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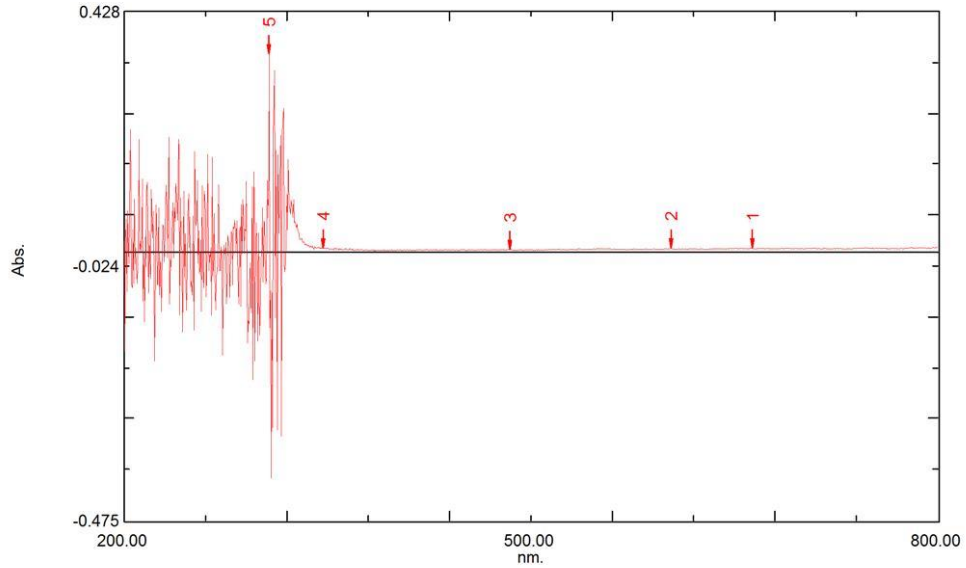

[Measurement Properties]

Wavelength Range (nm.):	200.00 to 800.00
Scan Speed:	Medium
Sampling Interval:	0.5
Auto Sampling Interval:	Enabled
Scan Mode:	Single

[Instrument Properties]

Instrument Type:	UV-2600 Series
Measuring Mode:	Absorbance
Slit Width:	0.2
Accumulation time:	0.1 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF

[Attachment Properties]

Attachment:	None

[Operation]

Threshold:	0.0010000
Points:	4
InterPolate:	Disabled
Average:	Disabled

[Sample Preparation Properties]

Weight:	
Volume:	
Dilution:	
Path Length:	
Additional Information:	

No.	P/V	Wavelength	Abs.	Description
1	↑	663.00	0.008	
2	↑	603.00	0.008	
3	↑	484.00	0.006	
4	↑	346.50	0.009	
5	↑	307.00	0.352	

Lampiran 8. Hasil spektrum UV-Vis Kompleks Fe(II) Tirosin

Spectrum Peak Pick Report

10/04/2021 01:39:20 PM

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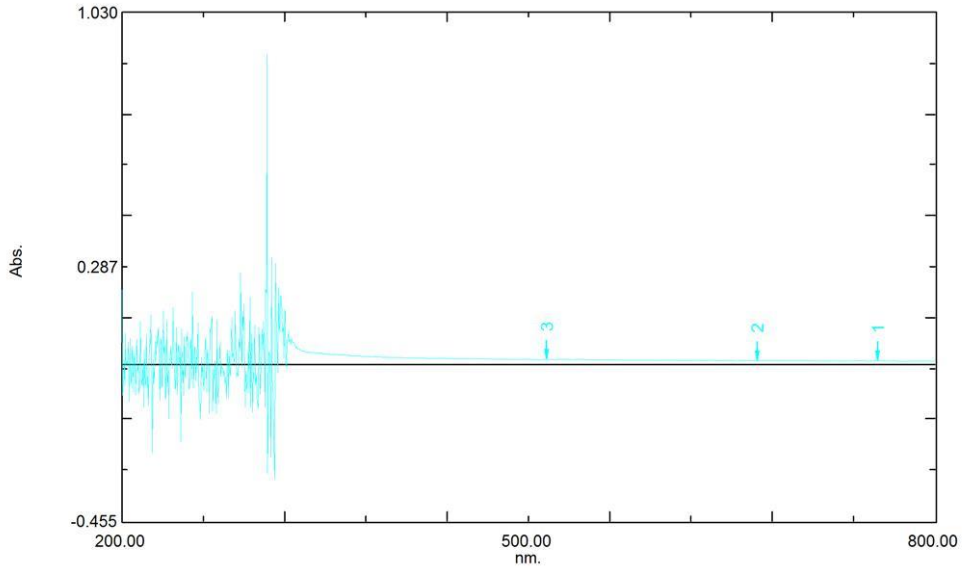

[Measurement Properties]

Wavelength Range (nm.):	200.00 to 800.00
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Sampling Interval:	0.5
Auto Sampling Interval:	Enabled
Scan Mode:	Single

[Instrument Properties]

Instrument Type:	UV-2600 Series
Measuring Mode:	Absorbance
Slit Width:	0.2
Accumulation time:	0.1 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF

[Attachment Properties]

Attachment:	None

[Operation]

Threshold:	0.0010000
Points:	4
InterPolate:	Disabled
Average:	Disabled

[Sample Preparation Properties]

Weight:	
Volume:	
Dilution:	
Path Length:	
Additional Information:	

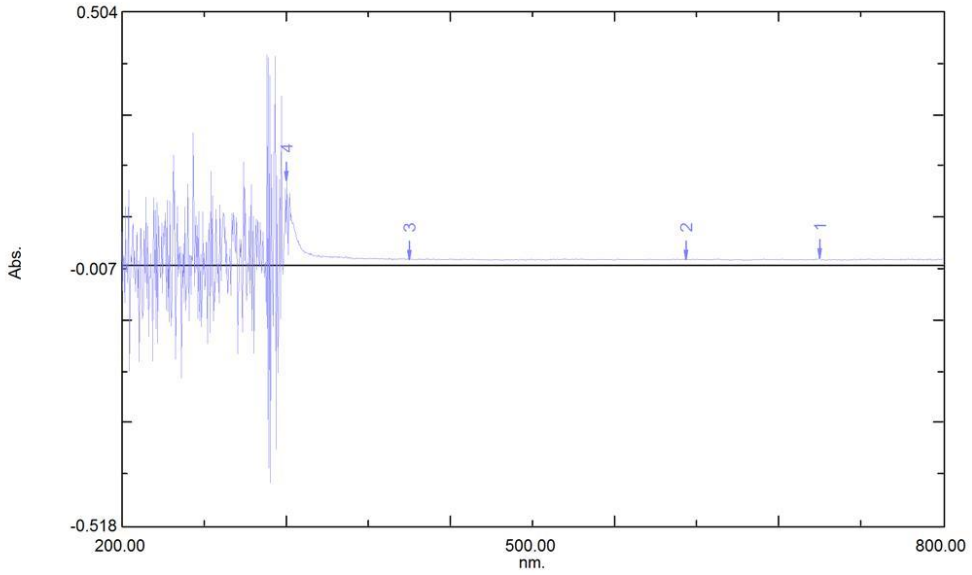
No.	P/V	Wavelength	Abs.	Description
1	↑	757.50	0.013	
2	↑	669.00	0.014	
3	↑	513.50	0.017	

Lampiran 9. Hasil spektrum UV-Vis Kompleks Fe(III) Tirosin

Spectrum Peak Pick Report

10/04/2021 01:41:26 PM

Data Set: Fe(III) Tirosin.spc - RawData



No.	P/V	Wavelength	Abs.	Description
1	↑	709.50	0.013	
2	↑	612.00	0.012	
3	↑	409.50	0.012	
4	↑	320.50	0.168	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 800.00
Scan Speed: Medium
Sampling Interval: 0.5
Auto Sampling Interval: Enabled
Scan Mode: Single

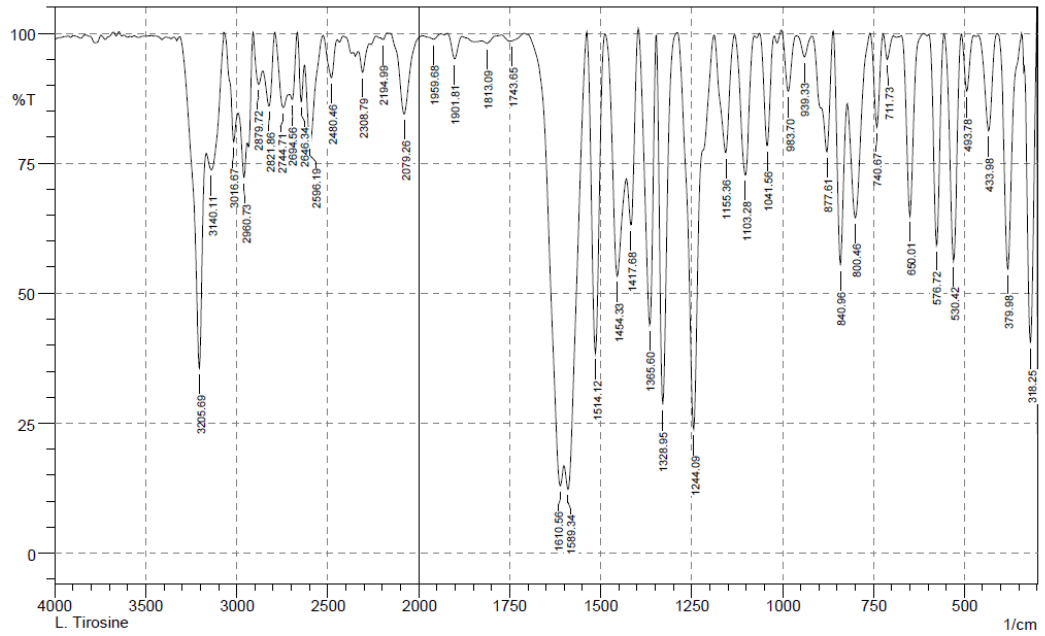
[Instrument Properties]
Instrument Type: UV-2600 Series
Measuring Mode: Absorbance
Slit Width: 0.2
Accumulation time: 0.1 sec.
Light Source Change Wavelength: 323.0 nm
Detector Unit: Direct
S/R Exchange: Normal
Stair Correction: OFF

[Attachment Properties]
Attachment: None

[Operation]
Threshold: 0.0010000
Points: 4
InterPolate: Disabled
Average: Disabled

[Sample Preparation Properties]
Weight:
Volume:
Dilution:
Path Length:
Additional Information:

Lampiran 10. Hasil spektrum FT-IR L-Tirosin



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	318.25	40.43	53.91	333.69	302.82	6.58	5.82
2	379.98	54.67	45.29	408.91	343.33	5.78	5.77
3	433.98	81.25	18.52	460.99	410.84	1.93	1.87
4	493.78	88.86	10.91	509.21	474.49	0.81	0.77
5	530.42	56.22	43.68	555.5	509.21	4.96	4.94
6	576.72	59.19	40.52	597.93	557.43	3.95	3.89
7	650.01	64.81	34.9	673.16	613.36	3.75	3.68
8	711.73	94.94	4.81	723.31	694.37	0.33	0.29
9	740.67	81.96	17.82	758.02	725.23	1.37	1.34
10	800.46	64.51	26.63	821.68	759.95	5.71	3.83
11	840.96	55.33	37.6	860.25	823.6	5.08	3.87
12	877.61	77.18	22.88	918.12	862.18	3.16	3.13
13	939.33	95.47	4.02	962.48	920.05	0.4	0.3
14	983.7	88.85	11.26	1002.98	962.48	0.92	0.93
15	1041.56	78.41	21.22	1062.78	1024.2	1.88	1.82
16	1103.28	72.73	26.82	1130.29	1078.21	3.38	3.28
17	1155.36	77.07	22.54	1186.22	1132.21	3.09	2.99
18	1244.09	23.8	76.14	1288.45	1188.15	17.56	17.52
19	1328.95	28.56	71.19	1346.31	1290.38	9.83	9.8
20	1365.6	43.89	55.84	1394.53	1348.24	7.6	7.57
21	1417.68	63.17	19.08	1429.25	1396.46	3.92	1.8
22	1454.33	53.3	30.07	1487.12	1431.18	8.34	4.19
23	1514.12	38.43	61.65	1537.27	1489.05	8.24	8.25
24	1589.34	12.27	17.8	1598.99	1539.2	24.36	3.75
25	1610.56	12.95	12	1699.29	1600.92	28.5	2.51
26	1743.65	98.49	0.18	1747.51	1708.93	0.14	0.02
27	1813.09	98.04	0.84	1828.52	1772.58	0.27	0.06
28	1901.81	95.1	4.63	1921.1	1880.6	0.42	0.37
29	1959.68	98.89	0.87	1990.54	1940.39	0.15	0.09
30	2079.26	84.47	15.34	2158.35	1990.54	4.61	4.46
31	2194.99	98.8	1.06	2233.57	2173.78	0.19	0.13
32	2308.79	92.52	4.58	2331.94	2272.15	1.26	0.54
33	2480.46	91.44	7.66	2524.82	2449.6	1.59	1.32

Date/Time; 10/18/2021 3:07:51 PM
No. of Scans;

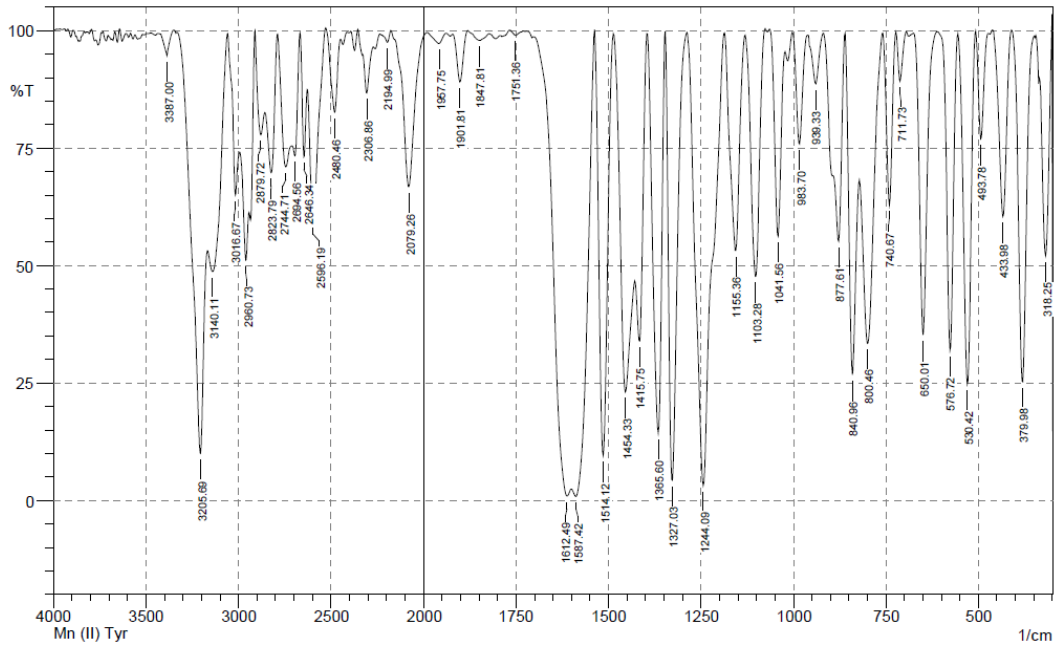
34	2596.19	78.93	16.7	2627.05	2526.75	5.09	3.65
35	2646.34	86.85	9.84	2667.55	2628.98	1.42	0.87
36	2694.56	87.27	5.08	2708.06	2669.48	1.51	0.52
37	2744.71	85.74	7.69	2789.07	2709.99	3.7	1.51
38	2821.86	86.01	10.65	2856.58	2791	2.69	1.67
39	2879.72	90.17	5.63	2908.65	2858.51	1.66	0.81
40	2960.73	72.3	8.69	2991.59	2943.37	5.26	1.01
41	3016.67	79.1	10.19	3070.68	2993.52	4.16	1.38
42	3140.11	73.75	9.82	3167.12	3072.6	8.71	3.48
43	3205.69	35.59	47.03	3311.78	3169.04	22.96	14.5

Comment;

L. Tirosine

Resolution;
Apodization;
User; Kimia Terpadu

Lampiran 11. Hasil spektrum FT-IR Kompleks Mn(II) Tirosin



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	318.25	52.095	40.812	333.69	302.82	5.091	4.128
2	379.98	25.296	74.023	408.91	351.04	11.546	11.369
3	433.98	60.412	39.69	460.99	410.84	4.53	4.552
4	493.78	77.012	22.718	507.28	474.49	1.712	1.665
5	530.42	24.766	74.514	555.5	509.21	11.294	11.149
6	576.72	31.993	67.054	609.51	557.43	8.355	8.168
7	650.01	35.237	64.357	675.09	611.43	8.897	8.796
8	711.73	89.223	10.51	723.31	694.37	0.678	0.645
9	740.67	62.871	36.349	758.02	725.23	3.17	3.058
10	800.46	33.44	45.494	821.68	759.95	14.326	9.278
11	840.96	26.769	55.827	860.25	823.6	11.226	7.881
12	877.61	55.176	27.84	891.11	862.18	4.651	2.411
13	939.33	88.682	10.518	958.62	920.05	1.044	0.912
14	983.7	75.889	23.314	1001.06	960.55	2.137	1.991
15	1041.56	56.258	41.139	1062.78	1024.2	4.425	3.999
16	1103.28	47.715	51.893	1130.29	1078.21	7.381	7.292
17	1155.36	53.212	45.925	1186.22	1132.21	7.124	6.929
18	1244.09	3.121	96.169	1286.52	1188.15	39.366	39.067
19	1327.03	4.314	95.48	1346.31	1288.45	21.652	21.59
20	1365.6	14.339	84.495	1394.53	1348.24	16.544	16.324
21	1415.75	33.914	32.233	1427.32	1396.46	8.502	3.633
22	1454.33	23.106	47.049	1485.19	1429.25	19.899	10.231
23	1514.12	9.592	90.246	1537.27	1487.12	18.188	18.142
24	1587.42	0.835	20.218	1598.99	1539.2	55.316	10.714
25	1612.49	0.923	12.404	1703.14	1600.92	63.276	6.965
26	1751.36	98.992	1.048	1766.8	1730.15	0.074	0.078
27	1847.81	97.917	1.725	1880.6	1822.73	0.315	0.236
28	1901.81	89.093	10.538	1921.1	1880.6	0.924	0.862
29	1957.75	97.285	2.236	1990.54	1938.46	0.356	0.252
30	2079.26	66.788	33.011	2175.7	1990.54	11.329	11.171
31	2194.99	97.521	2.201	2227.78	2177.63	0.315	0.222
32	2306.86	86.736	8.837	2328.08	2272.15	2.09	1.044
33	2480.46	82.641	16.479	2528.68	2449.6	3.129	2.904

Date/Time; 10/18/2021 2:54:07 PM
No. of Scans;

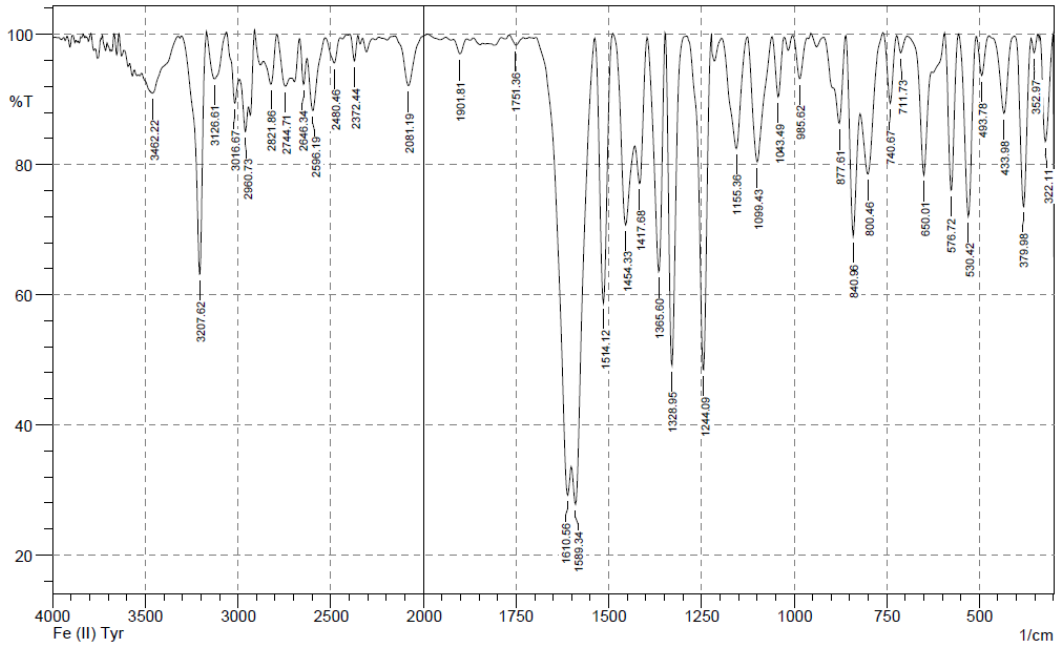
34	2596.19	59.42	32.212	2627.05	2530.61	10.898	8.254
35	2646.34	73.191	19.719	2667.55	2628.98	3.125	1.912
36	2694.56	73.386	11.176	2709.99	2669.48	3.669	1.252
37	2744.71	71.035	14.549	2789.07	2711.92	8.072	3.121
38	2823.79	69.761	21.126	2856.58	2791	6.64	3.875
39	2879.72	77.839	11.831	2910.58	2858.51	4.195	1.949
40	2960.73	51.162	14.606	2993.52	2943.37	10.812	2.169
41	3016.67	65.056	17.444	3059.1	2995.45	6.48	2.129
42	3140.11	48.725	16.167	3167.12	3061.03	21.457	7.017
43	3205.69	10.056	53.582	3331.07	3169.04	52.807	30.683
44	3387	94.736	4.94	3419.79	3350.35	0.726	0.635

Comment;

Mn (II) Tyr

Resolution;
Apodization;
User; Kimia Terpadu

Lampiran 12. Hasil spektrum FT-IR Kompleks Fe(II) tirosin



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	322.11	83.524	16.383	337.54	300.9	1.446	1.433
2	352.97	97.168	2.499	360.69	343.33	0.123	0.101
3	379.98	73.535	25.994	405.05	360.69	2.544	2.456
4	433.98	87.874	11.829	472.56	406.98	1.326	1.242
5	493.78	93.682	6.03	509.21	474.49	0.456	0.413
6	530.42	71.994	27.854	555.5	509.21	2.921	2.892
7	576.72	76.051	24.076	594.08	557.43	1.997	2.015
8	650.01	78.357	17.461	694.37	630.72	2.488	1.618
9	711.73	97.139	2.646	723.31	694.37	0.184	0.156
10	740.67	89.436	10.603	759.95	723.31	0.787	0.796
11	800.46	78.548	13.105	819.75	759.95	3.158	1.545
12	840.96	68.982	24.83	860.25	821.68	3.551	2.392
13	877.61	86.318	9.396	893.04	862.18	1.259	0.695
14	985.62	93.18	6.491	1002.98	964.41	0.569	0.51
15	1043.49	90.403	9.185	1058.92	1026.13	0.701	0.642
16	1099.43	80.417	19.122	1124.5	1060.85	3.051	2.926
17	1155.36	82.442	17.036	1193.94	1126.43	2.758	2.6
18	1244.09	48.462	50.88	1288.45	1224.8	6.715	6.56
19	1328.95	49.14	50.774	1346.31	1290.38	5.664	5.631
20	1365.6	63.536	36.322	1394.53	1348.24	4.31	4.258
21	1417.68	77.064	11.657	1429.25	1396.46	2.293	0.999
22	1454.33	70.723	18.993	1489.05	1431.18	4.651	2.257
23	1514.12	58.713	40.957	1537.27	1490.97	4.658	4.593
24	1589.34	27.774	16.121	1598.99	1539.2	14.479	2.137
25	1610.56	29.192	11.136	1695.43	1600.92	17.405	1.444
26	1751.36	98.324	1.408	1768.72	1730.15	0.161	0.113
27	1901.81	97.01	2.247	1919.17	1882.52	0.283	0.165
28	2081.19	92.117	7.757	2152.56	1990.54	2.205	2.131
29	2372.44	95.91	4.01	2397.52	2353.16	0.369	0.356
30	2480.46	95.607	3.889	2530.61	2447.67	0.858	0.676
31	2596.19	88.288	9.003	2627.05	2530.61	2.69	1.798
32	2646.34	92.322	5.336	2667.55	2628.98	0.842	0.469
33	2744.71	92.047	3.777	2789.07	2717.7	1.784	0.678

Date/Time; 10/18/2021 3:01:09 PM
No. of Scans;

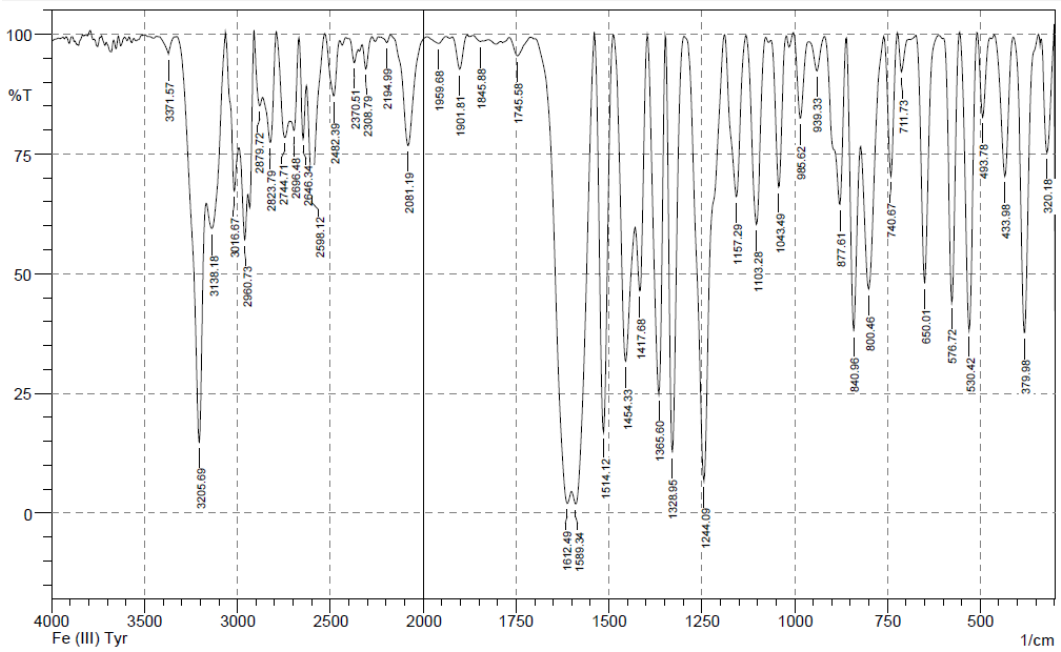
34	2821.86	92.35	5.847	2862.36	2791	1.561	0.92
35	2960.73	85.063	5.154	2991.59	2945.3	2.433	0.5
36	3016.67	89.441	6.049	3062.96	2993.52	1.854	0.791
37	3126.61	93.15	7.151	3169.04	3064.89	1.812	1.947
38	3207.62	63.15	37.102	3304.06	3170.97	8.355	8.407
39	3462.22	90.974	4.73	3520.09	3325.28	4.828	2.112

Comment;

Fe (II) Tyr

Resolution;
Apodization;
User; Kimia Terpadu

Lampiran 13. Hasil spektrum FT-IR Kompleks Fe(III) Tirosin



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	320.18	75.226	23.726	335.61	302.82	2.258	2.106
2	379.98	37.687	61.889	410.84	345.26	8.519	8.403
3	433.98	70.328	29.126	460.99	412.77	3.248	3.137
4	493.78	82.683	17.144	507.28	474.49	1.278	1.237
5	530.42	38.154	62.271	555.5	509.21	7.874	7.96
6	576.72	43.994	55.653	597.93	557.43	5.98	5.917
7	650.01	47.942	51.842	673.16	613.36	6.208	6.151
8	711.73	92.144	7.548	723.31	696.3	0.497	0.448
9	740.67	70.388	29.341	758.02	723.31	2.425	2.389
10	800.46	46.811	37.653	821.68	759.95	9.699	6.171
11	840.96	37.955	49.187	860.25	823.6	8.303	5.975
12	877.61	64.485	34.688	918.12	862.18	5.424	5.24
13	939.33	92.364	6.698	962.48	920.05	0.708	0.525
14	985.62	82.504	17.045	1002.98	962.48	1.536	1.424
15	1043.49	68.075	31.087	1062.78	1022.27	2.956	2.816
16	1103.28	60.311	39.269	1130.29	1078.21	5.108	5.012
17	1157.29	66.097	33.652	1188.15	1132.21	4.945	4.886
18	1244.09	6.662	92.973	1296.16	1190.08	30.384	30.217
19	1328.95	12.601	86.655	1346.31	1298.09	14.543	14.406
20	1365.6	24.813	74.687	1394.53	1348.24	12.602	12.482
21	1417.68	46.415	27.432	1429.25	1396.46	6.396	2.948
22	1454.33	31.699	44.362	1487.12	1431.18	14.746	8.176
23	1514.12	16.887	82.596	1537.27	1489.05	14.105	14.003
24	1589.34	1.889	18.017	1598.99	1539.2	42.276	7.381
25	1612.49	1.988	13.862	1697.36	1600.92	50.842	6.021
26	1745.58	95.503	3.856	1768.72	1710.86	0.626	0.464
27	1845.88	98.522	0.361	1867.09	1840.09	0.114	0.021
28	1901.81	92.713	6.92	1921.1	1880.6	0.615	0.552
29	1959.68	98.096	1.446	1990.54	1938.46	0.267	0.163
30	2081.19	76.732	22.968	2173.78	1990.54	7.395	7.156
31	2194.99	98.282	1.459	2229.71	2175.7	0.228	0.151
32	2308.79	92.771	5.673	2328.08	2276	0.887	0.581
33	2370.51	94.073	3.65	2399.45	2351.23	0.772	0.338

Date/Time; 10/18/2021 2:44:54 PM
No. of Scans;

34	2482.39	87.136	12.159	2528.68	2449.6	2.438	2.231
35	2598.12	67.471	24.915	2627.05	2530.61	8.038	5.695
36	2646.34	78.13	15.545	2667.55	2628.98	2.587	1.513
37	2696.48	79.911	9.598	2717.7	2669.48	3.282	1.193
38	2744.71	78.447	10.055	2789.07	2719.63	4.908	1.847
39	2823.79	77.402	16.982	2864.29	2791	5.141	3.035
40	2879.72	85.058	6.017	2910.58	2866.22	2.254	0.91
41	2960.73	57.129	12.579	2991.59	2945.3	8.593	1.706
42	3016.67	67.217	16.965	3062.96	2993.52	6.87	2.669
43	3138.18	59.455	15.394	3167.12	3064.89	15.088	5.722
44	3205.69	14.803	57.995	3327.21	3169.04	40.05	25.135
45	3371.57	95.881	3.62	3419.79	3336.85	0.689	0.511

Comment;

Fe (III) Tyr

Resolution;
Apodization;
User; Kimia Terpadu

Lampiran 14. Hasil Analisa XRD Kompleks Mn(II) Tirosin

*** Basic Data Process ***

Group : Standard
Data : Albert50mg#Mn

Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	29	44.0576	2.05374	100	0.17190	858	8420
2	30	64.4179	1.44519	70	0.18880	600	6242
3	8	20.2200	4.38821	34	0.00000	293	0

Peak Data List

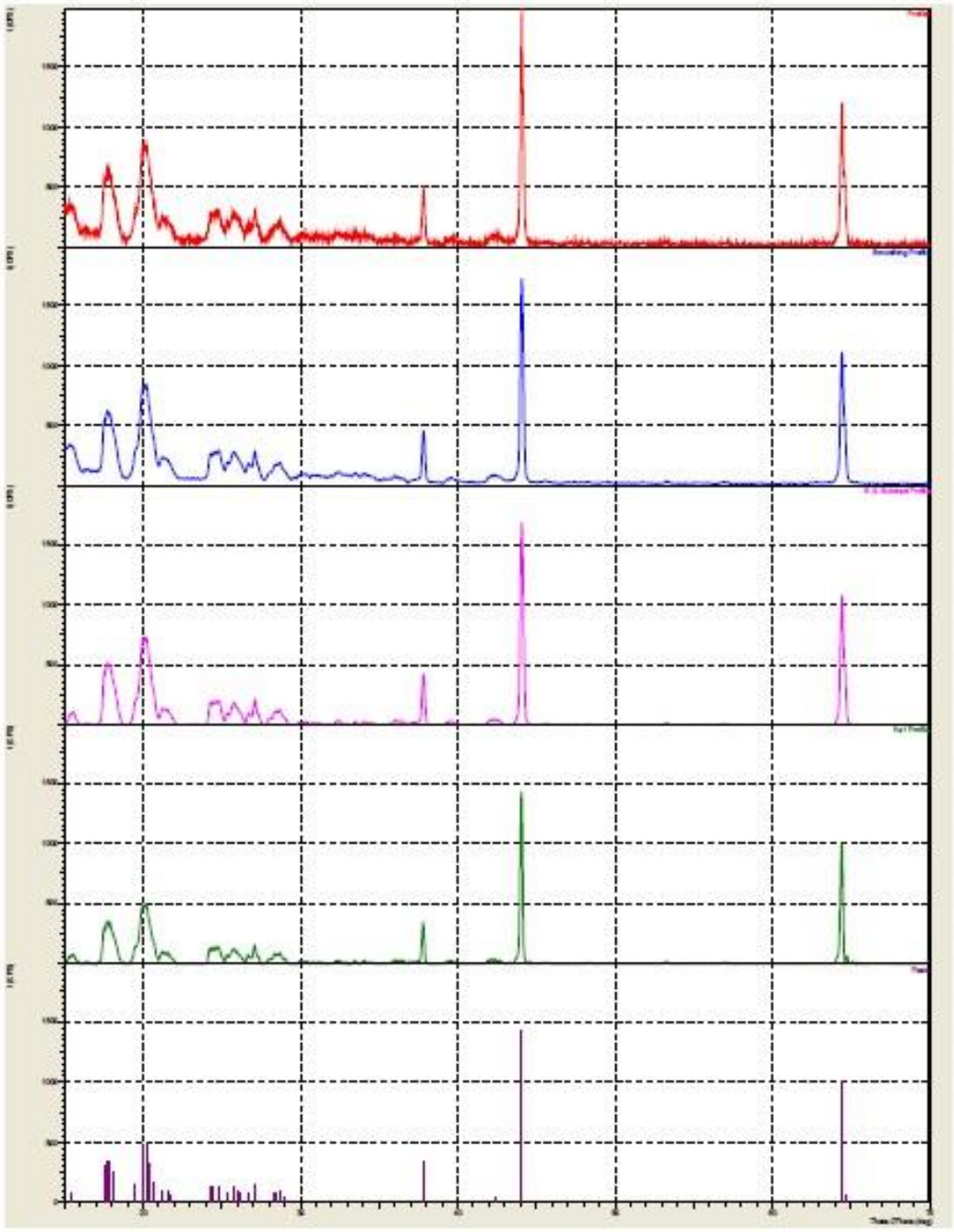
peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	15.4780	5.72030	5	0.46400	45	1205
2	17.5200	5.05792	21	0.21920	177	3321
3	17.7400	4.99568	24	0.00000	208	0
4	17.9000	4.95139	24	0.00000	204	0
5	18.0600	4.90788	18	0.59420	155	3802
6	19.5200	4.54397	10	0.27200	88	1412
7	19.9800	4.44038	34	0.44920	290	6723
8	20.2200	4.38821	34	0.00000	293	0
9	20.4600	4.33727	22	0.00000	188	0
10	20.7200	4.28343	11	0.21600	95	2367
11	21.2400	4.17972	7	0.40000	59	1453
12	21.5400	4.12218	6	0.00000	51	0
13	21.7400	4.08471	4	0.34660	38	835
14	24.2600	3.66582	9	0.23200	78	1381
15	24.5000	3.63045	9	0.00000	81	0
16	24.8000	3.58721	10	0.36000	82	1967
17	25.3400	3.51197	5	0.21340	44	460
18	25.7400	3.45830	9	0.48000	75	1610
19	25.9800	3.42689	7	0.00000	59	0
20	26.2000	3.39861	5	0.30000	42	859
21	26.6600	3.34101	5	0.17140	45	510
22	27.0970	3.28811	10	0.23800	90	1487
23	28.3200	3.14883	5	0.28000	46	858
24	28.4400	3.13582	6	0.00000	48	0
25	28.7000	3.10800	6	0.36000	53	875
26	28.9400	3.08277	3	0.40000	26	475
27	37.8061	2.37771	23	0.17810	200	2107
28	42.3625	2.13191	3	0.18500	26	738
29	44.0576	2.05374	100	0.17190	858	8420
30	64.4179	1.44519	70	0.18880	600	6242
31	64.7511	1.43856	4	0.13780	36	307

*** Basic Data Process ***

```
# Data Infomation
        Group               : Standard
        Data                : Albert50mg#Mn
        Sample Nmae         : serbuk
        Comment             :
        Date & Time         : 10-14-21 08:37:40

# Measurement Condition
   X-ray tube
        target              : Cu
        voltage             : 40.0 (kV)
        current             : 30.0 (mA)
   Slits
        Auto Slit           : Used
        divergence slit     :   1.00000 (deg)
        scatter slit        :   1.00000 (deg)
        receiving slit      :   0.30000(mm)
   Scanning
        drive axis          : Theta-2Theta
        scan range          :   15.0000 - 70.0000 (deg)
        scan mode           : Continuous Scan
        scan speed          :    2.0000 (deg/min)
        sampling pitch      :    0.0200 (deg)
        preset time         :    0.60 (sec)

# Data Process Condition
   Smoothing                [ AUTO ]
        smoothing points    : 13
   B.G.Subtruction          [ AUTO ]
        sampling points     : 13
        repeat times        : 30
   Ka1-a2 Separate          [ MANUAL ]
        Ka1 a2 ratio        : 50 (%)
   Peak Search              [ AUTO ]
        differential points : 11
        FWHM threhold       : 0.050 (deg)
        intensity threhold  : 30 (par mil)
        FWHM ratio  (n-1)/n : 2
   System error Correction  [ NO ]
   Precise peak Correction  [ NO ]
```



Lampiran 15. Hasil Analisa XRD Kompleks Fe(II) Tirosin

*** Basic Data Process ***

Group : Standard
Data : Albert80mg#Fe2

Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	85	44.0488	2.05413	100	0.16830	219	1963
2	113	64.4210	1.44513	81	0.19060	178	1900
3	7	17.7200	5.00128	59	0.27740	130	2157

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	15.3466	5.76898	5	0.13330	12	147
2	15.5400	5.69762	7	0.00000	15	0
3	15.7600	5.61858	9	0.00000	20	0
4	15.9400	5.55553	7	0.07200	16	185
5	16.1970	5.46796	7	0.13400	15	143
6	17.4000	5.09253	8	0.11200	17	158
7	17.7200	5.00128	59	0.27740	130	2157
8	17.9400	4.94044	47	0.00000	103	0
9	18.2800	4.84931	52	0.35000	114	2574
10	18.6200	4.76152	13	0.12660	28	318
11	19.5800	4.53018	14	0.30660	31	572
12	19.9400	4.44919	47	0.26500	102	1867
13	20.1800	4.39682	50	0.00000	109	0
14	20.3800	4.35412	48	0.00000	106	0
15	20.7200	4.28343	40	0.40880	88	2479
16	21.3400	4.16036	9	0.23000	19	267
17	21.5200	4.12597	9	0.00000	19	0
18	21.7200	4.08843	8	0.00000	18	0
19	21.8800	4.05889	11	0.28000	23	284
20	22.1400	4.01181	7	0.21340	15	215
21	23.5680	3.77186	7	0.13600	16	124
22	23.7686	3.74048	10	0.14860	21	158
23	24.2000	3.67477	6	0.12000	13	61
24	24.3200	3.65691	12	0.32000	27	239
25	24.5600	3.62171	10	0.30000	22	233
26	24.7800	3.59006	11	0.10000	24	89
27	24.9200	3.57020	11	0.29000	25	276
28	25.1600	3.53669	7	0.19420	16	162
29	25.6800	3.46624	5	0.07000	12	41
30	25.9200	3.43469	11	0.32000	25	365
31	26.2400	3.39352	11	0.26660	23	318
32	26.6400	3.34347	5	0.16000	11	114
33	26.7400	3.33119	5	0.00000	10	0
34	27.1200	3.28537	9	0.13340	20	179
35	27.3600	3.25710	13	0.36000	28	369
36	27.5600	3.23391	12	0.14000	27	177
37	28.3683	3.14358	8	0.20330	18	277
38	28.5800	3.12077	10	0.00000	21	0
39	28.8400	3.09323	18	0.32000	39	659
40	29.1000	3.06618	14	0.18000	31	317
41	29.4412	3.03142	11	0.12250	23	176
42	29.9241	2.98359	5	0.13830	12	75
43	30.2300	2.95409	5	0.32000	11	165
44	30.6000	2.91921	7	0.14660	15	143
45	30.7400	2.90623	5	0.00000	10	0
46	30.9200	2.88972	5	0.08000	10	102
47	31.2473	2.86019	3	0.07870	7	40
48	31.4600	2.84134	6	0.10000	13	87
49	32.2600	2.77268	6	0.07420	13	111

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
50	32.4200	2.75936	10	0.00000	21	0
51	32.6200	2.74290	6	0.00000	14	0
52	32.8200	2.72664	10	0.20000	22	224
53	32.9600	2.71538	10	0.18660	22	163
54	33.1716	2.69854	4	0.11670	9	62
55	33.5050	2.67244	4	0.11000	9	51
56	33.6550	2.66087	6	0.13000	13	80
57	33.8200	2.64827	6	0.16000	14	114
58	34.0300	2.63241	8	0.14000	18	124
59	34.2200	2.61822	6	0.12000	14	227
60	34.4400	2.60200	10	0.00000	21	0
61	34.6600	2.58599	6	0.16800	14	275
62	35.3658	2.53598	7	0.12170	15	123
63	35.9600	2.49542	8	0.12000	17	133
64	36.1600	2.48208	9	0.12000	20	116
65	36.3200	2.47151	13	0.26000	28	283
66	36.6800	2.44808	6	0.18000	13	133
67	36.9300	2.43208	14	0.18000	30	263
68	37.5100	2.39579	4	0.14000	8	82
69	37.7943	2.37842	20	0.18280	43	423
70	39.4000	2.28511	5	0.09600	11	68
71	39.5600	2.27624	5	0.20000	11	95
72	39.7400	2.26634	5	0.16000	11	93
73	39.9916	2.25266	9	0.15670	20	168
74	40.2333	2.23968	4	0.06670	9	37
75	41.1000	2.19443	3	0.12000	7	70
76	42.1000	2.14459	8	0.12000	18	208
77	42.2600	2.13684	8	0.00000	18	0
78	42.4800	2.12628	16	0.18000	34	355
79	42.6900	2.11631	16	0.22000	35	379
80	42.8800	2.10737	9	0.00000	19	0
81	43.1000	2.09712	7	0.12000	16	235
82	43.3725	2.08457	3	0.05500	7	31
83	43.6016	2.07415	3	0.06330	7	31
84	43.7800	2.06611	7	0.10400	15	135
85	44.0488	2.05413	100	0.16830	219	1963
86	44.3000	2.04306	4	0.04000	9	54
87	45.1800	2.00529	3	0.08000	7	58
88	45.5600	1.98944	5	0.16000	12	101
89	45.7600	1.98121	7	0.20000	16	141
90	46.0000	1.97143	5	0.16000	10	81
91	46.1866	1.96390	5	0.13330	10	54
92	46.4050	1.95517	4	0.15000	8	71
93	47.0700	1.92908	5	0.14000	10	105
94	47.5933	1.90908	7	0.17330	16	178
95	48.5250	1.87458	7	0.19000	16	171
96	48.8040	1.86452	9	0.15200	20	151
97	49.0553	1.85555	4	0.13730	8	62
98	49.9691	1.82374	7	0.15170	16	164
99	51.0200	1.78861	3	0.08000	7	38
100	53.2800	1.71795	4	0.12000	8	76
101	53.5550	1.70978	3	0.17000	7	73
102	53.8900	1.69993	3	0.18000	7	112
103	55.7500	1.64754	4	0.16000	8	108
104	56.4663	1.62833	10	0.13930	21	156
105	56.8300	1.61877	4	0.18000	8	66
106	57.0600	1.61279	5	0.24000	10	78
107	57.2800	1.60712	4	0.30000	9	154
108	58.3166	1.58100	4	0.15330	8	76
109	61.6600	1.50305	3	0.08000	7	42
110	61.9525	1.49665	5	0.15500	10	104
111	62.8266	1.47791	3	0.09330	7	57

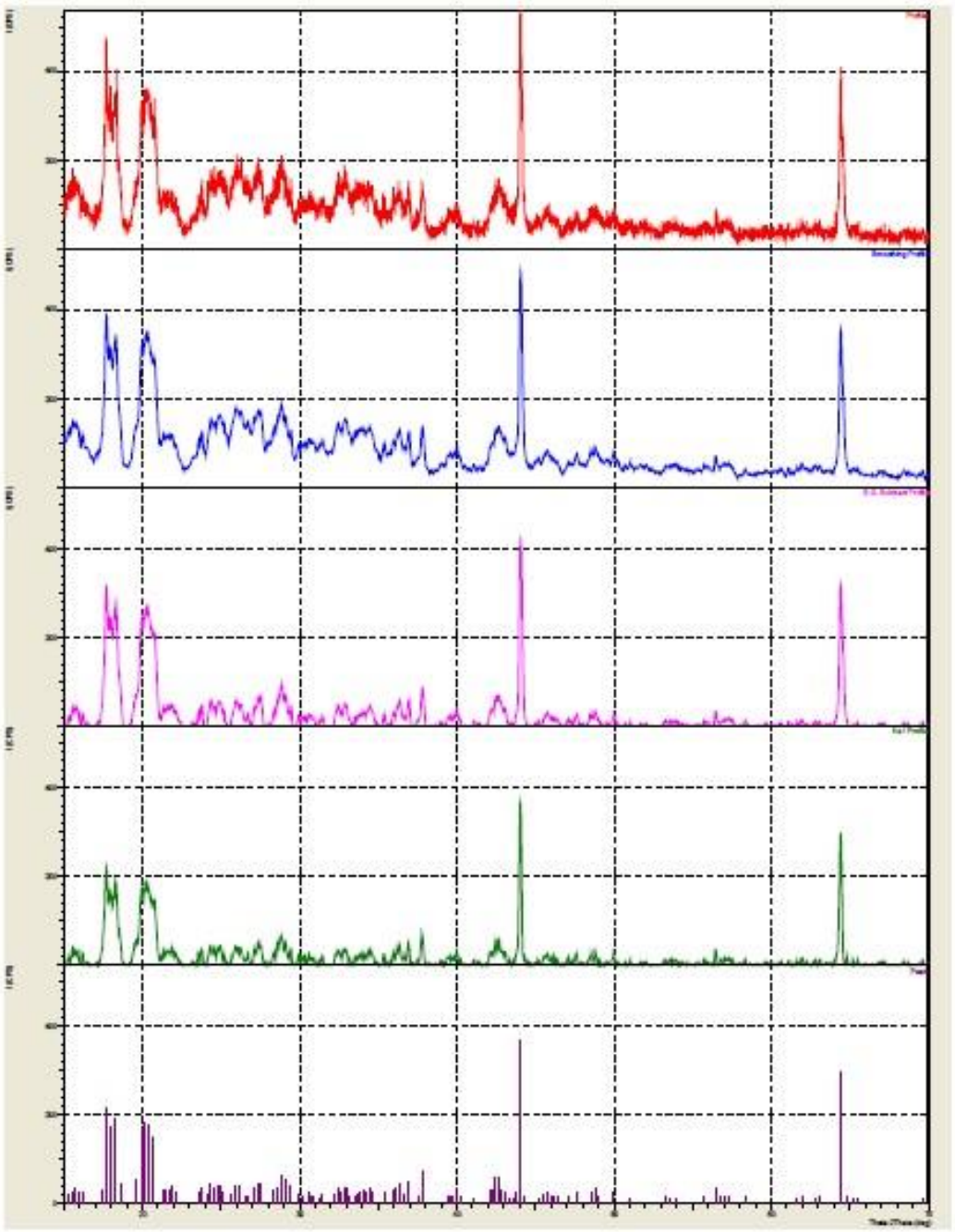
peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
112	63.1000	1.47217	4	0.12000	8	55
113	64.4210	1.44513	81	0.19060	178	1900
114	64.8275	1.43705	5	0.07500	11	49
115	65.2090	1.42956	3	0.08200	7	36
116	65.4900	1.42411	3	0.08000	7	36
117	69.6350	1.34912	3	0.09000	7	42

```
        ***  Basic Data Process  ***

# Data Infomation
          Group                : Standard
          Data                 : Albert80mg#Fe2
          Sample Nmae          : serbuk
          Comment              :
          Date & Time          : 10-14-21 08:06:49

# Measurement Condition
    X-ray tube
          target               : Cu
          voltage              : 40.0 (kV)
          current              : 30.0 (mA)
    Slits
          Auto Slit            : Used
          divergence slit      :   1.00000 (deg)
          scatter slit         :   1.00000 (deg)
          receiving slit       :   0.30000(mm)
    Scanning
          drive axis           : Theta-2Theta
          scan range           :   15.0000 - 70.0000 (deg)
          scan mode            : Continuous Scan
          scan speed           :    2.0000 (deg/min)
          sampling pitch       :    0.0200 (deg)
          preset time          :    0.60 (sec)

# Data Process Condition
    Smoothing                  [ AUTO ]
          smoothing points     : 13
    B.G.Subtruction            [ AUTO ]
          sampling points      : 13
          repeat times         : 30
    Ka1-a2 Separate            [ MANUAL ]
          Ka1 a2 ratio         : 50 (%)
    Peak Search                [ AUTO ]
          differential points  : 9
          FWHM threhold        : 0.050 (deg)
          intensity threhold   : 30 (par mil)
          FWHM ratio  (n-1)/n  : 2
    System error Correction    [ NO ]
    Precise peak Correction    [ NO ]
```



Lampiran 16. Hasil Analisa XRD Kompleks Fe(III) Tirosin

*** Basic Data Process ***

Group : Standard
Data : Albert51mg#Fe2

Strongest 3 peaks

no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	47	44.0580	2.05372	100	0.15710	855	7229
2	49	64.4223	1.44510	67	0.17970	572	5792
3	9	20.0582	4.42324	42	0.46210	359	8573

Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	15.5094	5.70879	4	0.23890	31	444
2	16.3571	5.41480	4	0.14980	32	324
3	17.5800	5.04079	33	0.29160	283	4086
4	17.7200	5.00128	26	0.00000	222	0
5	17.9000	4.95139	17	0.00000	148	0
6	18.0800	4.90250	12	0.35000	104	1642
7	18.2800	4.84931	5	0.21600	47	552
8	19.6200	4.52103	17	0.43300	142	2980
9	20.0582	4.42324	42	0.46210	359	8573
10	20.5800	4.31225	9	0.00000	81	0
11	20.7600	4.27527	6	0.20000	54	943
12	21.3400	4.16036	8	0.44000	66	1188
13	21.5800	4.11463	4	0.20000	32	411
14	24.2600	3.66582	13	0.23300	115	1721
15	24.4000	3.64510	16	0.00000	136	0
16	24.6800	3.60438	10	0.42660	85	2139
17	24.9800	3.56176	5	0.13000	43	343
18	25.4000	3.50381	9	0.28000	74	2077
19	25.7800	3.45302	12	0.00000	100	0
20	25.9600	3.42949	10	0.00000	83	0
21	26.1400	3.40628	5	0.22400	44	859
22	26.7200	3.33364	9	0.16400	79	996
23	26.8800	3.31416	9	0.00000	75	0
24	27.0800	3.29013	6	0.15120	53	784
25	27.2600	3.26882	3	0.14860	28	316
26	28.0200	3.18186	5	0.20580	46	491
27	28.3200	3.14883	9	0.30000	73	1246
28	28.5000	3.12935	10	0.00000	89	0
29	28.7000	3.10800	8	0.00000	65	0
30	28.8600	3.09113	5	0.18000	45	842
31	30.0543	2.97096	3	0.35530	27	892
32	32.2800	2.77101	4	0.17600	34	227
33	32.4000	2.76102	4	0.18400	37	245
34	32.5800	2.74618	3	0.14220	27	201
35	34.1200	2.62567	4	0.16000	37	372
36	34.3000	2.61230	4	0.15000	32	282
37	35.5720	2.52175	3	0.14400	26	287
38	36.1033	2.48585	3	0.38000	27	608
39	37.8008	2.37803	20	0.16350	172	1729
40	39.4445	2.28264	5	0.15760	39	461
41	39.6700	2.27018	4	0.18000	31	454
42	42.1000	2.14459	4	0.28000	38	800
43	42.3400	2.13299	6	0.00000	50	0
44	42.5000	2.12533	4	0.00000	37	0
45	42.7000	2.11584	4	0.24000	30	623
46	43.7200	2.06881	3	0.12000	28	332
47	44.0580	2.05372	100	0.15710	855	7229
48	44.2800	2.04394	3	0.06180	28	250
49	64.4223	1.44510	67	0.17970	572	5792

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
50	64.7114	1.43935	4	0.13710	35	386

```
        ***  Basic Data Process  ***

# Data Infomation
          Group                : Standard
          Data                 : Albert51mg#Pe2
          Sample Nmae          : serbuk
          Comment              :
          Date & Time          : 10-14-21 07:36:07

# Measurement Condition
    X-ray tube
          target               : Cu
          voltage              : 40.0 (kV)
          current              : 30.0 (mA)
    Slits
          Auto Slit            : Used
          divergence slit      :   1.00000 (deg)
          scatter slit         :   1.00000 (deg)
          receiving slit       :   0.30000(mm)
    Scanning
          drive axis           : Theta-2Theta
          scan range           :   15.0000 - 70.0000 (deg)
          scan mode            : Continuous Scan
          scan speed           :    2.0000 (deg/min)
          sampling pitch       :    0.0200 (deg)
          preset time          :    0.60 (sec)

# Data Process Condition
    Smoothing                  [ AUTO ]
          smoothing points     : 11
    B.G.Subtruction            [ AUTO ]
          sampling points      : 11
          repeat times         : 30
    Ka1-a2 Separate            [ MANUAL ]
          Ka1 a2 ratio         : 50 (%)
    Peak Search                [ AUTO ]
          differential points  : 9
          FWHM threhold        : 0.050 (deg)
          intensity threhold   : 30 (par mil)
          FWHM ratio  (n-1)/n  : 2
    System error Correction    [ NO ]
    Precise peak Correction    [ NO ]
```