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Lampiran 1. Pembuatan ekstrak umbi Sarang Semut *(Myrmecodia Pendans)*

a. Persiapan umbi Sarang Semut

← diambil dari hutan marauke

- dibersihkan dari kotoran
- dibuang bagian ujung sarang semut yang berdaun dengan menggunakan pisau
- dikupas kulit luar sarang semut dengan menggunakan pisau

↓

Sampel basah umbi sarang

- dibelah menjadi 4 bagian
- dirajang tipis-tipis
- dikering-anginkan(tanpa panas matahari)

↓

Sampel kering

- diblender

↓

Bubuk umbi sarang semut

b. Ekstraksi Air Umbi Sarang Semut

Bubuk umbi sarang semut

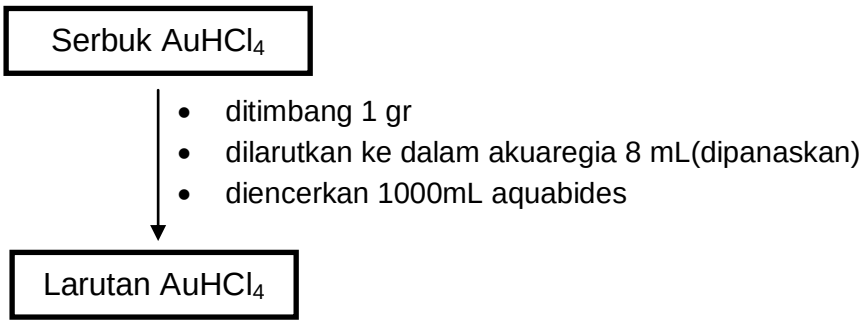
- ditimbang 10 gr
- ditambahkan akuades 1:10 (b/v)
- direbus selama 15 menit
- disaring menggunakan kertas Whatman No. 42

↓

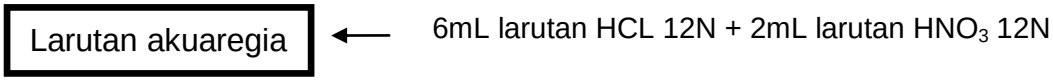
Filtrat

Lampiran 2

Pembuatan larutan induk $AuHCl_4$ dan karakterisasinya



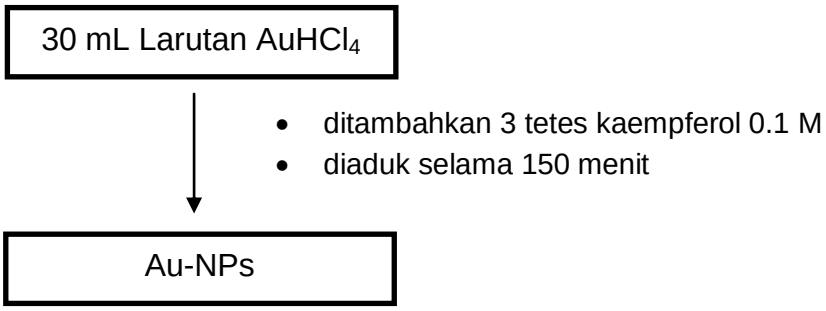
Pembuatan larutan Akuaregia



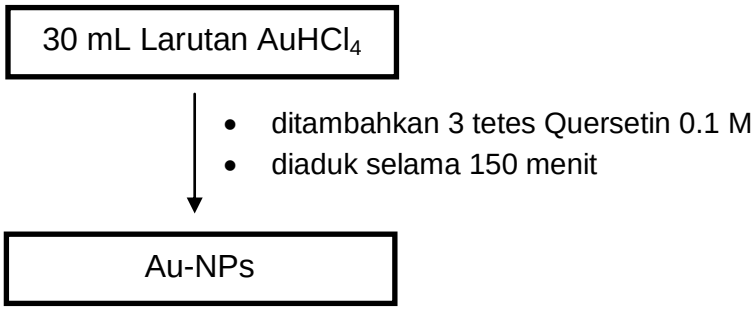
Lampiran 3. Sintesis nanopartikel emas

a. Menggunakan ekstrak air umbi Sarang Semut

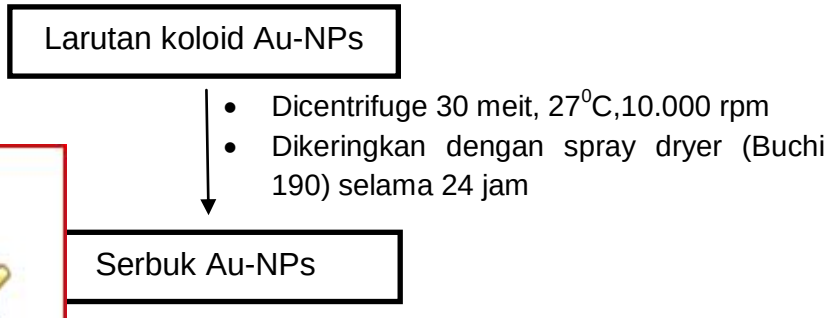
b. Menggunakan Kaempferol



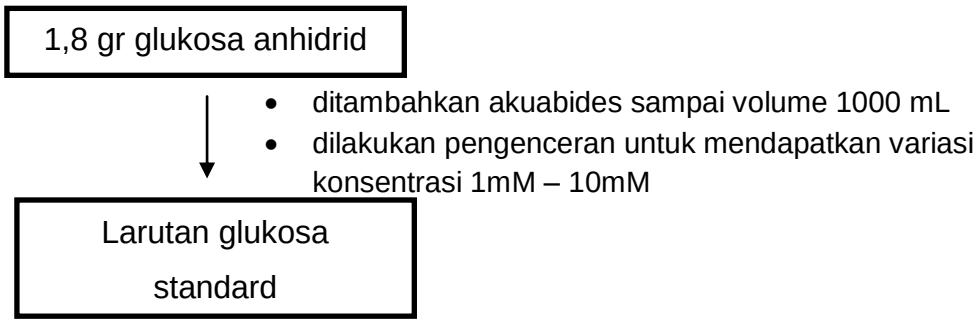
c. Menggunakan Quersetin



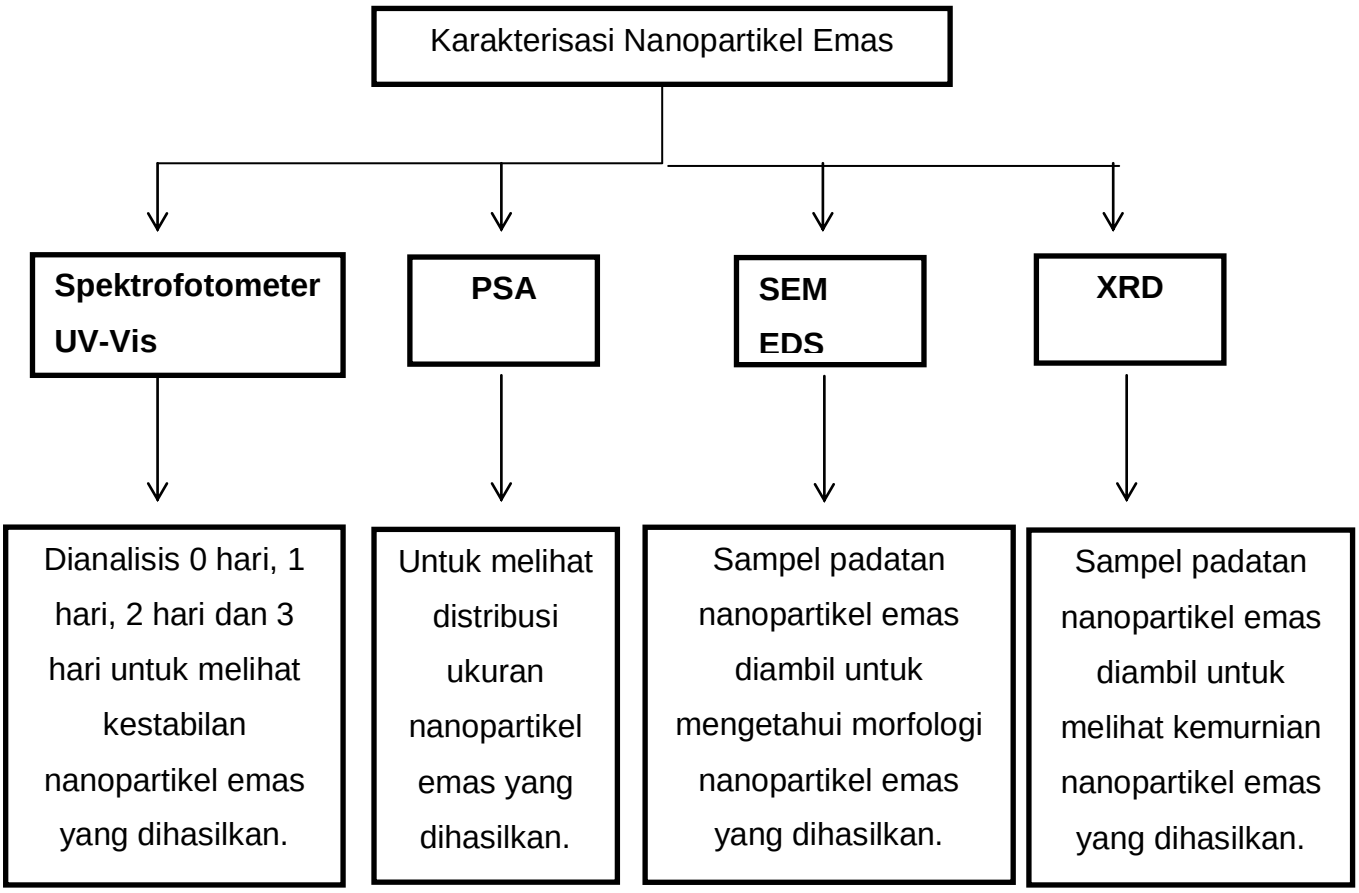
d. Pengeringan Nanopartikel Au



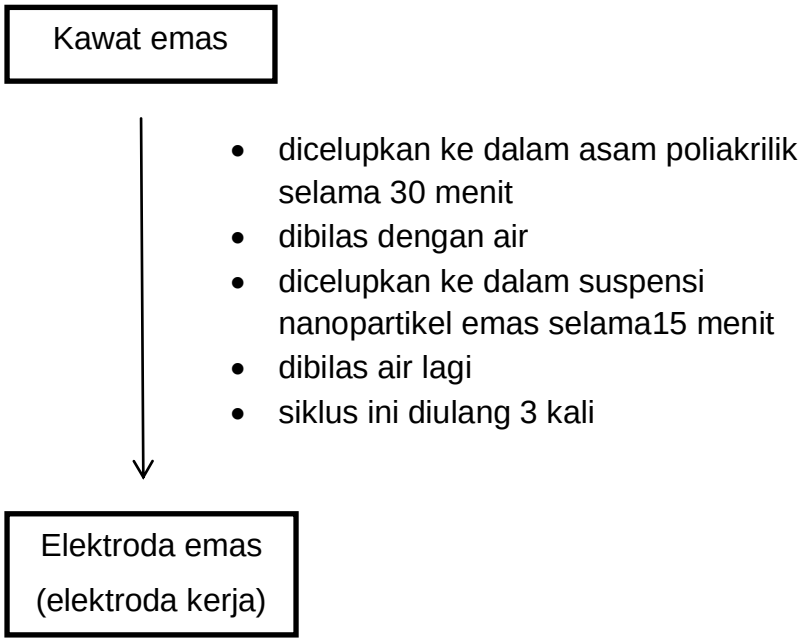
Lampiran 4. Pembuatan larutan glukosa standard



Lampiran 5. Karakterisasi Nanopartikel Emas



Lampiran 6. Persiapan elektroda emas (elektroda kerja)



Lampiran 7. Perhitungan Ukuran Partikel

Persamaan Debye-Scherer

$$D = \frac{K\,\lambda}{\beta\,\mathrm{Cos}\theta} \qquad (1)$$

Keterangan:

D = Ukuran partikel (nm)

K = Faktor bentuk dari kristal (0,9)

λ = Panjang gelombang dari sinar X (1,54178 Å)

β = Nilai FWHM (rad)

θ = Sudut Bragg/sudut difraksi (2θ/2)

Data Diafratogram nanopartikel emas

No.	2-theta	d(A)	Indeks Miller	Ukuran (nm)
1	37,89	2,37	111	10,63
2	44,03	2,05	200	14,80
3	64,40	1,44	202	17,83
4	77,46	1,23	311	12,89

Catatan:

1. $Ds = \frac{(0{,}98)(1{,}54\mathrm{A}^0)}{(0{,}8971^0)Cos(\frac{37{,}8933^0}{2})}$

$$= \frac{(0{,}98)(0{,}154\mathrm{nm})}{(\frac{3{,}14}{180^0}(0{,}8971^0)Cos(18{,}94665^0)}$$

$$Ds = \frac{0{,}15092\text{nm}}{(0{,}015)(0{,}9458)}$$

$$Ds = \frac{0{,}15092}{0{,}014187}\,\text{nm}$$

$$Ds = 10{,}63\ \text{nm}$$

2. $$Ds = \frac{(0{,}98)(1{,}54\text{A}^0)}{(0{,}6599^0)Cos(\frac{77{,}4626^0}{2})}$$

$$Ds = \frac{(0{,}98)(0{,}154\text{nm})}{\left(\frac{3{,}14}{180^0}(0{,}8971^0\right)Cos(38{,}7313^0)}$$

$$Ds = \frac{0{,}15092\text{nm}}{(0{,}015)(0{,}78008)}$$

$$Ds = \frac{0{,}15092}{0{,}0117012}\,\text{nm}$$

$$Ds = 12{,}89\ \text{nm}$$

3. $$Ds = \frac{(0{,}98)(1{,}54\text{A}^0)}{(0{,}6440^0)Cos(\frac{44{,}0356^0}{2})}$$

$$Ds = \frac{(0{,}98)(0{,}154\text{nm})}{\left(\frac{3{,}14}{180^0}(0{,}6440^0\right)Cos(22{,}0178^0)}$$

$$Ds = \frac{0{,}15092\text{nm}}{(0{,}011)(0{,}9270)}$$

$$Ds = \frac{0{,}15092}{0{,}010197}\,\text{nm}$$

$$Ds = 14{,}80\ \text{nm}$$

4. $$Ds = \frac{(0{,}98)(1{,}54\text{A}^0)}{(0{,}61710^0)Cos(\frac{64{,}4010^0}{2})}$$

$$\frac{(0{,}98)(0{,}154\text{nm})}{\left(\frac{3{,}14}{180^0}(0{,}61710^0\right)Cos(32{,}2005^0)}$$

$$Ds = \frac{0{,}15092\text{nm}}{(0{,}010)(0{,}8461)}$$

$$Ds = \frac{0{,}15092}{0{,}008461}\,\text{nm}$$

$$Ds = 17{,}83\ \text{nm}$$

Lampiran 8. Perhitungan Limit Deteksi dan Sensitivitas

a. Limit Deteksi

$$y = 0{,}370x - 0{,}487$$

$$y = -0.927x + 9.302$$

$$1{,}297x - 8{,}815$$

$$x = \frac{8{,}815}{1{,}297}$$

$$x = 7{,}5$$

b. Sensitivitas

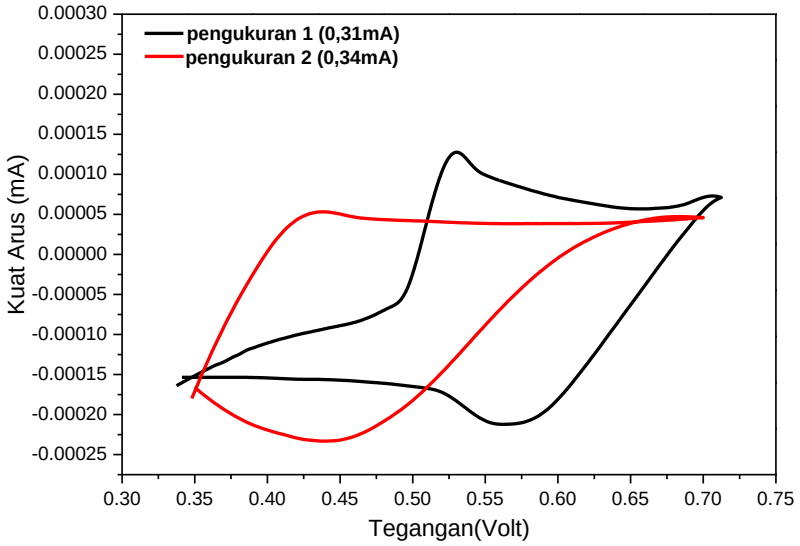
$$y = 0{,}370x - 0{,}487$$

$$\text{Sensitivitas} = \frac{\text{Slope}}{A}$$

$$= \frac{0{,}370}{3{,}14 \times 0{,}4 \times 0{,}4}$$

$$= 0{,}736 \text{ A } mM^{-1}.\ mm^{-2}$$

Lampiran 9. Perhitungan konsentrasi glukosa dalam darah



Pengukuran Ke	Sensor		Automated Anlyzed Clinical Chemistry
	Kuat Arus(mA)	Konsentrasi(mg/dL)	Konsentrasi(mg/dL)
1	0,31	77,4	77
2	0,34	80,28	77
Rata-rata	**0,32**	**78,84**	**77**

Diketahui : kuat arus (y) = 0.32 mA

$y = 0{,}370\ x - 0{,}487$

$0{,}32 = 0{,}370\ x - 0{,}487$

$x = \frac{0{,}32+0{,}487}{0{,}370}$

$x = 2.18\text{mM}$

ngenceran 10/5= 2

Konsentrasi Glukosa = 2.181 x 2 = 4,36 mM
= 4,36 mM x Mr
= 4,36 mmol/L x 180 mg/mmol
= 784,8, mg/L
= 78,48 mg/dL

Uji statistik perbedaan hasil pengukuran glukosa darah metode sensor lapis nanopartikel emas dengan alat *Automated Analyzed Clinical Chemistry*

Diketahui: $X_1 = 78,84$ $n_1 = 2$
$X_2 = 77$ $n_2 = 2$

Ditanyakan:

1. Hipotesis nol (Ho)
   Tidak ada perbedaan yang signifikan antara hasil pemeriksaan glukosa darah metode sensor lapis nanopartikel emas dengan alat *Automated Analyzed Clinical Chemistry*
2. Hipotesis alternative (Ha)
   Ada perbedaan yang bermakna antara hasil pemeriksaan glukosa darah metode sensor lapis nanopartikel emas dengan alat *Automated Analyzed Clinical Chemistry*

Ket: Kriteria penenrimaan dan penolakan yaitu Ho diterima bila $t_{hitung} < t_{table}$ dan sebaliknya Ha diterima bila $t_{hitung} > t_{table}$

Penyelesaian

$$S = \sqrt{\frac{\sum(Xi - X)^2}{n}}$$

$$S1 = \sqrt{\frac{\sum(Xi - X_1)^2}{n}}$$

$$= \sqrt{\frac{(77{,}4 - 78{,}84)^2 + (80{,}28 - 78{,}84)^2}{2}}$$

$$= \sqrt{\frac{(77{,}4 - 78{,}84)^2 + (80{,}28 - 78{,}84)^2}{2}}$$

$$= 1{,}439$$

$$\boldsymbol{S2} = \sqrt{\frac{\sum(\boldsymbol{Xi} - \boldsymbol{X_2})^2}{\boldsymbol{n}}}$$

$$= \sqrt{\frac{(77 - 77)^2 + (77 - 77)^2}{2}}$$

$$= \sqrt{\frac{0}{2}}$$

$$= 0$$

$$\boldsymbol{S\ gabungan} = \sqrt{\frac{(\boldsymbol{n_1} + \boldsymbol{1})\boldsymbol{S1^2}(\boldsymbol{n_2} + \boldsymbol{1})\boldsymbol{S2^2}}{\boldsymbol{n_1} + \boldsymbol{n_2} - \boldsymbol{2}}}$$

$$= \sqrt{\frac{(2+1)(1{,}439)^2 + (2+1)(0)^2}{2+2-2}}$$

$$= \sqrt{\frac{6{,}212 + 0}{2}}$$

$$= 1{,}762$$

Uji t

$$Uji\ t = \frac{X_1 - X_1}{Sgab\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$= \frac{78{,}84 - 77}{1{,}762\sqrt{\frac{1}{2} + \frac{1}{2}}}$$

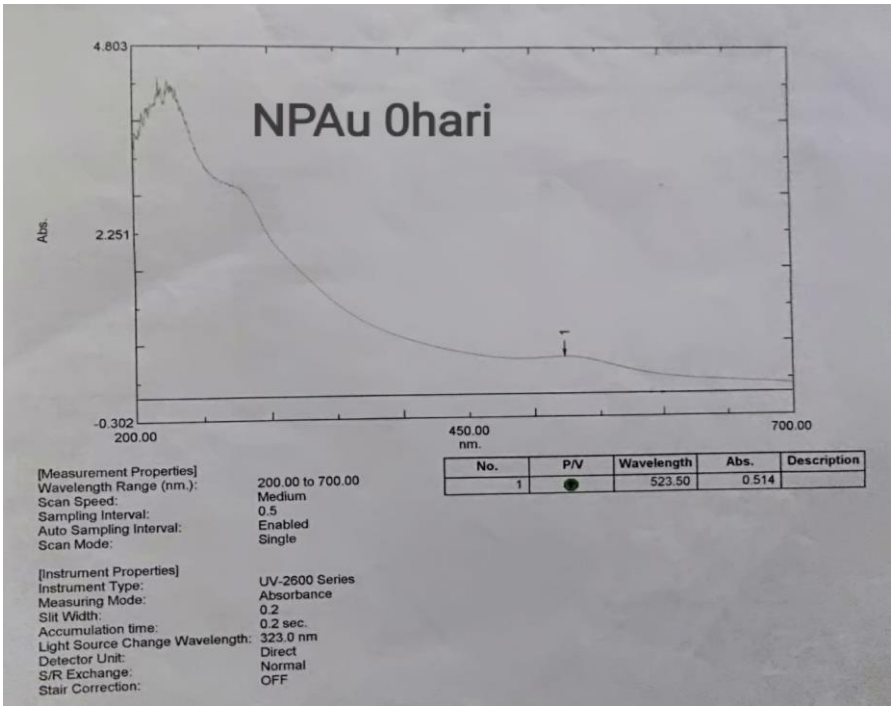
$$= \frac{1{,}84}{1{,}762\sqrt{\frac{1}{2} + \frac{1}{2}}}$$

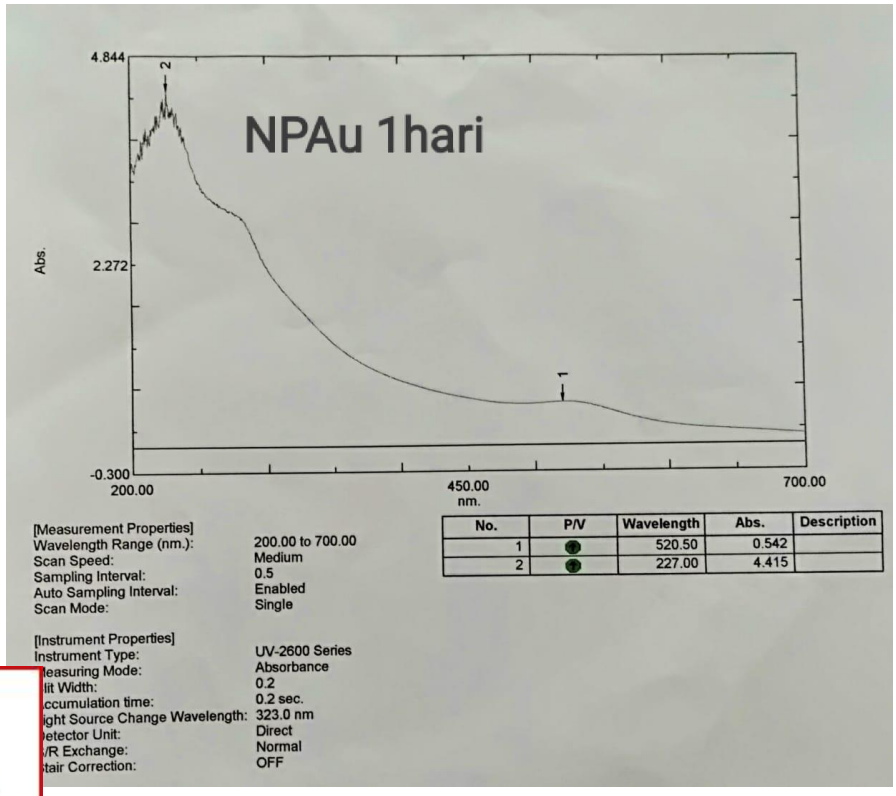
$$= 1{,}044$$

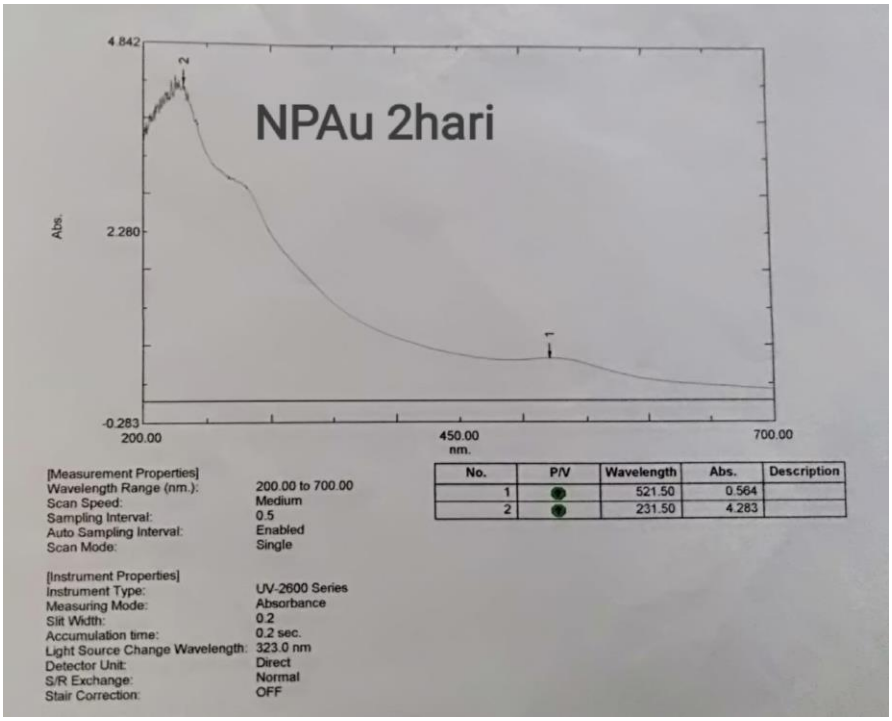
Menunujukkan bahwa t_{hitung} 1,044 < t_{table} 2 dengan tingkat kepercayaan 95% maka Ho diterima artinya tidak ada perbedaan yang bermakna antara hasil pemeriksaan glukosa darah metode sensor lapis nanopartikel emas dengan alat *Automated Anlyzed Clinical Chemistry.*


PDF
Optimization Software:
www.balesio.com

Lampiran 10. Data Hasil Karakterisasi Nanopartikel Emas Menggunakan Spektrofotometer UV-Vis







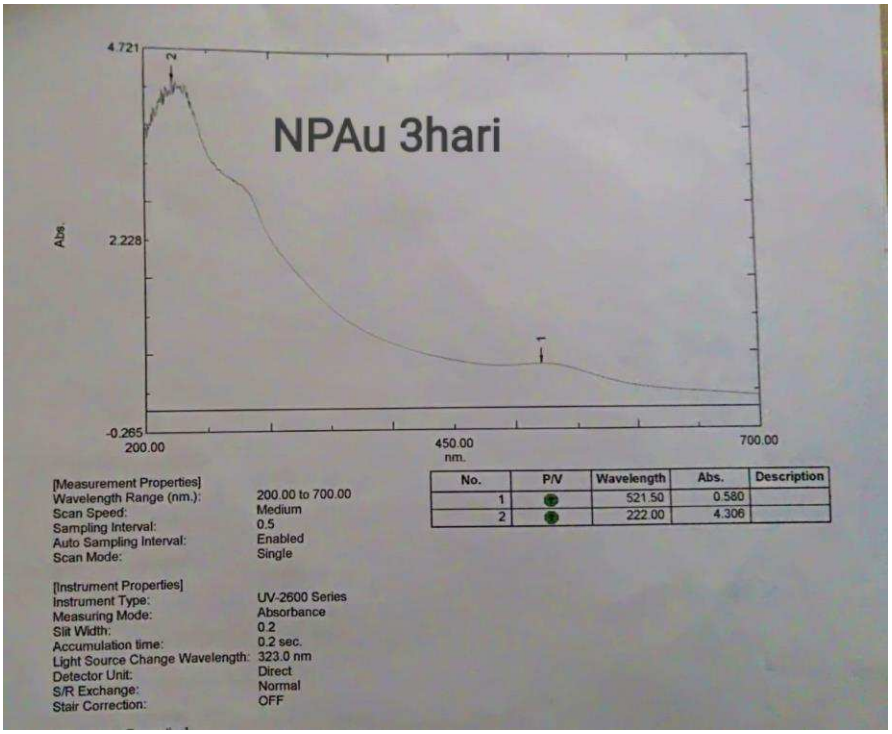
[Measurement Properties]

Wavelength Range (nm.):	200.00 to 700.00
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:	0.2 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF

No.	P/V	Wavelength	Abs.	Description
1		521.50	0.564	
2		231.50	4.283	



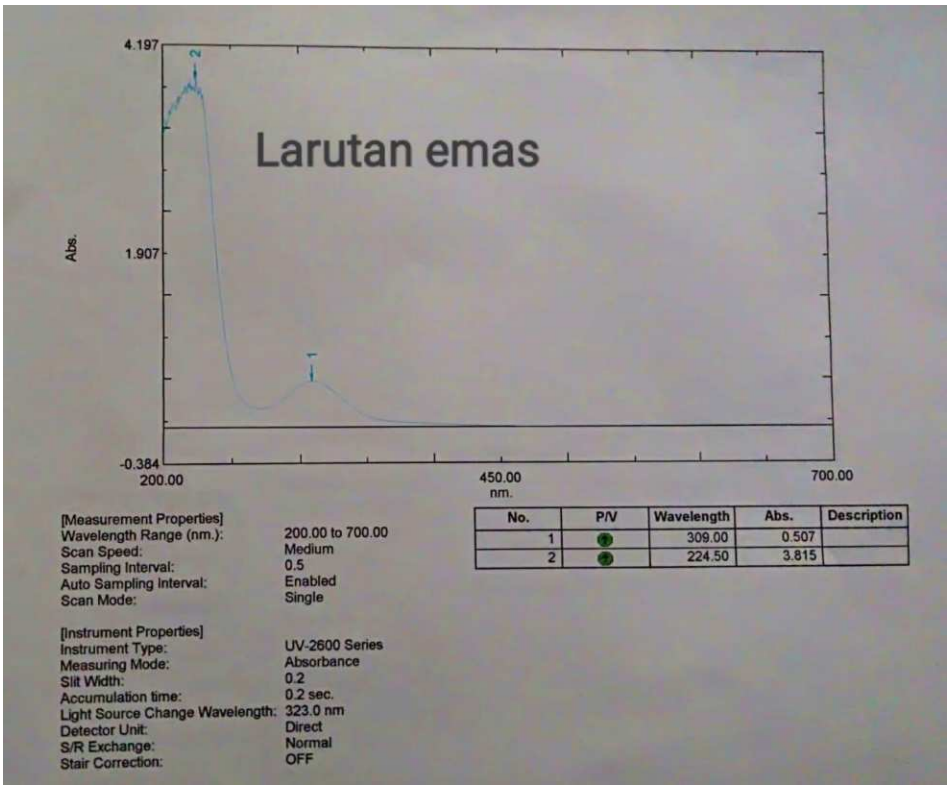
[Measurement Properties]

Wavelength Range (nm.):	200.00 to 700.00
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:	0.2 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF

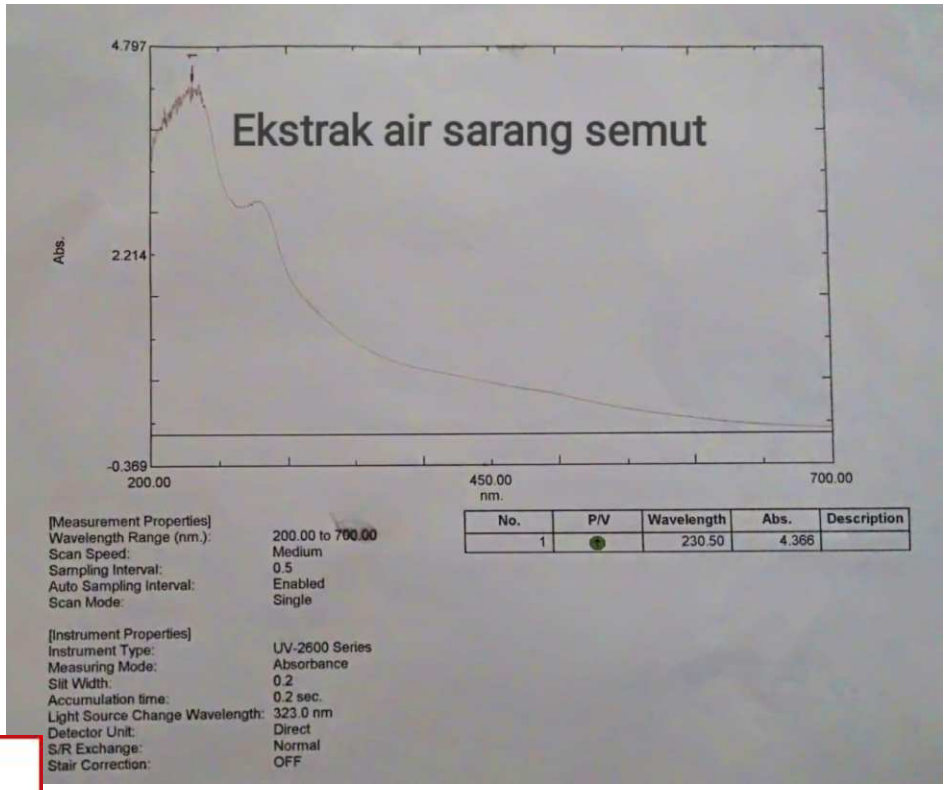
No.	P/V	Wavelength	Abs.	Description
1		521.50	0.580	
2		222.00	4.306	



No.	P/V	Wavelength	Abs.	Description
1		309.00	0.507	
2		224.50	3.815	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 700.00
Scan Speed: Medium
Sampling Interval: 0.5
Auto Sampling Interval: Enabled
Scan Mode: Single

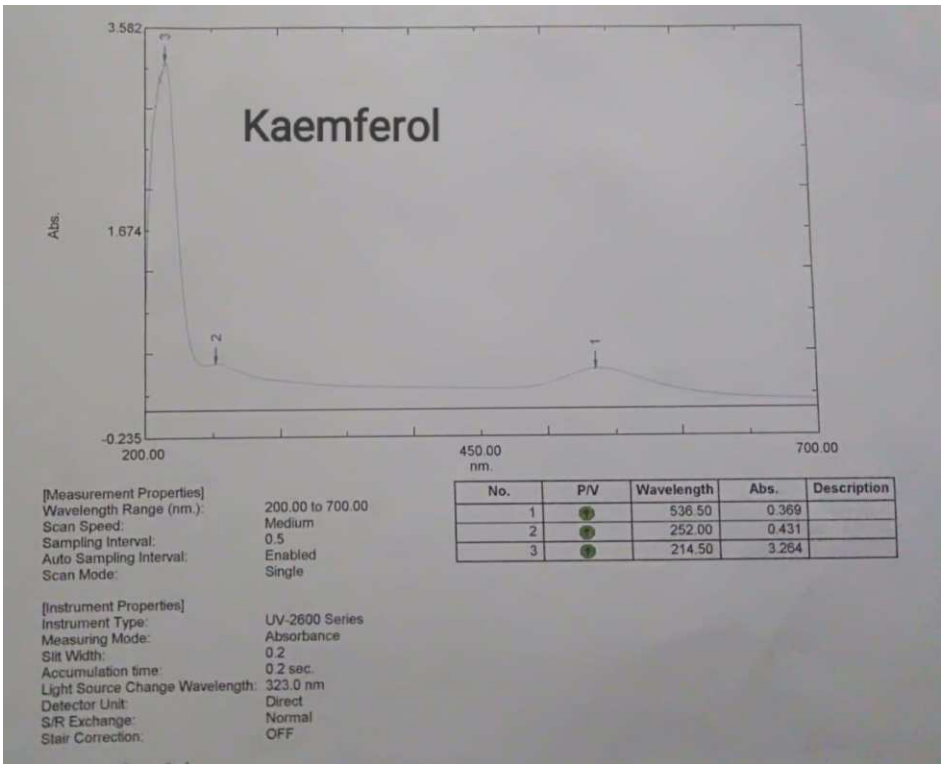
[Instrument Properties]
Instrument Type: UV-2600 Series
Measuring Mode: Absorbance
Slit Width: 0.2
Accumulation time: 0.2 sec.
Light Source Change Wavelength: 323.0 nm
Detector Unit: Direct
S/R Exchange: Normal
Stair Correction: OFF



No.	P/V	Wavelength	Abs.	Description
1		230.50	4.366	

[Measurement Properties]
Wavelength Range (nm.): 200.00 to 700.00
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: 0.2 sec.
Light Source Change Wavelength: 323.0 nm
Detector Unit: Direct
S/R Exchange: Normal
Stair Correction: OFF



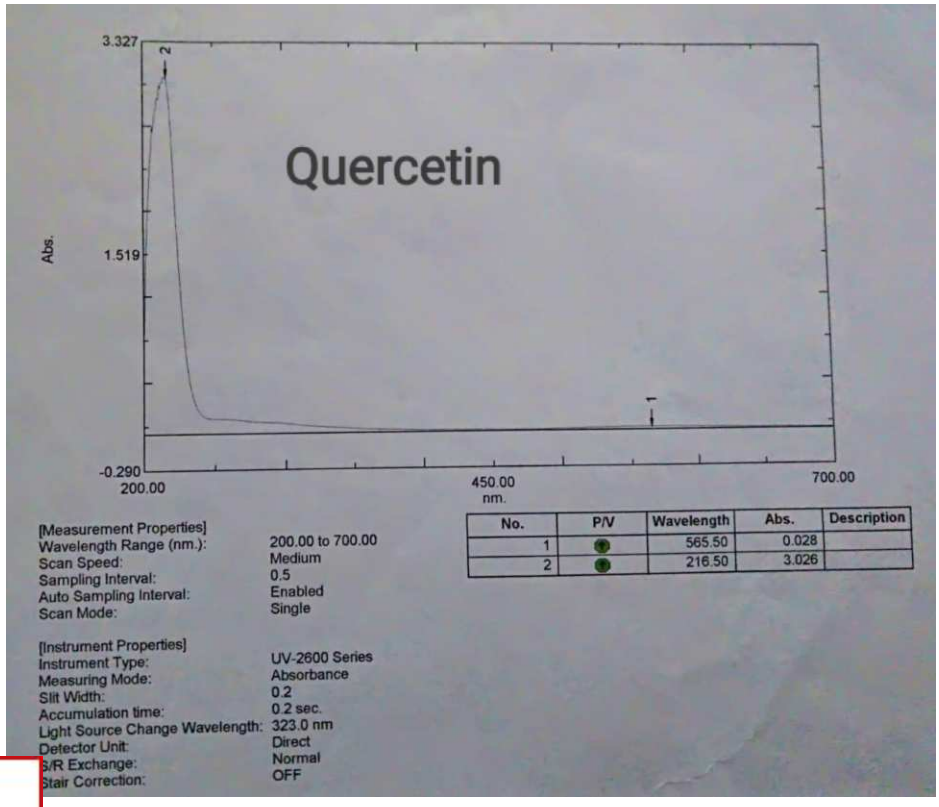
No.	P/V	Wavelength	Abs.	Description
1	P	536.50	0.369	
2	P	252.00	0.431	
3	P	214.50	3.264	

[Measurement Properties]

Wavelength Range (nm.):	200.00 to 700.00
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:	0.2 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF



No.	P/V	Wavelength	Abs.	Description
1	P	565.50	0.028	
2	P	216.50	3.026	

[Measurement Properties]

Wavelength Range (nm.):	200.00 to 700.00
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:	0.2 sec.
Light Source Change Wavelength:	323.0 nm
Detector Unit:	Direct
S/R Exchange:	Normal
Stair Correction:	OFF

Lampiran 11. Data Hasil Karakterisasi Nanopartikel Emas Menggunakan PSA

BECKMAN COULTER

Delsa™ Nano
Common

Condition Summary S/N : 123909

User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Measurement Condition

Sampling Time	: N/A	(μs)			
Correlation Channel	: 440	(ch)	Correlation Method	: TD	
Accumulation times	: 30	(times)	Attenuator 1	: 58.75	(%)
Cell Center	: Z : 3.000	(mm)	Pinhole	: 50	(μm)
	X : 7.500	(mm)			
Scattering Angle	: 165.0	(°)	Temperature	: 25.8	(°C)
Diluent Name	: WATER				
Refractive Index	: 1.3327		Viscosity	: 0.8719	(cP)
Intensity	: 7345	(cps)			

Cumulants Results

Mean Diameter	(d)	: 53.2	(nm)	Diffusion Constant (D)	: 9.433e-008	(cm^2/sec)
Polydispersity Index	(P.I.)	: 0.385		Decay Constant (Γ)	: 5970.2	(1/sec)

Fitting Parameter

Analysis Method	: CONTIN						
Histogram Range	: 10.0 - 4000.0	(nm)	Cut	Left	: 0	Right	: 0
Fitting Range	: 1.003 - 2						
Noise Cut Level	: 0.3	(%)					
Residual	: 1.238e-002 [OK]						

BECKMAN COULTER

Delsa™ Nano
Common

Cumulative Size Distribution Table S/N : 123909

User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Cum.%	d (nm) Int. Dist.	d (nm) Vol. Dist.	d (nm) No. Dist.
5	14.7	8.3	8.1
10	19.8	8.6	8.2
15	24.6	9.0	8.3
20	29.4	9.3	8.5
25	34.4	9.8	8.6
30	39.7	10.2	8.7
35	45.5	10.7	8.9
40	51.8	11.2	9.1
45	58.8	11.8	9.3
50	66.7	12.5	9.5
55	75.6	13.3	9.7
60	85.9	14.1	10.0
65	97.9	15.1	10.3
70	112.4	16.3	10.7
75	130.2	17.9	11.2
80	152.9	19.8	11.8
85	183.3	22.4	12.6
90	227.8	26.5	13.7
95	304.7	34.6	15.9
100	545.8	545.8	150.4

BECKMAN COULTER

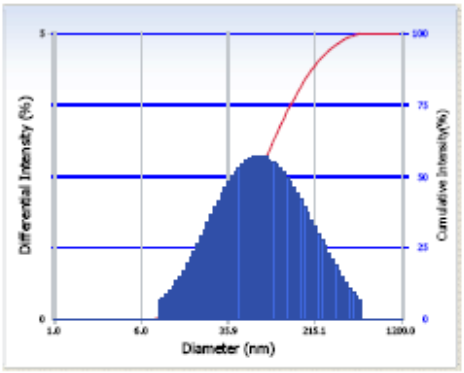
Delsa™ Nano
Common

Intensity Distribution S/N : 123909

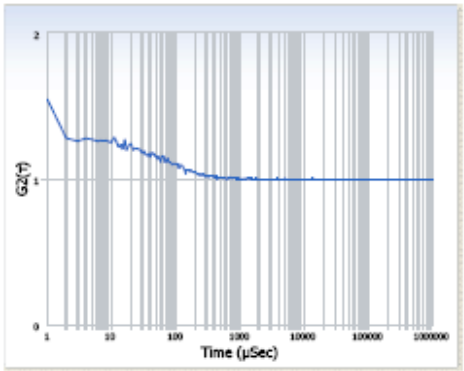
User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Intensity Distribution



ACF



Distribution Results (Contin)

Peak	Diameter (nm)	Std. Dev.
1	103.1	97.9
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
Average	103.1	97.9

Residual : 1.238e-002 (O.K)

Cumulants Results

Diameter	(d)	: 53.2	(nm)
Polydispersity Index	(P.I.)	: 0.385	
Diffusion Const.	(D)	: 9.433e-008	(cm^2/sec)

Measurement Condition

Temperature	: 25.8	(°C)
Diluent Name	: WATER	
Refractive Index	: 1.3327	
Viscosity	: 0.8719	(cP)
Scattering Intensity	: 7345	(cps)

BECKMAN COULTER

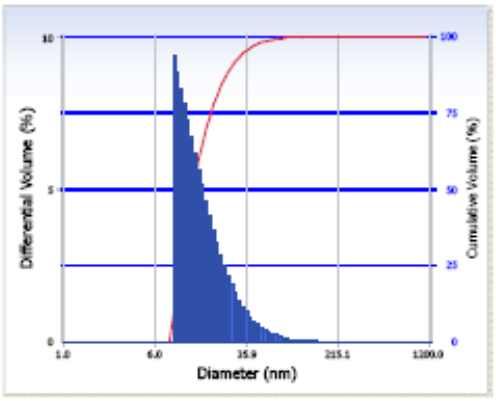
Delsa™ Nano
Common

Volume Distribution S/N : 123909

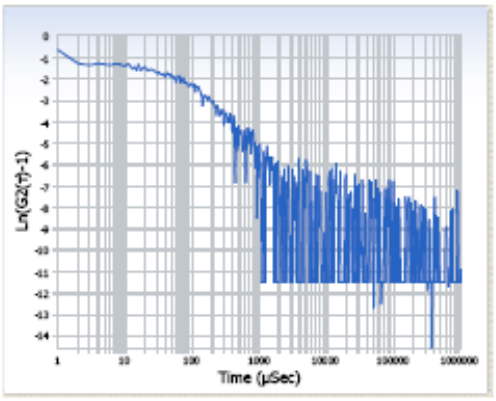
User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Volume Distribution



Ln(G2(τ)-1) vs τ



Distribution Results (Contin)

Peak	Diameter (nm)	Std. Dev.
1	16.5	11.4
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
Average	16.5	11.4

Residual : 1.238e-002 (O.K)

Cumulants Results

Diameter	(d)	: 53.2	(nm)
Polydispersity Index	(P.I.)	: 0.385	
Diffusion Const.	(D)	: 9.433e-008	(cm²/sec)

Measurement Condition

Temperature	: 25.8	(°C)
Diluent Name	: WATER	
Refractive Index	: 1.3327	
Viscosity	: 0.8719	(cP)
Scattering Intensity	: 7345	(cps)

BECKMAN COULTER

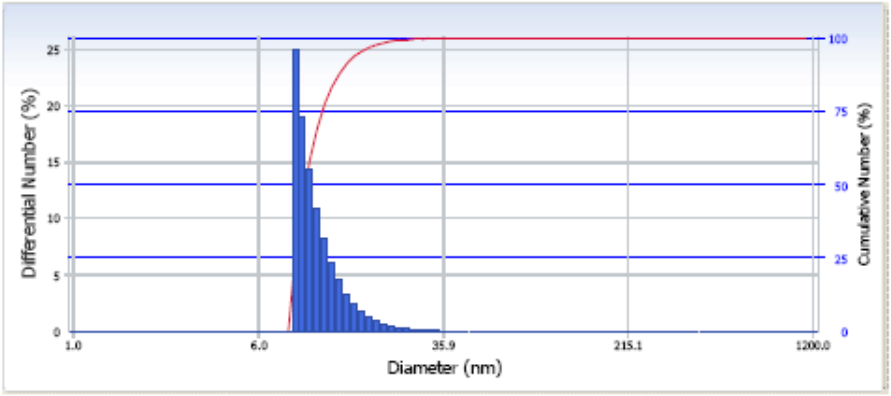
Delsa™ Nano
Common

Number Distribution S/N : 123909

User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Number Distribution



Distribution Results (Contin)

Peak	Diameter (nm)	Std. Dev.
1	10.8	3.1
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
Average	10.8	3.1
Residual :	1.238e-002	(O.K)

Cumulants Results

Diameter	(d)	: 53.2	(nm)
Polydispersity Index	(P.I.)	: 0.385	
Diffusion Const.	(D)	: 9.433e-008	(cm^2/sec)

Measurement Condition

Temperature	: 25.8	(°C)
Diluent Name	: WATER	
Refractive Index	: 1.3327	
Viscosity	: 0.8719	(cP)
Scattering Intensity	: 7345	(cps)

Number Distribution Table

d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)
1.0	0.0	0.0	6.0	0.0	0.0	35.9	0.0	99.9	215.1	0.0	100.0
1.1	0.0	0.0	6.4	0.0	0.0	38.6	0.0	100.0	231.1	0.0	100.0
1.2	0.0	0.0	6.9	0.0	0.0	41.4	0.0	100.0	248.3	0.0	100.0
1.2	0.0	0.0	7.4	0.0	0.0	44.5	0.0	100.0	266.7	0.0	100.0
1.3	0.0	0.0	8.0	0.0	0.0	47.8	0.0	100.0	286.5	0.0	100.0
1.4	0.0	0.0	8.6	25.0	25.0	51.4	0.0	100.0	307.8	0.0	100.0
1.5	0.0	0.0	9.2	19.0	44.0	55.2	0.0	100.0	330.6	0.0	100.0
1.7	0.0	0.0	9.9	14.4	58.4	59.3	0.0	100.0	355.2	0.0	100.0
1.8	0.0	0.0	10.6	10.9	69.3	63.7	0.0	100.0	381.5	0.0	100.0
1.9	0.0	0.0	11.4	8.2	77.4	68.4	0.0	100.0	409.9	0.0	100.0
2.0	0.0	0.0	12.3	6.1	83.5	73.5	0.0	100.0	440.3	0.0	100.0
2.2	0.0	0.0	13.2	4.5	88.0	78.9	0.0	100.0	473.0	0.0	100.0
2.4	0.0	0.0	14.2	3.3	91.4	84.8	0.0	100.0	508.1	0.0	100.0
2.5	0.0	0.0	15.2	2.4	93.8	91.1	0.0	100.0	545.8	0.0	100.0
2.7	0.0	0.0	16.3	1.8	95.6	97.9	0.0	100.0	586.3	0.0	100.0
2.9	0.0	0.0	17.5	1.3	96.9	105.1	0.0	100.0	629.9	0.0	100.0
3.1	0.0	0.0	18.8	0.9	97.8	112.9	0.0	100.0	676.6	0.0	100.0
3.4	0.0	0.0	20.2	0.7	98.5	121.3	0.0	100.0	726.9	0.0	100.0
3.6	0.0	0.0	21.7	0.5	98.9	130.3	0.0	100.0	780.8	0.0	100.0
3.9	0.0	0.0	23.4	0.3	99.3	140.0	0.0	100.0	838.8	0.0	100.0

D (10%) :	8.2 (nm)	D (50%) :	9.5 (nm)	D (90%) :	13.7 (nm)

Number Distribution Table

d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)	d (nm)	f(%)	f(cum.%)
4.2	0.0	0.0	25.1	0.2	99.5	150.4	0.0	100.0	901.1	0.0	100.0
4.5	0.0	0.0	27.0	0.2	99.7	161.5	0.0	100.0	968.0	0.0	100.0
4.8	0.0	0.0	29.0	0.1	99.8	173.5	0.0	100.0	1039.9	0.0	100.0
5.2	0.0	0.0	31.1	0.1	99.8	186.4	0.0	100.0	1117.1	0.0	100.0
5.6	0.0	0.0	33.4	0.1	99.9	200.3	0.0	100.0	1200.0	0.0	100.0

BECKMAN COULTER

Delsa™ Nano
Common

Size Distribution Table S/N : 123909

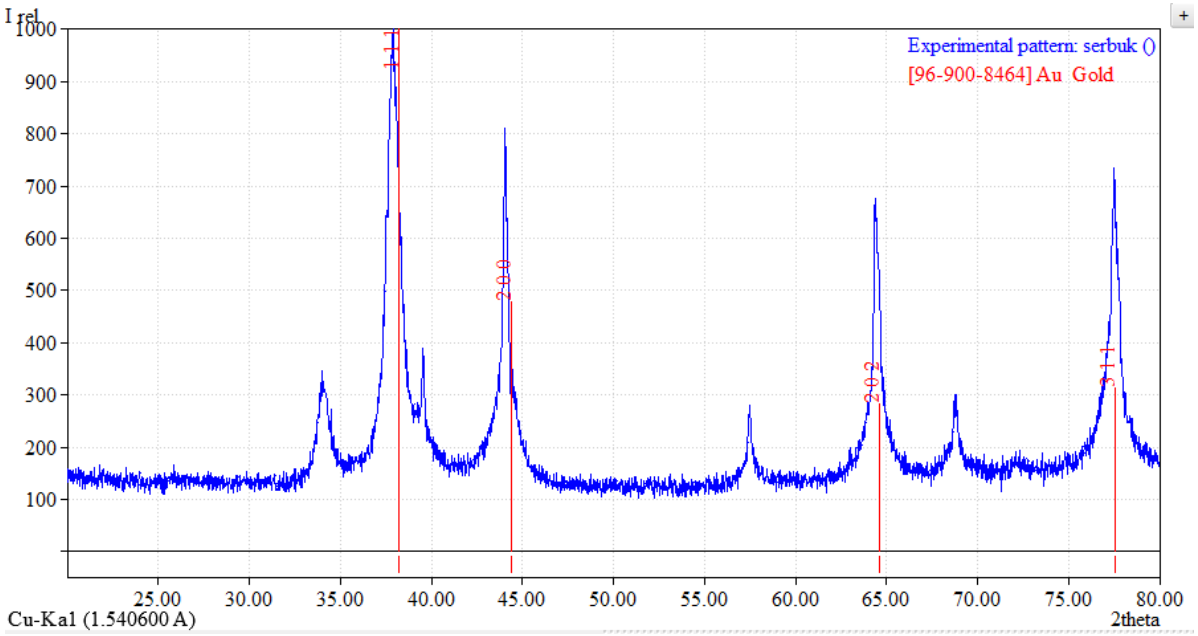
User	: Common	Group	:	Repetition	: 1/1
Date	: 10/19/2018	File Name	: HS-NAu 30_20181019_161936		
Time	: 16:19:36	Sample Information	:		
SOP Name	: Sampel Uji PSA			Security	: No Security

Version 2.31 / 2.03

Γ (1/sec)	d(nm)	f(%)Int.	f(cum.%)Int.	f(%)Vol.	f(cum.%)Vol.	f(%)No.	f(cum.%)No.
317888.4	1.0	0.0	0.0	0.0	0.0	0.00	0.00
295918.3	1.1	0.0	0.0	0.0	0.0	0.00	0.00
275466.6	1.2	0.0	0.0	0.0	0.0	0.00	0.00
256428.4	1.2	0.0	0.0	0.0	0.0	0.00	0.00
238706.0	1.3	0.0	0.0	0.0	0.0	0.00	0.00
222208.4	1.4	0.0	0.0	0.0	0.0	0.00	0.00
206851.0	1.5	0.0	0.0	0.0	0.0	0.00	0.00
192555.0	1.7	0.0	0.0	0.0	0.0	0.00	0.00
179247.0	1.8	0.0	0.0	0.0	0.0	0.00	0.00
166858.8	1.9	0.0	0.0	0.0	0.0	0.00	0.00
155326.8	2.0	0.0	0.0	0.0	0.0	0.00	0.00
144591.7	2.2	0.0	0.0	0.0	0.0	0.00	0.00
134598.6	2.4	0.0	0.0	0.0	0.0	0.00	0.00
125296.2	2.5	0.0	0.0	0.0	0.0	0.00	0.00
116636.6	2.7	0.0	0.0	0.0	0.0	0.00	0.00
108575.6	2.9	0.0	0.0	0.0	0.0	0.00	0.00
101071.6	3.1	0.0	0.0	0.0	0.0	0.00	0.00
94086.3	3.4	0.0	0.0	0.0	0.0	0.00	0.00
87583.8	3.6	0.0	0.0	0.0	0.0	0.00	0.00
81530.6	3.9	0.0	0.0	0.0	0.0	0.00	0.00
75895.8	4.2	0.0	0.0	0.0	0.0	0.00	0.00
70650.5	4.5	0.0	0.0	0.0	0.0	0.00	0.00
65767.6	4.8	0.0	0.0	0.0	0.0	0.00	0.00
61222.3	5.2	0.0	0.0	0.0	0.0	0.00	0.00
56991.0	5.6	0.0	0.0	0.0	0.0	0.00	0.00
53052.2	6.0	0.0	0.0	0.0	0.0	0.00	0.00
49385.7	6.4	0.0	0.0	0.0	0.0	0.00	0.00
45972.5	6.9	0.0	0.0	0.0	0.0	0.00	0.00
42795.2	7.4	0.0	0.0	0.0	0.0	0.00	0.00
39837.5	8.0	0.0	0.0	0.0	0.0	0.00	0.00
37084.3	8.6	0.3	0.3	9.4	9.4	25.00	25.00
34521.3	9.2	0.4	0.7	8.9	18.3	19.00	44.00
32135.4	9.9	0.4	1.1	8.3	26.6	14.40	58.40
29914.4	10.6	0.5	1.6	7.8	34.4	10.87	69.26
27847.0	11.4	0.6	2.2	7.3	41.6	8.16	77.43
25922.4	12.3	0.7	2.9	6.7	48.4	6.10	83.52
24130.8	13.2	0.8	3.6	6.2	54.5	4.53	88.05
22463.1	14.2	0.9	4.5	5.7	60.2	3.34	91.39
20910.6	15.2	1.0	5.4	5.1	65.3	2.44	93.83
19465.4	16.3	1.1	6.5	4.6	69.9	1.78	95.61
18120.1	17.5	1.2	7.7	4.1	74.1	1.29	96.89
16867.8	18.8	1.3	9.0	3.7	77.8	0.92	97.82
15702.0	20.2	1.4	10.5	3.3	81.0	0.66	98.47
14616.8	21.7	1.6	12.0	2.9	83.9	0.47	98.94
13606.6	23.4	1.7	13.7	2.5	86.4	0.33	99.27
12666.2	25.1	1.8	15.5	2.2	88.6	0.23	99.50
11790.8	27.0	2.0	17.5	1.9	90.4	0.16	99.66

Γ (1/sec)	d(nm)	f(%)Int.	f(cum.%)Int.	f(%)Vol.	f(cum.%)Vol.	f(%)No.	f(cum.%)No.
10975.9	29.0	2.1	19.6	1.6	92.0	0.11	99.77
10217.4	31.1	2.2	21.8	1.4	93.4	0.08	99.84
9511.2	33.4	2.3	24.1	1.2	94.5	0.05	99.89
8853.9	35.9	2.4	26.5	1.0	95.5	0.04	99.93
8241.9	38.6	2.5	29.0	0.8	96.3	0.02	99.95
7672.3	41.4	2.6	31.5	0.7	97.0	0.02	99.97
7142.1	44.5	2.7	34.2	0.6	97.6	0.01	99.98
6648.5	47.8	2.7	36.9	0.5	98.0	0.01	99.99
6189.0	51.4	2.8	39.7	0.4	98.4	0.00	99.99
5761.2	55.2	2.8	42.5	0.3	98.7	0.00	99.99
5363.1	59.3	2.8	45.3	0.3	99.0	0.00	100.00
4992.4	63.7	2.9	48.2	0.2	99.2	0.00	100.00
4647.4	68.4	2.9	51.0	0.2	99.4	0.00	100.00
4326.2	73.5	2.9	53.9	0.1	99.5	0.00	100.00
4027.2	78.9	2.8	56.7	0.1	99.6	0.00	100.00
3748.9	84.8	2.8	59.5	0.1	99.7	0.00	100.00
3489.8	91.1	2.8	62.3	0.1	99.8	0.00	100.00
3248.6	97.9	2.7	65.0	0.1	99.8	0.00	100.00
3024.1	105.1	2.6	67.6	0.0	99.9	0.00	100.00
2815.1	112.9	2.6	70.2	0.0	99.9	0.00	100.00
2620.5	121.3	2.5	72.6	0.0	99.9	0.00	100.00
2439.4	130.3	2.4	75.0	0.0	99.9	0.00	100.00
2270.8	140.0	2.3	77.3	0.0	100.0	0.00	100.00
2113.9	150.4	2.2	79.5	0.0	100.0	0.00	100.00
1967.8	161.5	2.1	81.6	0.0	100.0	0.00	100.00
1831.8	173.5	2.0	83.6	0.0	100.0	0.00	100.00
1705.2	186.4	1.9	85.4	0.0	100.0	0.00	100.00
1587.3	200.3	1.7	87.2	0.0	100.0	0.00	100.00
1477.6	215.1	1.6	88.8	0.0	100.0	0.00	100.00
1375.5	231.1	1.5	90.3	0.0	100.0	0.00	100.00
1280.4	248.3	1.4	91.7	0.0	100.0	0.00	100.00
1191.9	266.7	1.3	93.0	0.0	100.0	0.00	100.00
1109.6	286.5	1.2	94.1	0.0	100.0	0.00	100.00
1032.9	307.8	1.0	95.1	0.0	100.0	0.00	100.00
961.5	330.6	0.9	96.1	0.0	100.0	0.00	100.00
895.0	355.2	0.8	96.9	0.0	100.0	0.00	100.00
833.2	381.5	0.7	97.6	0.0	100.0	0.00	100.00
775.6	409.9	0.6	98.3	0.0	100.0	0.00	100.00
722.0	440.3	0.5	98.8	0.0	100.0	0.00	100.00
672.1	473.0	0.5	99.3	0.0	100.0	0.00	100.00
625.6	508.1	0.4	99.7	0.0	100.0	0.00	100.00
582.4	545.8	0.3	100.0	0.0	100.0	0.00	100.00
542.2	586.3	0.0	100.0	0.0	100.0	0.00	100.00
504.7	629.9	0.0	100.0	0.0	100.0	0.00	100.00
469.8	676.6	0.0	100.0	0.0	100.0	0.00	100.00
437.3	726.9	0.0	100.0	0.0	100.0	0.00	100.00
407.1	780.8	0.0	100.0	0.0	100.0	0.00	100.00
379.0	838.8	0.0	100.0	0.0	100.0	0.00	100.00
352.8	901.1	0.0	100.0	0.0	100.0	0.00	100.00
328.4	968.0	0.0	100.0	0.0	100.0	0.00	100.00
305.7	1039.9	0.0	100.0	0.0	100.0	0.00	100.00
284.6	1117.1	0.0	100.0	0.0	100.0	0.00	100.00
264.9	1200.0	0.0	100.0	0.0	100.0	0.00	100.00

Lampiran 12. Data Hasil Karakterisasi Nanopartikel Emas Menggunakan XRD



*** Basic Data Process ***

Group : Standard
Data : mag#chem#AuNan

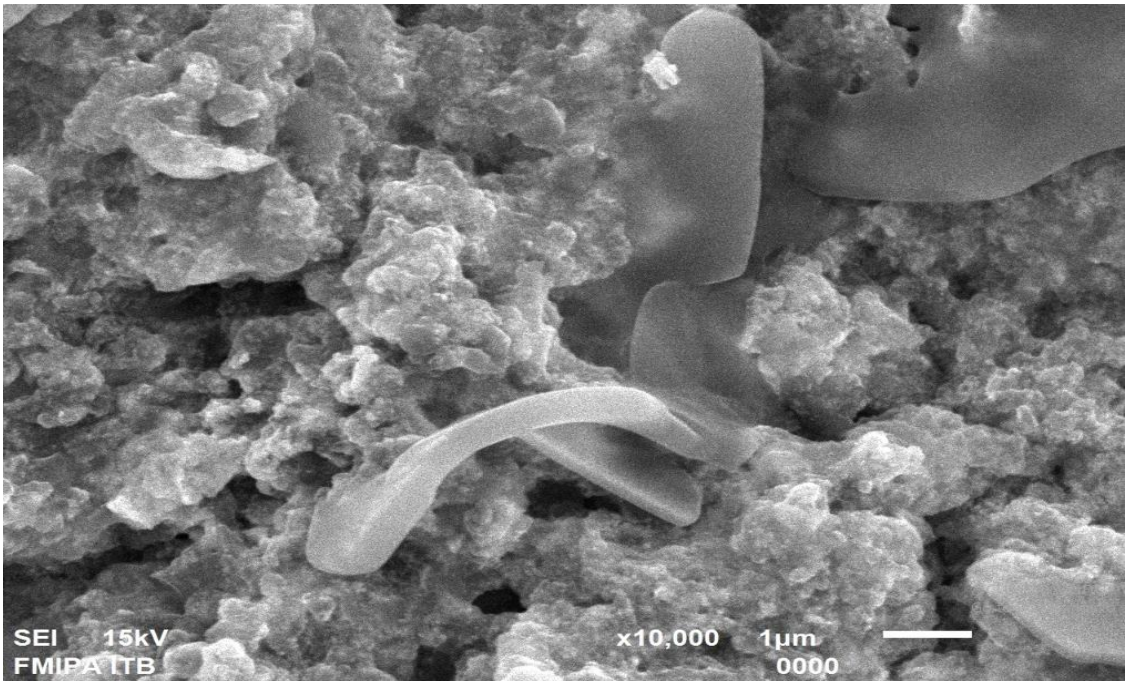
Strongest 3 peaks

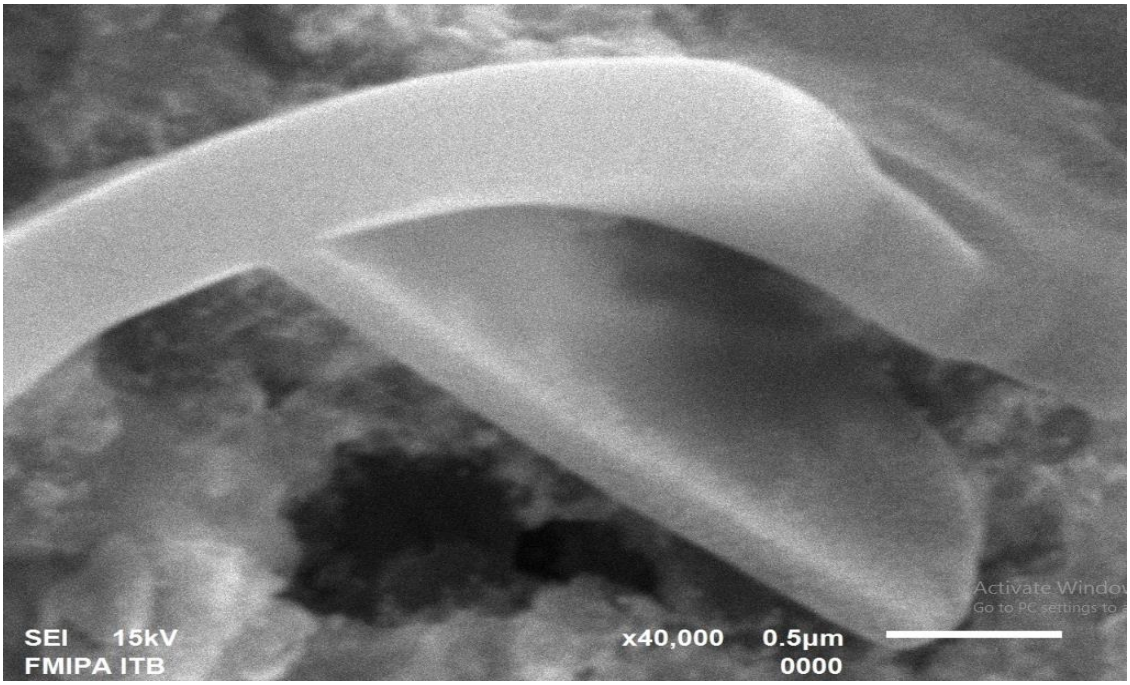
no.	peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	3	37.8933	2.37243	100	0.89710	850	43871
2	15	77.4626	1.23116	63	0.65990	532	17246
3	7	44.0356	2.05471	59	0.64400	499	18351

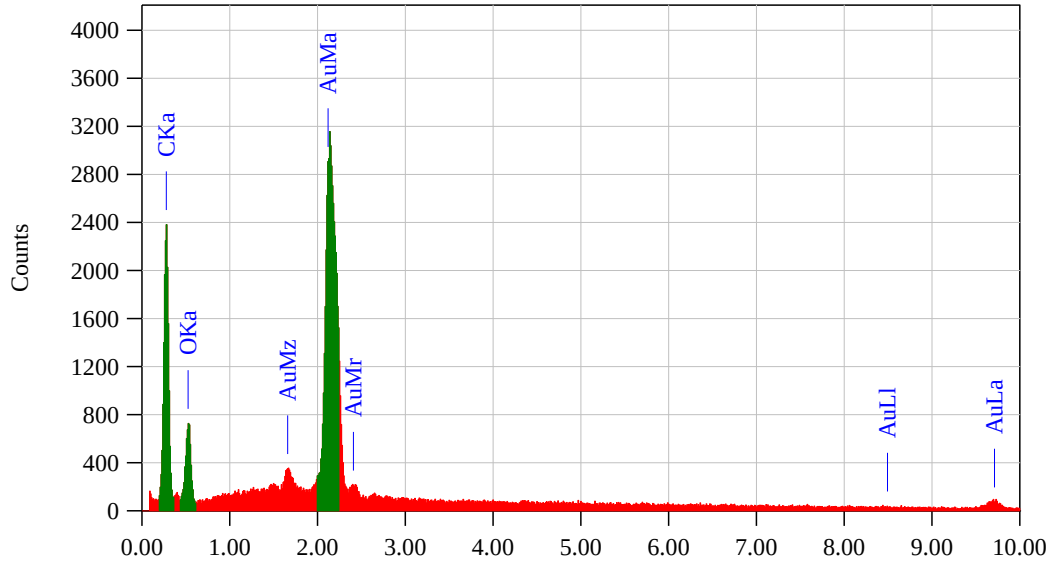
Peak Data List

peak no.	2Theta (deg)	d (A)	I/I1	FWHM (deg)	Intensity (Counts)	Integrated Int (Counts)
1	34.0505	2.63087	22	0.82900	183	9766
2	35.9200	2.49811	3	0.00000	29	0
3	37.8933	2.37243	100	0.89710	850	43871
4	39.4400	2.28289	19	0.76000	163	9335
5	42.6600	2.11773	5	0.76000	45	3247
6	43.1800	2.09342	11	0.00000	90	0
7	44.0356	2.05471	59	0.64400	499	18351
8	45.0400	2.01120	7	0.62000	60	4070
9	57.4561	1.60261	12	0.60110	100	4003
10	64.4010	1.44553	55	0.61710	467	17890
11	65.6000	1.42198	4	0.72000	30	2617
12	68.7446	1.36441	13	0.59580	112	4326
13	75.7200	1.25510	3	0.40000	28	972
14	76.6000	1.24286	12	0.60000	106	4688
15	77.4626	1.23116	63	0.65990	532	17246
16	78.4600	1.21799	7	0.59200	60	3576

Lampiran 13. Data Hasil Karakterisasi Nanopartikel Emas Menggunakan SEM EDS







ZAF Method Standardless Quantitative Analysis

Fitting Coefficient : 0.4688

Element	(keV)	Mass%	Error%	Atom%	Compound	Mass%	Cation	K
C K	0.277	57.12	0.18	83.79				48.7903
O K	0.525	12.23	0.38	13.47				5.2921
Au M	2.121	30.65	0.38	2.74				45.9176
Total		100.00		100.00				

Lampiran 14. Dokumentasi Kegiatan Penelitian