



LAMPIRAN

Lampiran 1. Perhitungan Pembuatan Larutan ZnCl₂

Pembuatan Larutan ZnCl₂ 0,1M

$$M = \frac{g}{Mr} \times \frac{1000}{V}$$

$$0,100M = \frac{g}{136.315} \times \frac{1000}{500}$$

$$g = 6,81575$$

Lampiran 2. Perhitungan Ukuran Kristal Seng

Ukuran kristal Zn dihitung dengan persamaan *Scherrer* sebagai berikut:

$$D = \frac{K \lambda}{\beta \cos \theta}$$

Dimana:

D = ukuran partikel

λ = Panjang gelombang (1,5406 Å)

K = shape factor (0,9)

β = FWHM (rad)

θ = sudut bag (°)

1. Zn 0,1M, pH 7, dan T 80°C

$$D1 = \frac{0,9 \times 1,5406}{0,002286381 \times 0,9617}$$

$$D1 = 583,207843$$

$$D2 = \frac{0,9 \times 1,5406}{0,00228638 \times 0,955}$$

$$D2 = 637,54588$$

$$D3 = \frac{0,9 \times 1,5406}{0,002478368 \times 0,9501}$$

$$D3 = 531,5458829$$

$$D4 = \frac{0,9 \times 1,5406}{0,002303835 \times 0,9148}$$

$$D4 = 550,5633022$$

$$D5 = \frac{0,9 \times 1,5406}{0,0023212 \times 56,68}$$

$$D5 = 525,6968992$$

$$D7 = \frac{0,9 \times 1,5406}{0.002740 \times 68,01}$$

$$D6 = \frac{0,9 \times 1,5406}{0.0027750 \times 62,49}$$

$$D7 = 419,4280995$$

$$D6 = 427,1429357$$

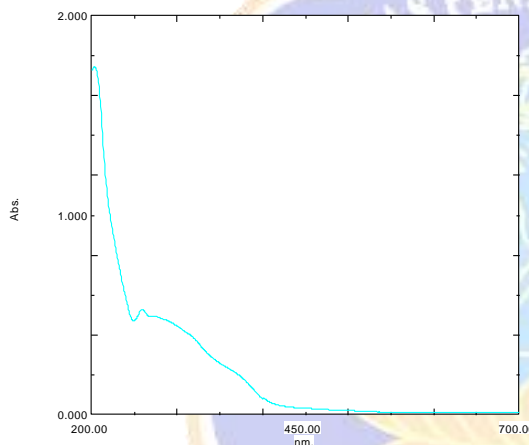
Ukuran rata-rata Partikel

$$= \frac{D1 + D2 + D3 + D4 + D5 + D6 + D7}{7}$$

$$= 525,0178618$$

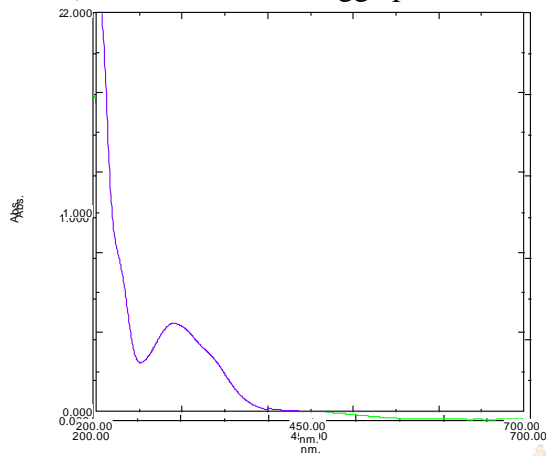
Lampiran 3. Hasil UV-Vis

1) Ekstrak daun mangga



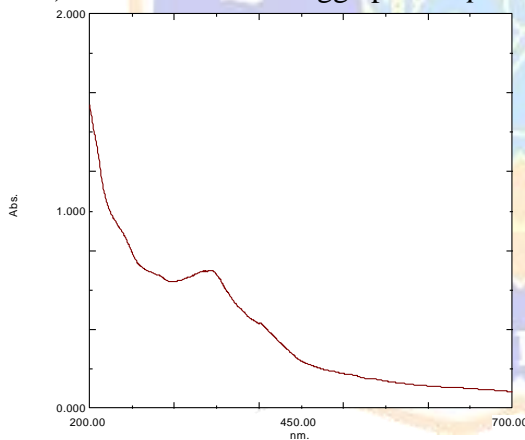
No.	P/V	Wavelength nm.	Abs.	Description
1		672.00	0.011	
2		638.00	0.012	
3		536.50	0.014	
4		273.50	0.492	
5		259.00	0.529	
6		202.00	1.744	
7		650.50	0.009	
8		632.00	0.009	
9		534.50	0.013	
10		269.50	0.490	
11		249.00	0.470	

2) Ekstrak daun mangga pH 7



No.	P/V	Wavelength nm.	Abs.	Description
1		638.50	0.010	
2		260.00	0.665	
3		651.00	0.007	
4		632.00	0.007	
5		249.00	0.614	

3) Ekstrak daun mangga pH 7 + precursor $ZnCl_2$



No.	P/V	Wavelength nm.	Abs.	Description
1		634.50	0.105	
2		343.00	0.699	
3		632.50	0.104	
4		300.50	0.641	

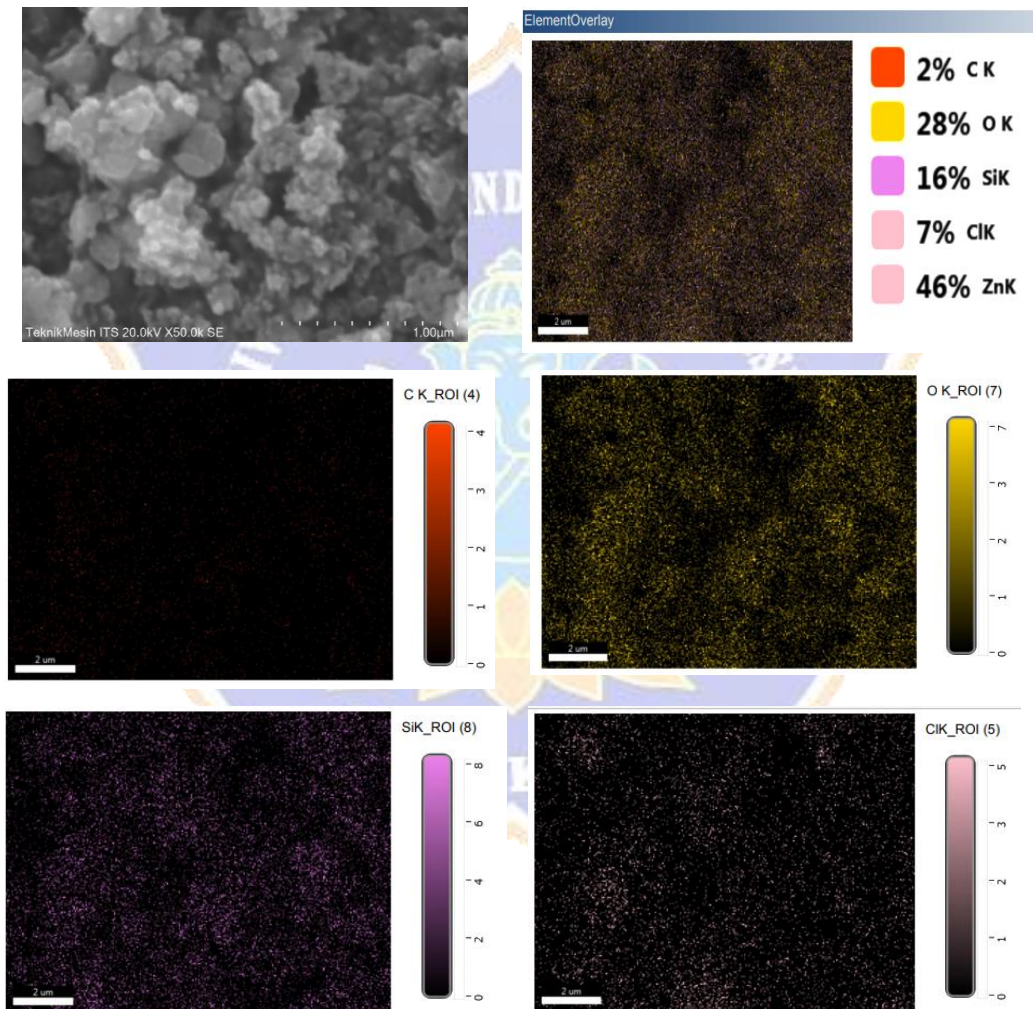
4) Filtrat

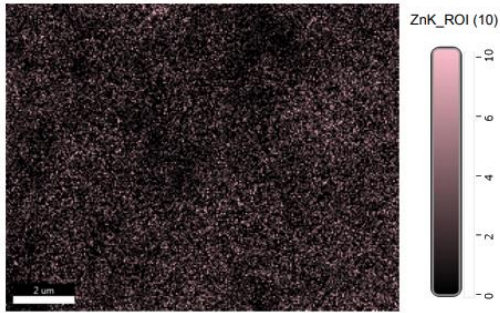
No.	P/V	Wavelength nm.	Abs.	Description
1		638.50	0.003	

2	536.50	0.001
3	401.50	0.017
4	289.50	0.443
5	632.00	0.000
6	534.50	-0.001
7	399.50	0.010
8	251.50	0.246

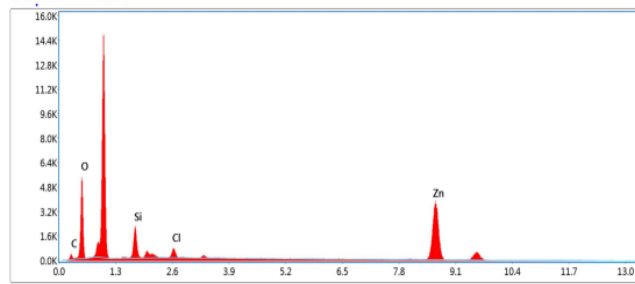
Lampiran 4 Hasil SEM-EDS

Hasil SEM-EDS Nanopartikel seng 0,1 M, pH 7, dan





Sum Spectrum

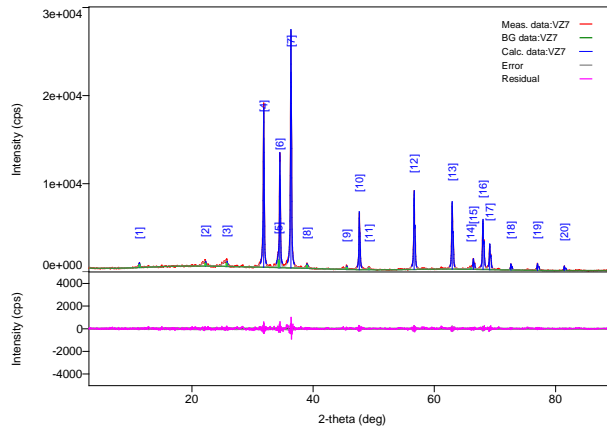


Smart Quant Results

Element	Weight %	Atomic %	Net Int.	Error %	Kratio	Z	A	F
C K	5.18	13.80	20.70	13.41	0.0085	1.2265	0.1338	1.0000
O K	23.12	46.23	351.85	8.78	0.0738	1.1796	0.2706	1.0000
Si K	6.32	7.20	179.83	7.97	0.0289	1.0829	0.3920	1.0016
Cl K	1.91	1.73	64.75	7.54	0.0135	1.0125	0.6924	1.0073
Zn K	63.45	31.04	609.02	2.29	0.5696	0.8871	1.0056	1.0063



Lampiran 5. Hasil XRD

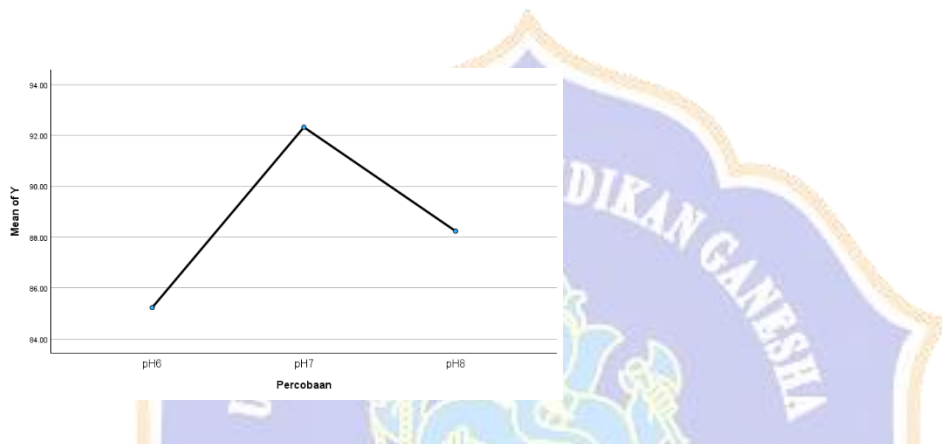


N o	2- theta(de g)	d (ang.)	Height(cp s)	FWH M (deg)	Int. I(cps deg)	Int. W(deg)	Asym. Factor
1	31.86	2.8075(16)	14704(350)	0.131(5)	3143(22)	0.214(7)	1.27(12)
2	34.52	2.5969(2)	10449(295)	0.119(4)	1737(158)	0.17(2)	0.98(11)
3	36.34	2.47019(14)	22229(430)	0.142(3)	4849(27)	0.218(5)	1.39(11)
4	47.62	1.90783(15)	5920(222)	0.132(5)	1207(14)	0.204(10)	1.4(2)
5	56.68	1.62278(9)	8111(260)	0.133(4)	1689(16)	0.208(9)	1.5(2)
6	62.49	1.47544(8)	7090(243)	0.159(4)	1588(16)	0.224(10)	1.44(16)
7	68.01	1.37720(8)	5266(209)	0.157(5)	1239(16)	0.235(12)	1.4(2)

Lampiran 6. Hasil data uji randemen dengan *one-way Anova*

			Descriptives			
	Percobaan		Statistic	Std. Error		
Y	pH6	Mean	85.2300	.51248		
		95% Confidence Interval for Mean	Lower Bound	83.0250		
			Upper Bound	87.4350		
		5% Trimmed Mean	.			
		Median	85.4600			
		Variance	.788			
		Std. Deviation	.88764			
		Minimum	84.25			
		Maximum	85.98			
		Range	1.73			
		Interquartile Range	.			
		Skewness	-1.088	1.225		
		Kurtosis	.	.		
		pH7	pH7	Mean	92.3200	.14731
				95% Confidence Interval for Mean	Lower Bound	91.6862
Upper Bound	92.9538					
5% Trimmed Mean	.					
Median	92.3100					
Variance	.065					
Std. Deviation	.25515					
Minimum	92.07					
Maximum	92.58					
Range	.51					
Interquartile Range	.					
Skewness	.176			1.225		
Kurtosis	.			.		
pH8	pH8			Mean	88.2367	.67765
				95% Confidence Interval for Mean	Lower Bound	85.3210
		Upper Bound	91.1524			

5% Trimmed Mean	.	
Median	88.0300	
Variance	1.378	
Std. Deviation	1.17373	
Minimum	87.18	
Maximum	89.50	
Range	2.32	
Interquartile Range	.	
Skewness	.768	1.225
Kurtosis	.	.



Multiple Comparisons

Dependent Variable: Y

	(I) Percobaan	(J) Percobaan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	pH6	pH7	7.09000*	.70406	<.001	5.3672	8.8128
		pH8	3.00667*	.70406	.005	1.2834	4.7294
	pH7	pH6	7.09000*	.70406	<.001	5.3672	8.8128
		pH8	4.08333*	.70406	.001	2.3606	5.8061
	pH8	pH6	3.00667*	.70406	.005	1.2839	4.7294

pH7	-	.7040	.001	-	-2.3606
	4.08333*	6		5.806	1

*. The mean difference is significant at the 0.05 level.

Descriptives

Y

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
pH6	3	85.2300	.88764	.51248	83.0250	87.4350	84.25	85.98
pH7	3	92.3200	.25515	.14731	91.6862	92.9538	92.07	92.58
pH8	3	88.2367	1.17373	.67765	85.3210	91.1524	87.18	89.50
Total	9	88.5956	3.17102	1.05701	86.1581	91.0330	84.25	92.58

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Y	Based on Mean	2.224	2	6	.189
	Based on Median	.911	2	6	.451
	Based on Median and with adjusted df	.911	2	4.039	.471
	Based on trimmed mean	2.116	2	6	.202

Lampiran 6. Foto Dokumentasi



Daun Mangga yang masih segar



Pencucian Daun Mangga



Copper Daun Mangga



Menimbang Daun Mangga



Pembuatan Ekstrak Daun Mangga



Ekstrak Daun Mangga + pH 7



Ekstrak Daun Mangga + pH 7 + Precursor ZnCl₂ setelah itu dipanaskan



Sonikator



Sentrifugasi



Hasil Filtrat dan Endapan



Furnace



Hasil ZnO-NPs



Ekstrak Daun Mangga



Ekstrak Daun Mangga + pH 7



Ekstrak Daun Mangga + pH 7 + Precursor ZnCl₂



Filtrat