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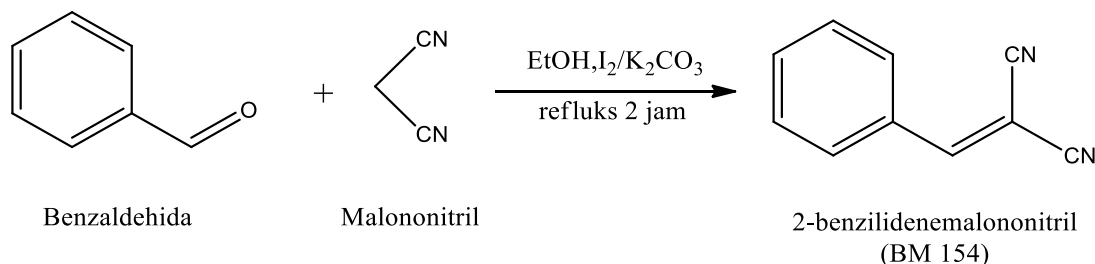
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LAMPIRAN

Lampiran 1

Perhitungan Rendemen Hasil Sintesis

A. Senyawa 1 (2-benzilidenemalononitril)



Mol reaksi: mol benzaldehida (BM 106) = 0,005 mol

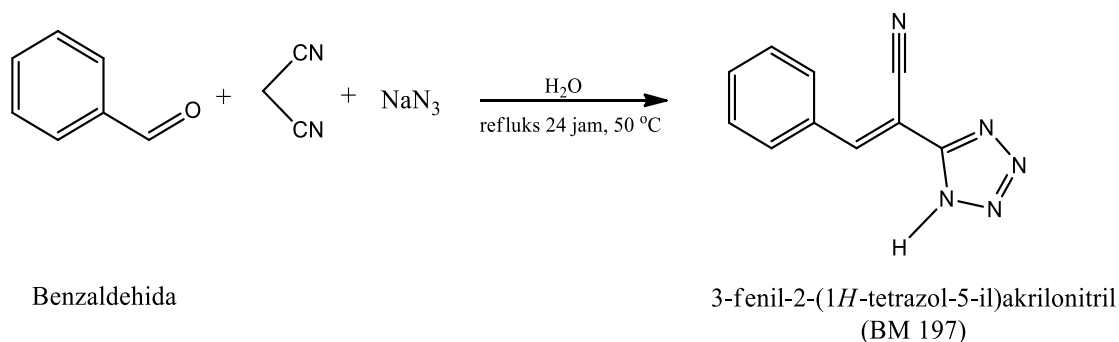
 mol malononitril (BM 66) = 0,01 mol

Massa secara teoritis: 0,005 mol × 154 g/mol = 0,77 g

Massa hasil eksperimen: 0,42 g

$$\begin{aligned} \text{Rendemen reaksi} &= \frac{\text{massa hasil eksperimen}}{\text{massa teoritis}} \times \text{kemurnian (dari GC)} \\ &= \frac{0,42 \text{ g}}{0,77 \text{ g}} \times 98,01\% \\ &= 53,46\% \end{aligned}$$

B. Senyawa 2 (3-fenil-2-(1H-tetrazol-5-il)akrilonitril)



Mol reaksi: mol benzaldehida (BM 106) = 0,001 mol

 mol malononitril (BM 66) = 0,001 mol

 mol NaN₃ (BM 65) = 0,002 mol

Massa secara teoritis: 0,001 mol × 197 g/mol = 0,197 g

Massa hasil eksperimen: 0,09 g

$$\begin{aligned} \text{Rendemen reaksi} &= \frac{\text{massa hasil eksperimen}}{\text{massa teoritis}} \times \text{kemurnian} \\ &= \frac{0,09 \text{ g}}{0,197 \text{ g}} \times 65,02\% \\ &= 29,7\% \end{aligned}$$

Lampiran 2

Perhitungan Limit Deteksi

A. Senyawa 2 (3-fenil-2-(1H-tetrazol-5-il)akrilonitril)

Tabel A1. Data absorbansi blanko senyawa 2 (1×10^{-4} M dalam aseton)

Blanko	Absorbansi ($\lambda = 300$ nm)
1	0,01
2	0
3	0,02
4	0,01
5	0,01
Standar deviasi	0,007071

Tabel A2. Data perbandingan absorbansi (A_{300}/A_{330}) dari senyawa 2 (1×10^{-4} M dalam aseton) dan konsentrasi F^- ($\times 10^{-4}$ M)

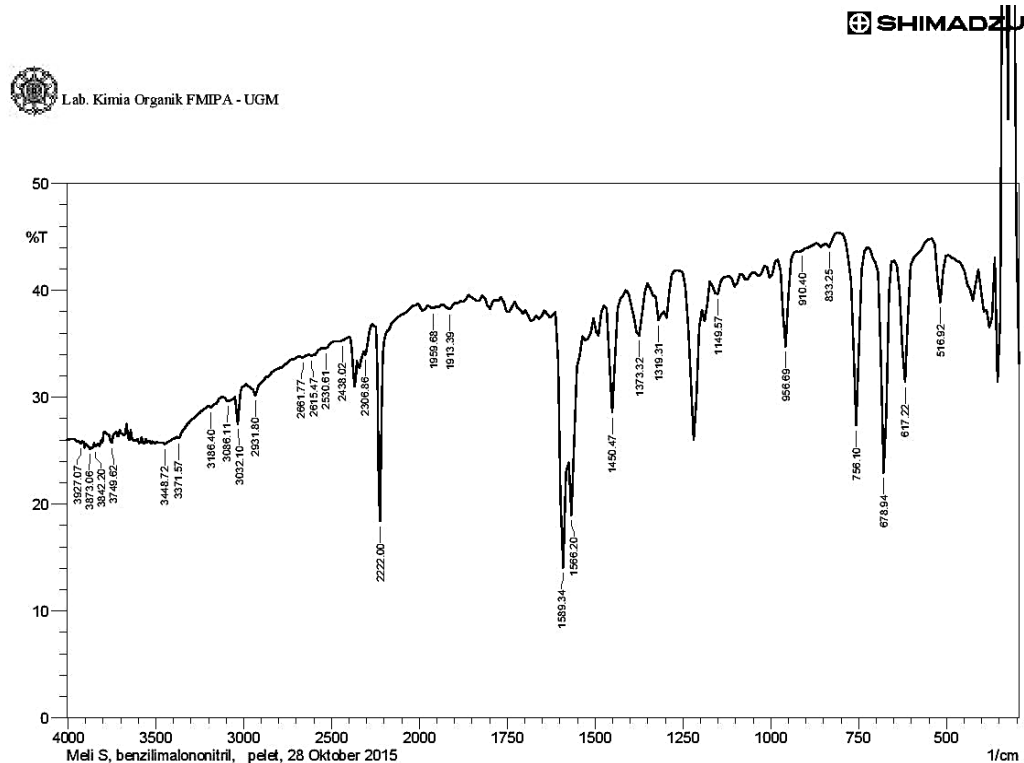
$[F^-] (\times 10^{-4} \text{ M})$	A_{330}	A_{300}	A_{300}/A_{330}
0	1.806	0.036	0.019934
1	2.421	0.184	0.076002
5	2.367	0.239	0.100972
10	2.277	0.184	0.080808
20	2.298	0.269	0.117058
40	2.223	0.94	0.422852
60	2.267	1.396	0.615792
80	2.267	1.622	0.715483
100	2.204	1.759	0.798094

Nilai slope dari persamaan $y = 0,0085x + 0,0169$ (Gambar IV.29) = 0,0085

$$\begin{aligned} \text{Limit deteksi senyawa 2 terhadap } F^- &= \frac{3 \times \text{standar deviasi}}{\text{slope}} \\ &= \frac{3 \times 0,007071}{0,0085} (\times 10^{-4} \text{ M}) \\ &= 2,49 \times 10^{-4} \text{ M} \end{aligned}$$

Lampiran 3

Spektra FTIR senyawa 1 hasil sintesis



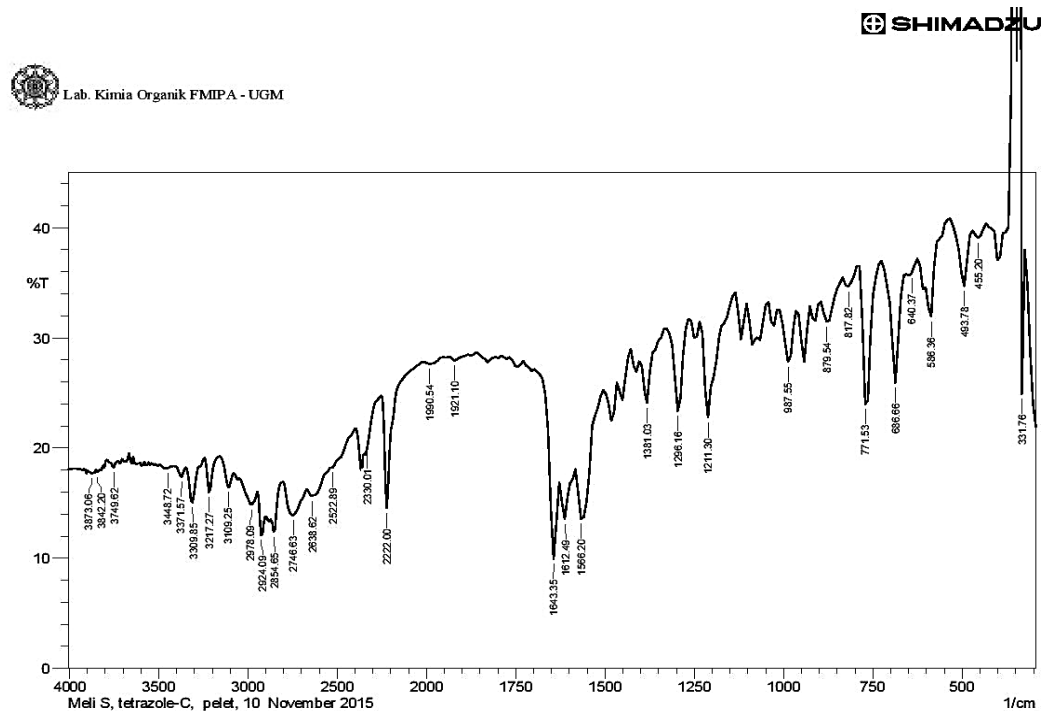
	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	324.04	55.973	31.38	339.47	316.33	2.99	1.628
2	516.92	38.877	5	540.07	501.49	14.624	0.82
3	617.22	31.439	11.927	648.08	540.07	41.583	2.949
4	678.94	22.911	20.203	717.52	655.8	27.349	4.841
5	756.1	27.37	17.155	802.39	725.23	31.202	4.142
6	833.25	44.059	0.56	840.96	810.1	10.754	0.06
7	910.4	43.564	0.142	918.12	871.82	16.477	0.007
8	956.69	34.74	8.442	979.84	933.55	18.45	1.594
9	1149.57	39.645	1.075	1165	1118.71	18.089	0.163
10	1319.31	37.191	3.939	1350.17	1273.02	31.344	1.714
11	1373.32	35.78	4.46	1404.18	1350.17	22.722	1.369
12	1450.47	28.584	10.145	1465.9	1411.89	24.085	2.134
13	1566.2	18.946	7.299	1573.91	1535.34	20.907	1.306
14	1589.34	14.043	12.655	1612.49	1581.63	20.51	3.31
15	1913.39	38.229	0.603	1928.82	1859.38	28.542	0.26
16	1959.68	38.323	0.294	1975.11	1936.53	16.011	0.077
17	2222	18.404	18.362	2245.14	2013.68	104.75	6.53
18	2306.86	33.968	0.736	2314.58	2268.29	20.846	0.181
19	2438.02	35.21	0.075	2445.74	2399.45	20.835	0.002
20	2530.61	34.562	0.19	2546.04	2484.32	28.237	0.055
21	2615.47	33.897	0.131	2623.19	2546.04	35.916	0.091
22	2661.77	33.711	0.138	2677.2	2630.91	21.783	0.035
23	2931.8	30.157	1.381	2978.09	2684.91	144.205	1.005
24	3032.1	27.494	2.807	3047.53	2985.81	32.303	0.653
25	3086.11	29.651	0.319	3116.97	3055.24	32.469	0.165
26	3186.4	29.053	0.312	3201.83	3124.68	40.936	0.2
27	3371.57	26.157	0.256	3379.29	3201.83	98.479	0.071
28	3448.72	25.598	0.276	3471.87	3387	49.815	0.157
29	3749.62	25.752	0.918	3788.19	3734.19	31.314	0.332
30	3842.2	25.383	0.454	3849.92	3795.91	31.817	0.455

Comment:

Meli S, benzilimalononitril, pelet, 28 Oktober 2015

Lampiran 4

Spektra FTIR senyawa 2 hasil sintesis



	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	331.76	24.92	68.41	339.47	324.04	7.9	3.7
2	455.2	39.08	0.92	470.63	432.05	15.52	0.22
3	493.78	34.67	5.07	532.35	478.35	22.88	1.35
4	586.36	31.95	6.26	617.22	540.07	33.61	1.87
5	640.37	35.67	0.5	648.08	624.94	10.12	0.03
6	686.66	25.91	10.24	725.23	663.51	30.44	3.23
7	771.53	23.97	12.55	786.96	732.95	27.91	4.31
8	817.82	34.63	1.26	833.25	794.67	17.44	0.36
9	879.54	31.48	2.3	894.97	840.96	26.02	0.9
10	987.55	27.81	4.68	1010.7	964.41	24.19	1.58
11	1211.3	22.75	8.24	1226.73	1141.86	45.88	4.11
12	1296.16	23.34	7.95	1327.03	1265.3	34.19	3.09
13	1381.03	24.07	4.17	1396.46	1334.74	34.2	1.25
14	1566.2	13.56	5.96	1581.63	1504.48	55.76	4.67
15	1612.49	13.53	3.47	1627.92	1589.34	31.17	1.54
16	1643.35	9.93	9.46	1689.64	1627.92	45.62	4.25
17	1921.1	27.94	0.36	1936.53	1890.24	25.47	0.1
18	1990.54	27.61	0.33	2005.97	1959.68	25.73	0.16
19	2222	14.55	10.29	2245.14	2013.68	141.47	7.15
20	2330.01	19.39	0.49	2337.72	2252.86	54.07	0
21	2522.89	18.2	0.21	2530.61	2399.45	91.95	0.37
22	2638.62	15.62	0.89	2661.77	2538.32	96.09	1.68
23	2746.63	13.9	2.73	2800.64	2669.48	108.42	5.98
24	2854.65	12.37	1.36	2862.36	2808.36	44.6	0.8
25	2924.09	12.09	2.7	2939.52	2900.94	34.22	1.8
26	2978.09	14.86	1.53	3039.81	2947.23	74.7	2.32
27	3109.25	16.44	1.88	3155.54	3078.39	58.31	1.55
28	3217.27	16	3.15	3240.41	3163.26	57.59	2.24
29	3309.85	15.05	3.15	3348.42	3278.99	54.19	2.81
30	3371.57	17.39	0.77	3410.15	3356.14	40.41	0.45

Comment;

Meli S, tetrazole-C, pelet, 10 November 2015

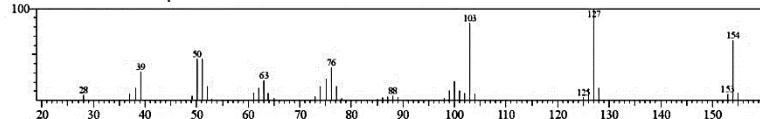
Lampiran 5

Data library MS dari senyawa 1 hasil sintesis

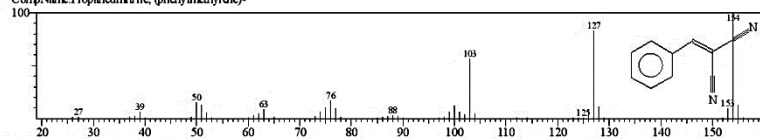
Library

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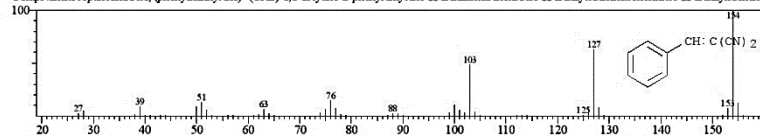
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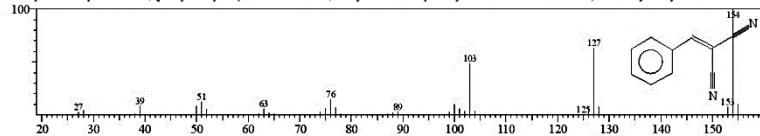
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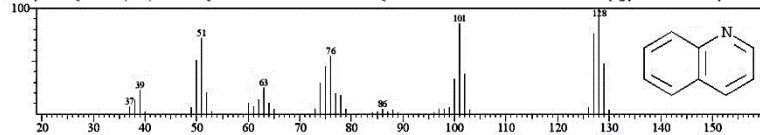
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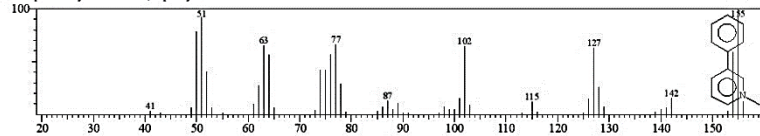
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CompName: Quinoline (CAS) B 500 \$\$ QUINOLINE \$\$ Leukol \$\$ Leukol \$\$ Quinolin \$\$ 1-Benzine \$\$ 1-Benzazine \$\$ Benzobipyridine \$\$ 1-Azaphthalene \$\$ Benzopyridine \$\$



Hit# 5 Entry: 15342 Library: NIST62.LIB
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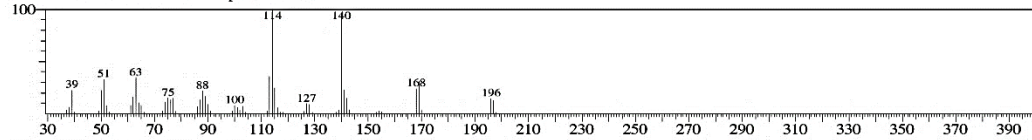


Lampiran 6

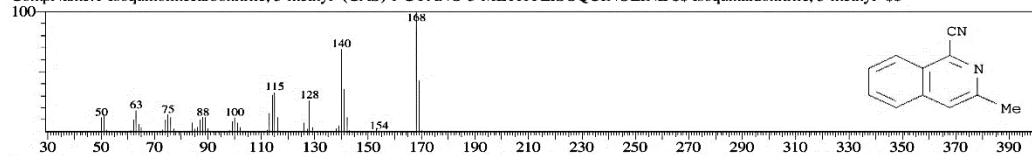
Data library MS dari senyawa 2 hasil sintesis

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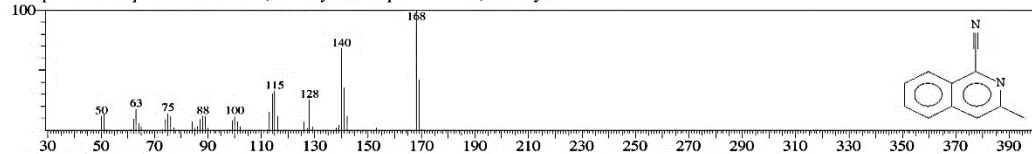
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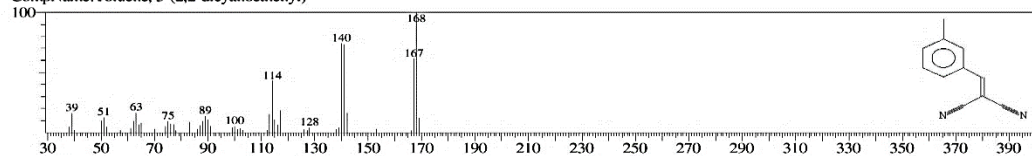
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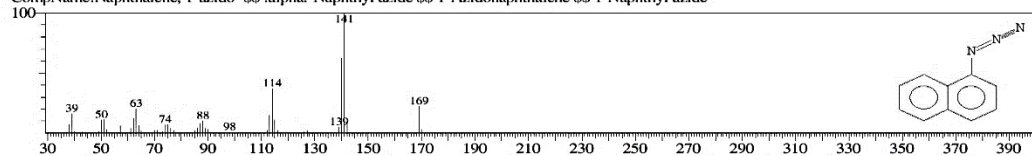
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Hit#: 3 Entry: 14640 Library: NIST62.LIB
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CompName: Toluene, 3-(2,2-dicyanoethyl)



Hit#: 4 Entry: 14919 Library: NIST62.LIB
SI: 74 Formula: C₁₀H₇N₃ CAS: 6921-40-0 MolWeight: 169 RetIndex: 0
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Hit#: 5 Entry: 42606 Library: WILEY229.LIB
SI: 72 Formula: C₁₀H₇N₃ CAS: 6921-40-0 MolWeight: 169 RetIndex: 0
CompName: Naphthalene, 1-azido- (CAS) 1-NAPHTHYLAZIDE \$\$ 1-Naphthyl azide \$\$.alpha.-Naphthyl azide \$\$

