LAMPIRAN A

CONTOH PERHITUNGAN PERSENTASE HASIL SINTESIS

I. Perhitungan berat teoritis

a. Ammonium tiosianat (BM : 76,12 g/mol)

Penimbangan : 1,14 gram

mmol ammonium tiosianat : $\frac{1{,}14}{76{,}12} \times 1000 = 14{,}98 \text{ mmol} \cong 15 \text{ mmol}$

b. 2-klorobenzoil klorida (BM : 175,01 g/mol, berat jenis : 1,378 g/cm^3)

Volume : 1,3 ml

mmol 2-klorobenzoil klorida : $\frac{1{,}3 x 1{,}378}{175{,}01} \times 1000 = 10{,}2 \text{ mmol} \cong 10 \text{ mmol}$

c. Amonia (BM : 35,05 g/mol, berat jenis : 0,91 g/cm^3)

Volume : 1,15 ml

mmol amonia : $\frac{1{,}15 \times 0{,}91}{35{,}05} \times 1000 = 30 \text{ mmol}$

II. Perhitungan persentase hasil sintesis berdasarkan mmol teoritis

Persentase hasil N-2-klorobenzoiltiourea :

ammonium tiosianat + 2-klorobenzoil klorida ⟶ 2-klorobenzo-ilisotiosianat + NH_4Cl

awal	15 mmol	10 mmol	0	0	
reaksi	10 mmol	10 mmol -	10 mmol	10 mmol	+
sisa	5 mmol	0	10 mmol	10 mmol	

2-klorobenzoilisotiosianat + amonia ⟶ N-2-klorobenzoiltiourea

awal	10 mmol	30 mmol	0	
reaksi	10 mmol	10 mmol -	10 mmol	+
sisa	0	20 mmol	10 mmol	

BM teoritis = 210,5

Massa teoritis = 10 mmol x 210,5 = 2,10 gram

Massa praktis = 1,22 gram

% hasil = $\frac{1,22}{2,10}$ x 100% = 58,09 % ≈ 58 %

LAMPIRAN B

UJI ANOVA 1

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	82.667	2	41.333	74.400	.000
Within Groups	3.333	6	.556		
Total	86.000	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hasil
Tukey HSD

(I) senyawa	(J) senyawa	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound
1	2	-7.333(*)	.609	.000	-9.20	-5.47
	3	-4.667(*)	.609	.001	-6.53	-2.80
2	1	7.333(*)	.609	.000	5.47	9.20
	3	2.667(*)	.609	.011	.80	4.53
3	1	4.667(*)	.609	.001	2.80	6.53
	2	-2.667(*)	.609	.011	-4.53	-.80

* The mean difference is significant at the .05 level.

Homogeneous Subsets

Hasil

Tukey HSD

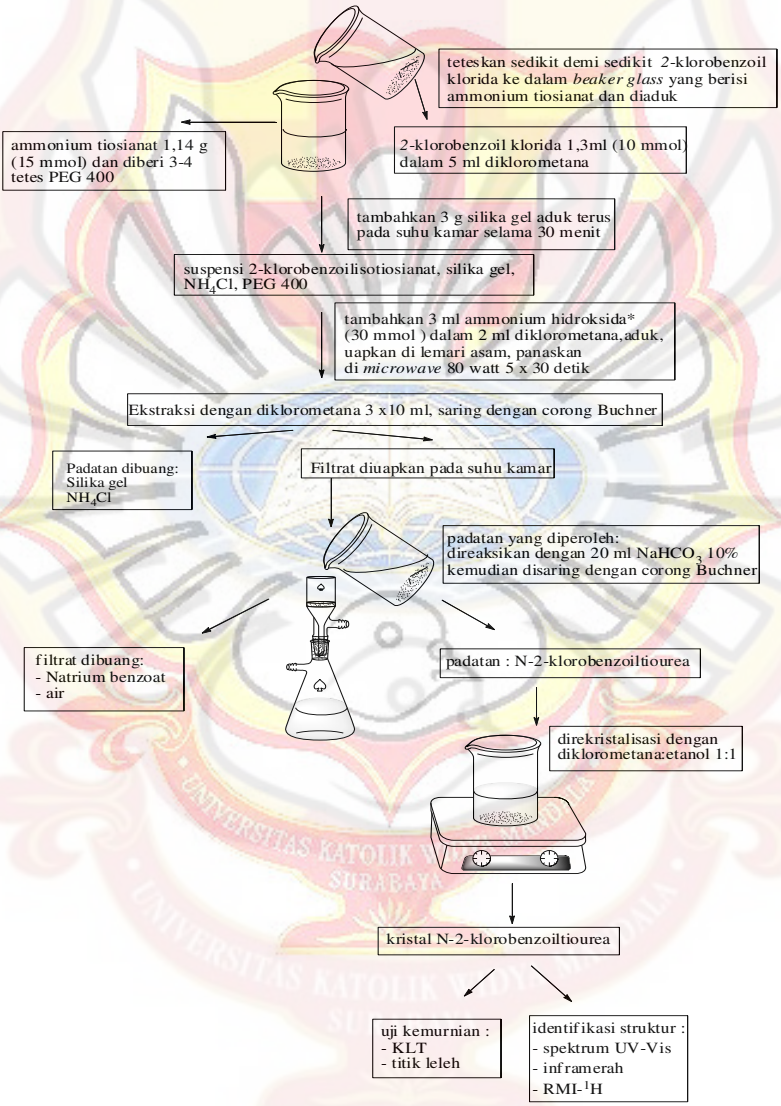
	N	Subset for alpha = .05		
senyawa	1	2	3	1
1	3	57.00		
3	3		61.67	
2	3			64.33
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 3.000.

LAMPIRAN C

SKEMA KERJA SINTESIS TURUNAN N-2-KLORO BENZOILTIOUREA



Keterangan *:

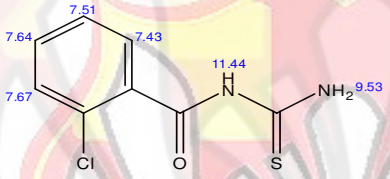
Sintesis 2-kloro-N-(piperidin-1-karbonotiol)benzamida : 2.32 ml (30 mmol) Piperidin.

Sintesis 2-kloro-N-(piperazin-1-karbonotiol)benzamida : 2.58 g (30 mmol) Piperazin.

LAMPIRAN D

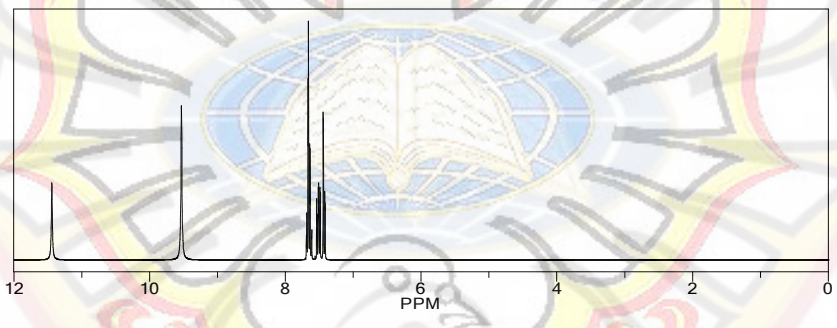
ESTIMASI RMI-^{1}H SENYAWA N-2-KLOROBENZOILTIOUREA

ChemNMR ^{1}H Estimation



n-2-chlorobenzoylthiourea

Estimation quality is indicated by color: good, medium, rough

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Protocol of the H-1 NMR Prediction:

Node      Shift     Base + Inc.    Comment (ppm rel. to TMS)

NH   11.44              8.00       sec. amide
                          3.44        general corrections
NH2  9.53              2.00       amine
                          7.53        general corrections
CH   7.67              7.26       1-benzene
                          0.01        1 -Cl
                          0.18        1 -C(=O)N
                          0.22        general corrections
CH   7.43              7.26       1-benzene
                         -0.06        1 -Cl
                          0.69        1 -C(=O)N
                         -0.46        general corrections
CH   7.64              7.26       1-benzene
                         -0.06        1 -Cl
                          0.25        1 -C(=O)N
                          0.19        general corrections
CH   7.51              7.26       1-benzene
                         -0.12        1 -Cl
                          0.18        1 -C(=O)N
                          0.19        general corrections
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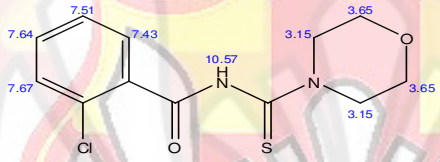
LAMPIRAN E

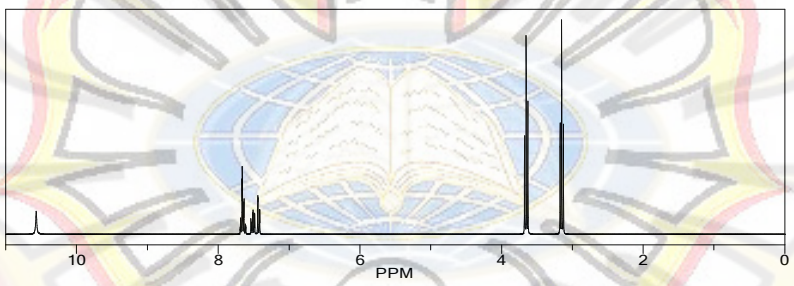
ESTIMASI RMI-^{1}H SENYAWA 2-KLORO-N-(MORFOLIN-4-KARBONOTIOL)BENZAMIDA

ChemNMR ^{1}H Estimation



2-chloro-n-(morpholine-4-carbonothioyl)benzamide

Estimation quality is indicated by color: good, medium, rough



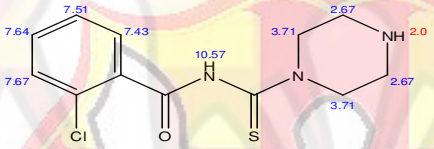
Protocol of the H-1 NMR Prediction:

Node	Shift	Base + Inc.	Comment (ppm rel. to TMS)
NH	10.57	8.00	sec. amide
		2.57	general corrections
CH2	3.65	3.67	tetrahydro-1,4-oxazine
		-0.02	general corrections
CH2	3.65	3.67	tetrahydro-1,4-oxazine
		-0.02	general corrections
CH2	3.15	2.87	tetrahydro-1,4-oxazine
		?	1 -R from N-CHx
		0.28	general corrections
CH2	3.15	2.87	tetrahydro-1,4-oxazine
		?	1 -R from N-CHx
		0.28	general corrections
CH	7.67	7.26	1-benzene
		0.01	1 -Cl
		0.18	1 -C(=O)N
		0.22	general corrections
CH	7.43	7.26	1-benzene
		-0.06	1 -Cl
		0.69	1 -C(=O)N
		-0.46	general corrections
CH	7.64	7.26	1-benzene
		-0.06	1 -Cl
		0.25	1 -C(=O)N
		0.19	general corrections
CH	7.51	7.26	1-benzene
		-0.12	1 -Cl
		0.18	1 -C(=O)N
		0.19	general corrections

LAMPIRAN F

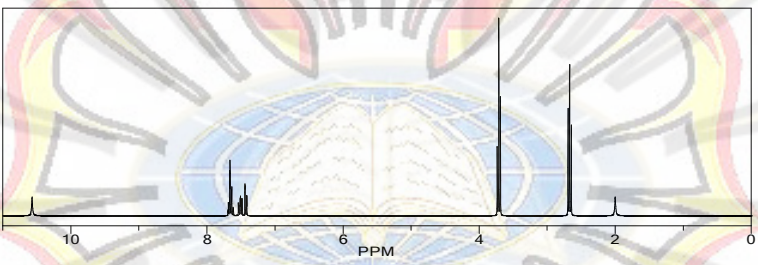
ESTIMASI RMI-^{1}H SENYAWA 2-KLORO-N-(PIPERAZIN-1-KARBONOTIOL)BENZAMIDA

ChemNMR ^{1}H Estimation



2-chloro-n-(piperazine--1-carbonothioyl)benzamide

Estimation quality is indicated by color: good, medium, rough



Protocol of the H-1 NMR Prediction:

Node	Shift	Base + Inc.	Comment (ppm rel. to TMS)
NH	2.0	2.00	amine
NH	10.57	8.00	sec. amide
		2.57	general corrections
CH2	3.71	1.37	methylene
		2.12	1 alpha -NC(=S)NR
		0.08	1 beta -N-C
		0.14	general corrections
CH2	3.71	1.37	methylene
		2.12	1 alpha -NC(=S)NR
		0.08	1 beta -N-C
		0.14	general corrections
CH2	2.67	1.37	methylene
		1.22	1 alpha -N-C
		0.08	1 beta -N-C
CH2	2.67	1.37	methylene
		1.22	1 alpha -N-C
		0.08	1 beta -N-C
CH	7.67	7.26	1-benzene
		0.01	1 -Cl
		0.18	1 -C(=O)N
		0.22	general corrections
CH	7.43	7.26	1-benzene
		-0.06	1 -Cl
		0.69	1 -C(=O)N
		-0.46	general corrections
CH	7.64	7.26	1-benzene
		-0.06	1 -Cl
		0.25	1 -C(=O)N
		0.19	general corrections
CH	7.51	7.26	1-benzene
		-0.12	1 -Cl
		0.18	1 -C(=O)N
		0.19	general corrections