



Lampiran 1. Perhitungan Hasil *Magnetic Susceptibility Balance* (MSB)

Data hasil pengamatan MSB Cu(II) ligan tetradentat salen

No	Senyawa	R ₀	R ₁	M ₀ (gram)	M ₁ (gram)	l (cm)	T (K)	C _{bal}	μ _{eff} (BM)
1.	Cu(II) Ligan Tetradentat salen	-36	85	0,7977	0,8930	2,8	290	1,1	-2,466

1. Hasil MSB Cu(II) ligan tetradentat salen

Nilai suseptibilitas massa (X_g) dihitung berdasarkan data hasil pengukuran.

$$\begin{aligned} X_g &= \frac{C_{bal} \times l \times (R_1 - R_0)}{10^9 \times (m_1 - m_0)} \\ &= \frac{1,1 \times 2,8 \times (85 - (-36))}{10^9 \times (0,893 - 0,7977)} \\ &= \frac{3,08 \times (121)}{10^9 \times (0,0953)} = \frac{372,68}{10^9 (0,0953)} \\ &= 3,911 \times 10^{-6} \end{aligned}$$

Nilai suseptibilitas molar (X_m) ditentukan dari hasil perhitungan nilai suseptibilitas massa (X_g)

$$\begin{aligned} X_m &= X_g \times M_{r_{CuL_4}} \\ &= 3,91 \times 10^{-6} \times 325,9 \\ &= 1,274 \times 10^{-3} \end{aligned}$$

Nilai momen magnet efektif (μ_{eff}) ditentukan dari hasil perhitungan nilai suseptibilitas molar (X_m)

$$\begin{aligned} \mu_{eff} \text{ (BM)} &= 2,83 \sqrt{[(X_m - \Delta) + T]} \\ &= 2,83 \times \sqrt{[(-1,006 \times 10^8) + 290]} \\ &= -2,466 \end{aligned}$$

Nilai momen magnet (μ) senyawa kompleks Cu(II) tetradentat salen dapat ditentukan dari jumlah elektron tidak berpasangan (n). Jumlah elektron tidak berpasangan (n) pada senyawa kompleks Cu(II) tetradentat dalen sebesar 1

$$\begin{aligned} \mu_{eff} \text{ (BM)} &= 2\sqrt{1/2(1/2 + 1)} \\ &= 1,5 \\ &= 2\sqrt{2} \\ &= 2,83 \\ &= \sqrt{0,75} \\ &= 1,73 \end{aligned}$$

Parameter	Data	Satuan
Mo	0,7977	gram
Ro	-36	-
Mi	0,893	gram
Ri	85	-
L	2,8	cm
T	16,85	⁰ C K = ⁰ C + 273.15
C _{bal}	1,1	-
Mr	325,9	g/mol

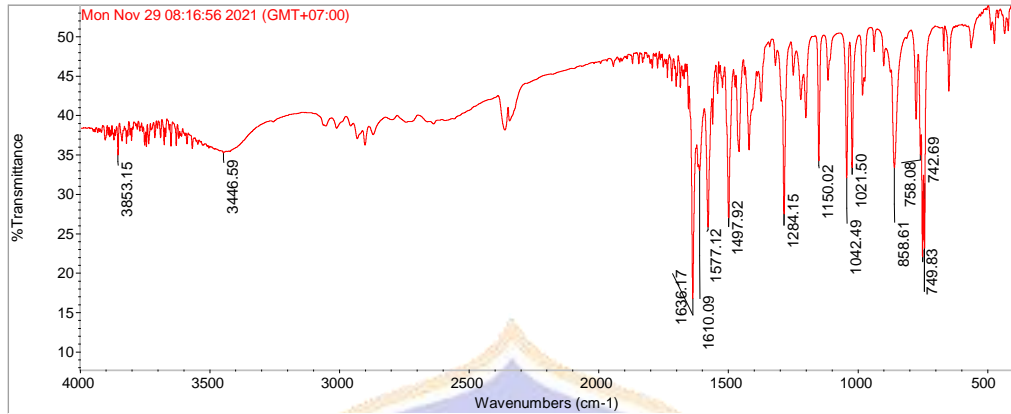
Rumus	Nilai
C _{bal} x L x (Ri-Ro)	372,68
Ri-Ro	121
Mi - Mo	0,0953 1,E+09
X _g	3,911,E-06
X _m	1,274,E-03
X _D	-1,E+08
X _A	1,006,E+08
$\sqrt{X_A + T}$ (kelvin)	-1,006,E+08
μ_{eff}	2,466,E+08

Data perhitungan diamagnetic berbasis struktur kompleks [Cu(salen)]

Struktur	Atom	Jumlah	Nilai	Hasil
C benzene	C	12	-0,24	-2,88
C=C	C=C	6	5,5	33
Cu	Cu ²⁺	1	12,8	12,8
C=N	C=N	2	8,15	16,3
C-O	O	2	4,61	9,22
C=N-	N	2	8,15	16,3
C		18	-6	-108
H		18	-2,93	-52,74
N		2	-5,57	-11,14
Jumlah				-100,58 -1,E+08

Lampiran 2 : Hasil FTIR

1. Hasil FTIR ligan

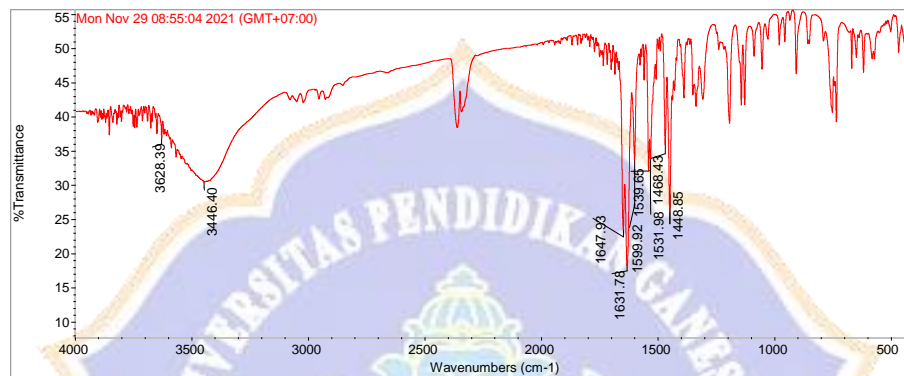


Number of sample scans: 16
Number of background scans: 16
Resolution: 3.815
Sample gain: 1.0
Optical velocity: 0.4747
Aperture: 100.00

3.996747e+002,0.000000e+000
4.001569e+002,5.233836e+001
4.006390e+002,5.269464e+001
4.011211e+002,5.300634e+001
4.016032e+002,5.326378e+001
4.020853e+002,5.346730e+001
4.025674e+002,5.362061e+001
4.030496e+002,5.372758e+001
4.035317e+002,5.379187e+001
4.040138e+002,5.381866e+001
4.044959e+002,5.381736e+001
4.049780e+002,5.380191e+001
4.054601e+002,5.378910e+001
4.059423e+002,5.379131e+001
4.064244e+002,5.381249e+001
4.069065e+002,5.384481e+001
4.073886e+002,5.387393e+001
4.078707e+002,5.388436e+001
4.083528e+002,5.386724e+001
4.088350e+002,5.382421e+001
4.093171e+002,5.376568e+001
4.097992e+002,5.370572e+001
4.102813e+002,5.365433e+001

4.107634e+002,5.361358e+001
 4.112455e+002,5.357787e+001
 4.117277e+002,5.354011e+001
 4.122098e+002,5.349689e+001
 4.126919e+002,5.345193e+001
 4.131740e+002,5.341427e+001
 4.136561e+002,5.339091e+001

2. Hasil FTIR kompleks



Number of sample scans: 16
 Number of background scans: 16
 Resolution: 3.815
 Sample gain: 1.0
 Optical velocity: 0.4747
 Aperture: 100.00

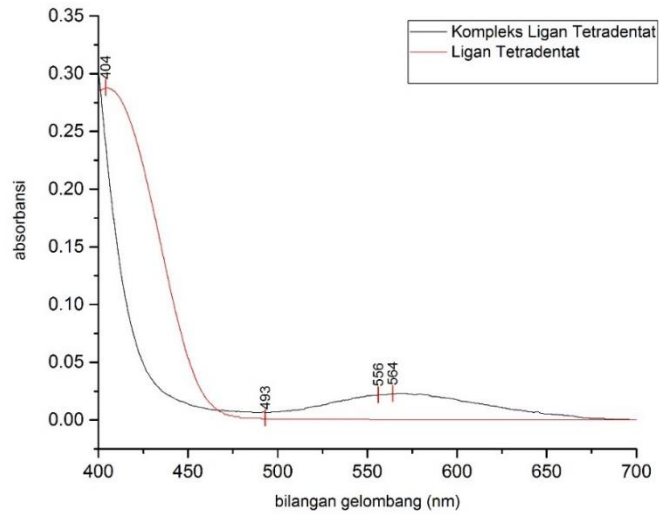
Wavenumber (cm-1)	Transmittance (%)
399,6747	#VALUE!
400,1569	53,58865
400,639	54,02457
401,1211	54,41476
401,6032	54,73462
402,0853	54,97741
402,5674	55,14966
403,0496	55,26654
403,5317	55,34248
404,0138	55,38692
404,4959	55,40354
404,978	55,39508
405,4601	55,36853
405,9423	55,33649
406,4244	55,31431
406,9065	55,31306
407,3886	55,33299

407,8707	55,36331
408,3528	55,38627
408,835	55,38707
409,3171	55,35841
409,7992	55,30564
410,2813	55,24105
410,7634	55,17731
411,2455	55,11966
411,7277	55,06583
412,2098	55,00933
412,6919	54,94681
413,174	54,88172
413,6561	54,82235



Lampiran 3 : Hasil UV-Vis

1. Hasil UV-Vis Ligan dan Kompleks



**Wavelen+ A1:K266gth
nm.+ A1: D30**

**LIGAN
TETRADENTAT**

400	0,284
400,5	0,285
401	0,286
401,5	0,286
402	0,286
402,5	0,287
403	0,287
403,5	0,287
404	0,288
404,5	0,288
405	0,288
405,5	0,288
406	0,287
406,5	0,287
407	0,287
407,5	0,286
408	0,286
408,5	0,285
409	0,285
409,5	0,284
410	0,283
410,5	0,282
411	0,281

411,5	0,28
412	0,279
412,5	0,278
413	0,276
413,5	0,275
414	0,273

Wavelength nm.	Kompleks Tetradentat
400	0,552
400,5	0,537
401	0,523
401,5	0,508
402	0,492
402,5	0,477
403	0,462
403,5	0,448
404	0,435
404,5	0,42
405	0,406
405,5	0,391
406	0,378
406,5	0,365
407	0,352
407,5	0,34
408	0,328
408,5	0,318
409	0,307
409,5	0,296
410	0,286
410,5	0,275
411	0,265
411,5	0,255
412	0,245
412,5	0,235
413	0,226
413,5	0,218
414	0,21



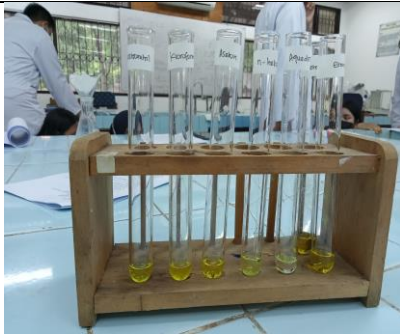
Lampiran 4 : Hasil Uji Antibakteri

Uji daya hambat

KODE SAMPEL	Diameter Zona Hambat (cm)							
	E.COLI		S.AUREUS		S.MUTAN		K,PNEU	
	I	II	I	II	I	II	I	II
K- (DMSO)		-		-		-		-
K- (DMSO)		-		-		-		-
K+ (Streptomycin)		-		-		-		-
K+ (Streptomycin)	11,59	11,63	9,70	9,76	10,61	10,82	10,67	10,16
CUA 2048 µg/ml					6,26	6,36		
CUA 2048 µg/ml					6,56	6,36		
CUA 1024 µg/ml		-		-		-		-
CUA 1024 µg/ml		-		-		-		-
CUL4 2048 µg/		-		-		-		-
CUL4 2048 µg/		-		-		-		-
CUL4 1024 µg/ml		-		-		-		-
CUL4 1024 µg/ml		-		-		-		-



Lampiran 5 : Dokumentasi Penelitian



Proses uji kelarutan



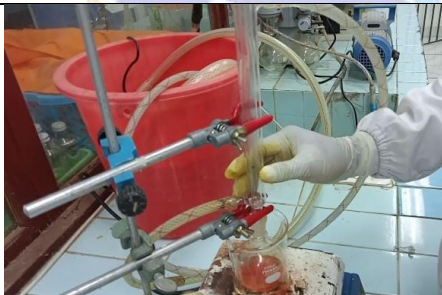
Proses penyaringan



Proses penimbangan



Proses refluks



Seperangkat alat refluks



Seperangkat alat UV-Vis