

DAFTAR PUSTAKA

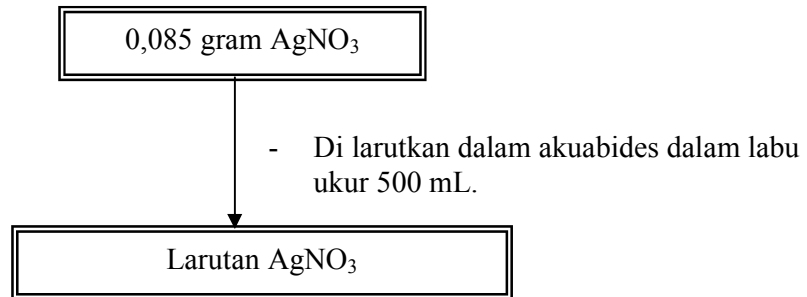
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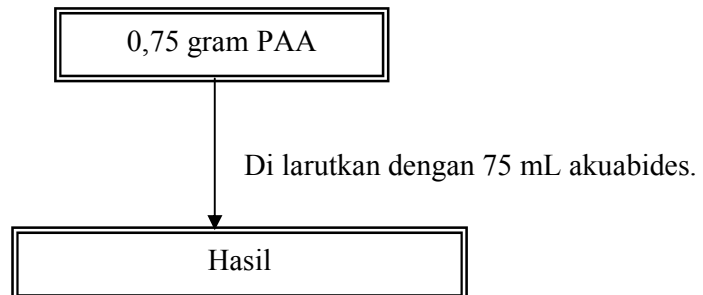
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Lampiran 1

a. Skema Pembuatan Larutan 1 mM AgNO₃

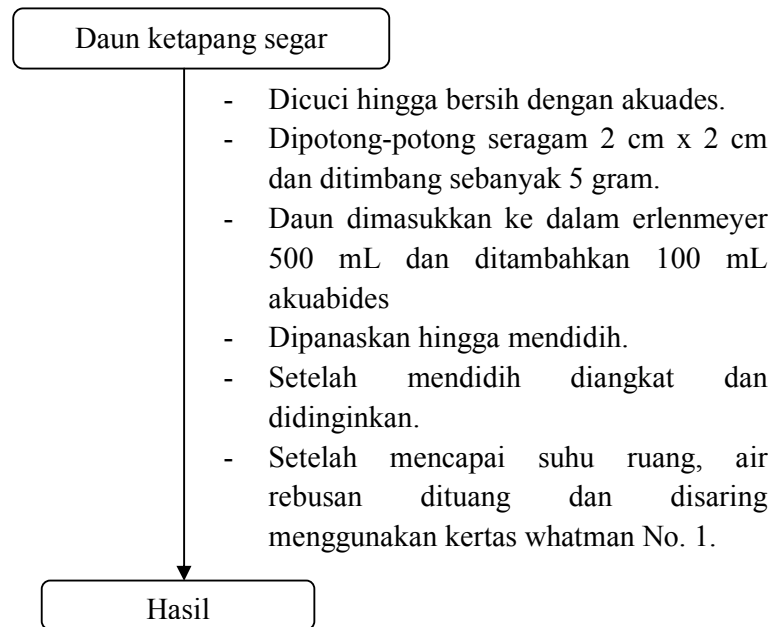


b. Skema Pembuatan Larutan PAA 1%



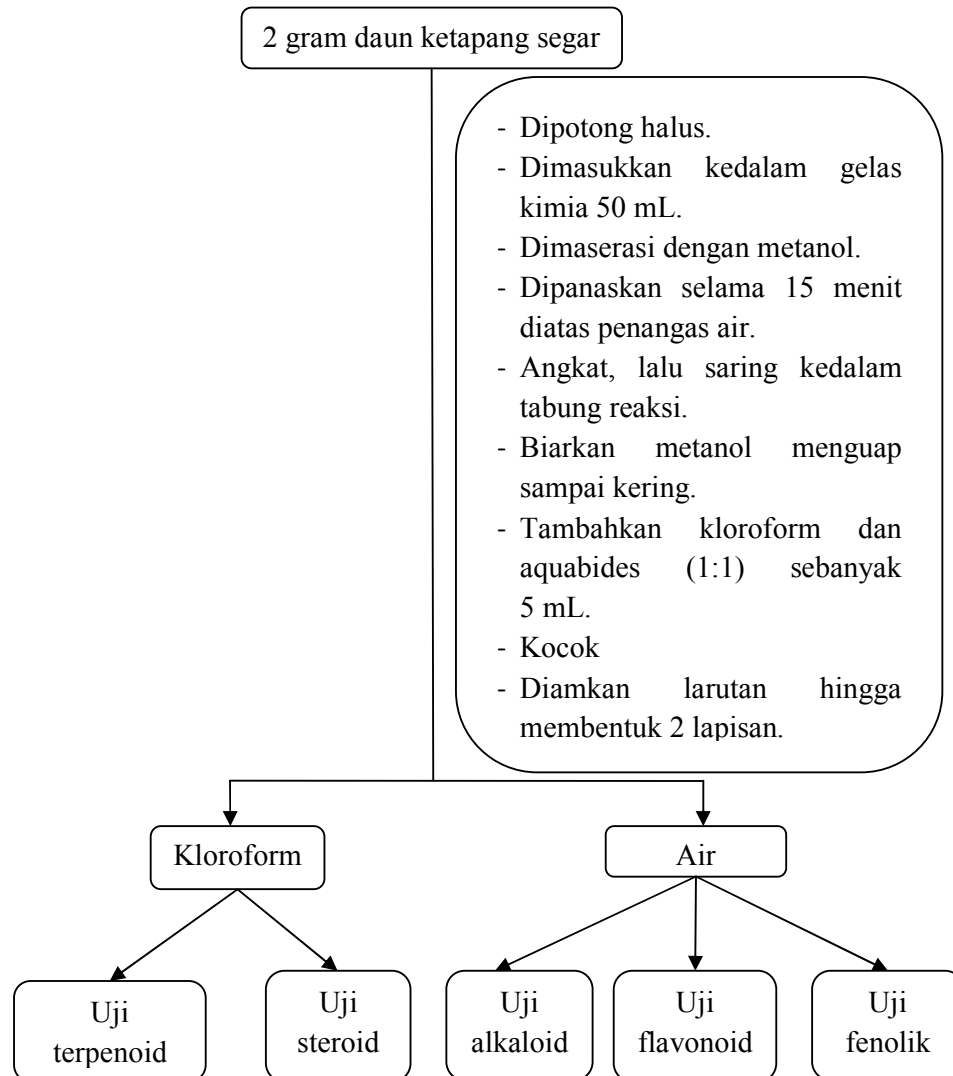
Lampiran 2

Skema Pembuatan Air Rebusan Daun Ketapang Segar



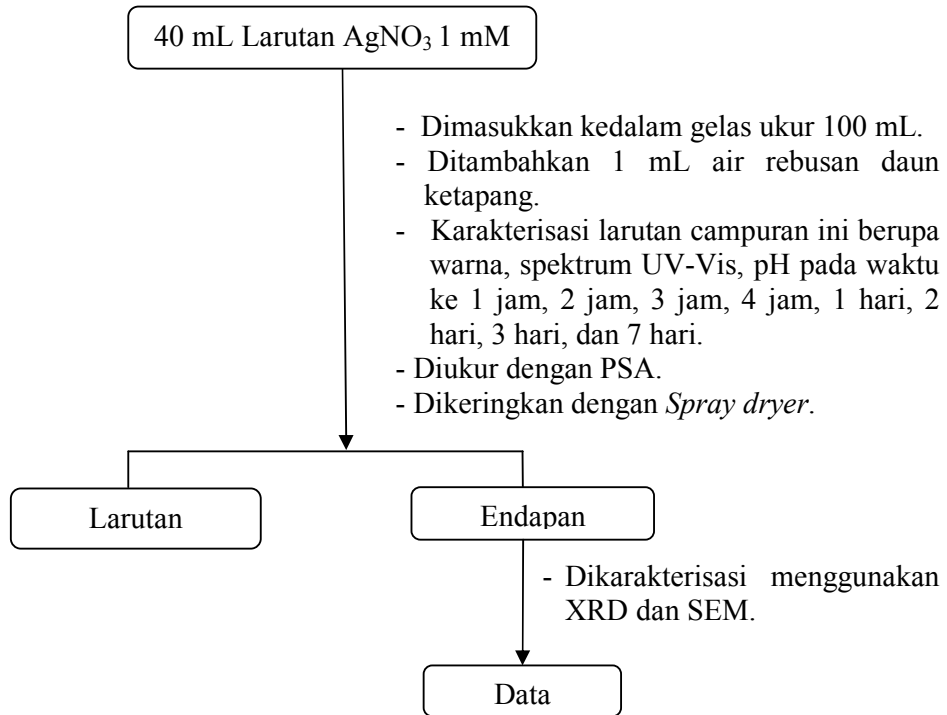
Lampiran 3

Uji fitokimia ekstrak daun ketapang



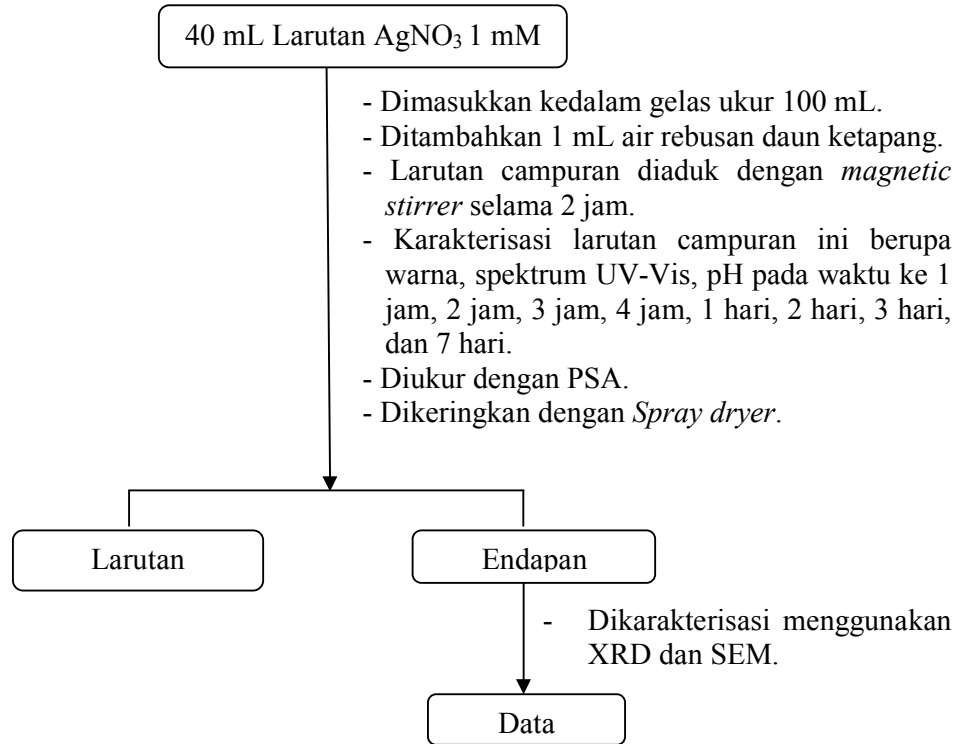
Lampiran 4

Skema Sintesis Nanopartikel Perak Tanpa Pengadukan (Sampel A)



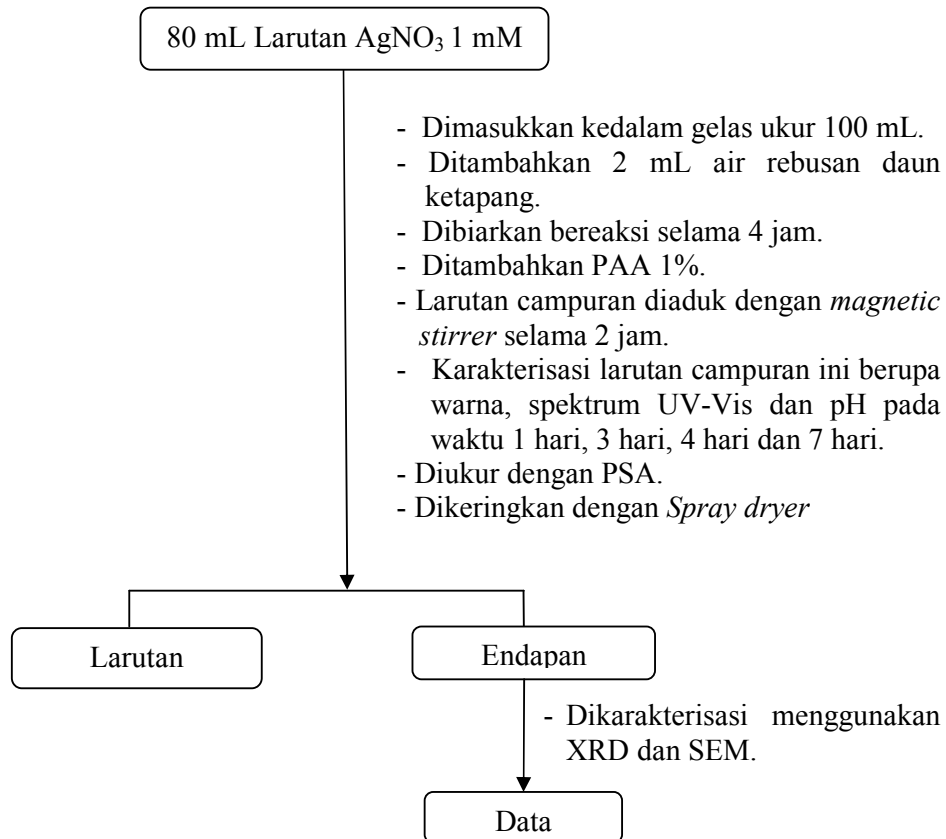
Lampiran 5

Skema Sintesis Nanopartikel Perak dengan Pengadukan (Sampel B)



Lampiran 6

Skema Sintesis Nanopartikel Perak dengan penambahan PAA 1% (Sampel C)



Lampiran 7

Uji fitokimia ekstrak daun ketapang



Lampiran 8

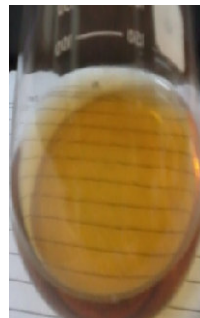
Gambar sampel A mulai dari pembuatan nanopartikel perak sampai 7 hari



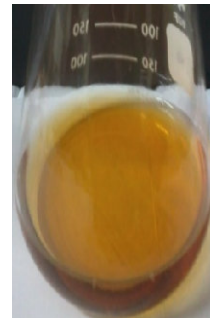
awal



30 menit



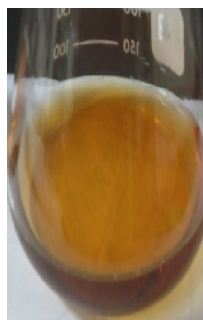
1 jam



2 jam



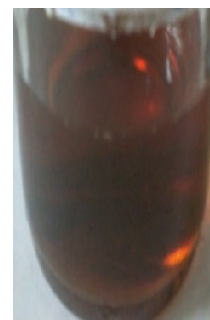
3 jam



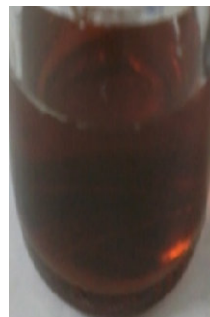
4 jam



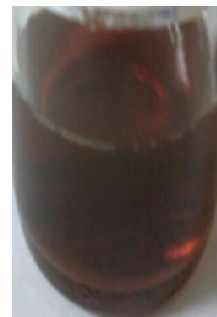
1 hari



2 hari



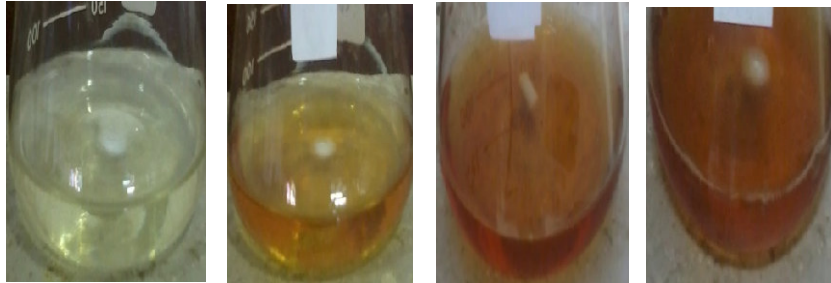
3 hari



7 hari

Lampiran 9

Gambar sampel B mulai dari pembuatan nanopartikel perak sampai 7 hari

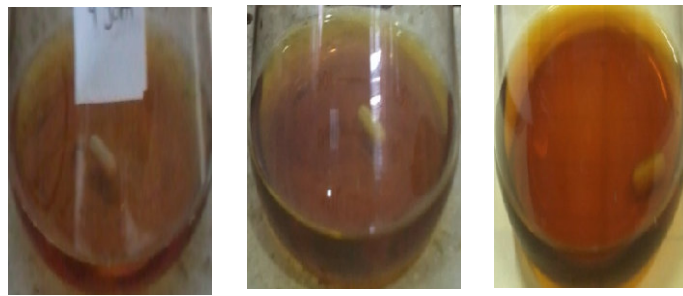


awal

1 jam

2 jam

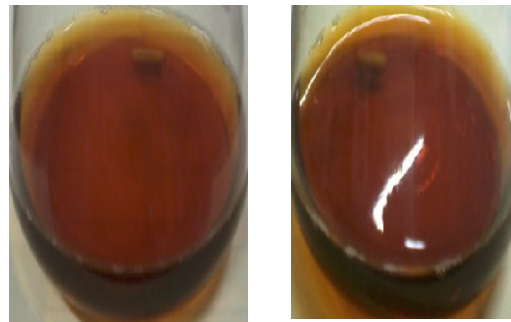
3 jam



4 jam

1 hari

2 hari

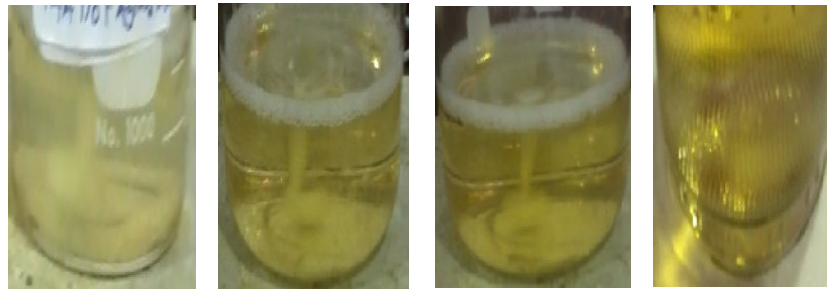


3 hari

7 hari

Lampiran 10

Gambar sampel C mulai dari pembuatan nanopartikel perak sampai 7 hari

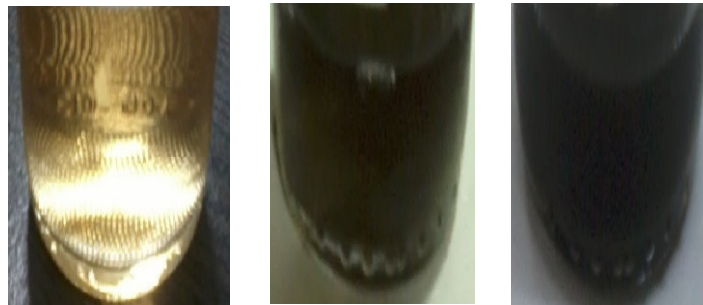


awal

1 jam

4 jam

1 hari



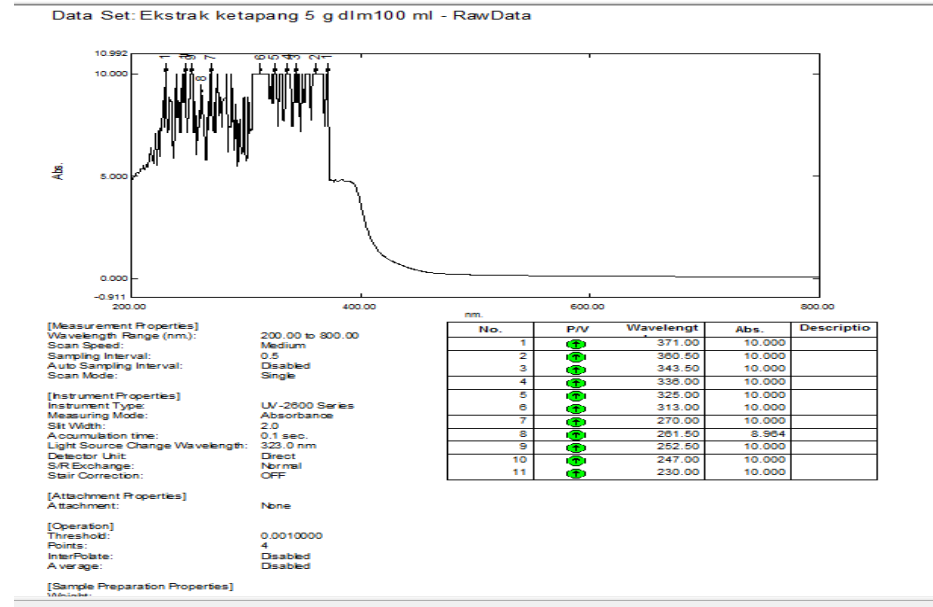
3 hari

4 hari

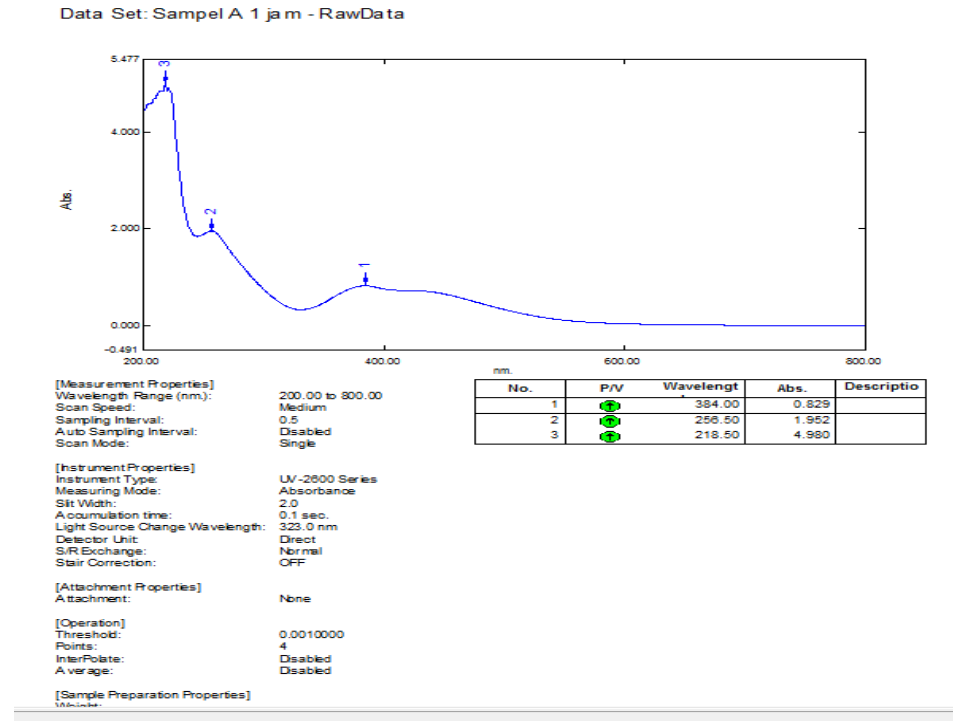
7 hari

Lampiran 11

Hasil UV-Vis Ekstrak Daun Ketapang

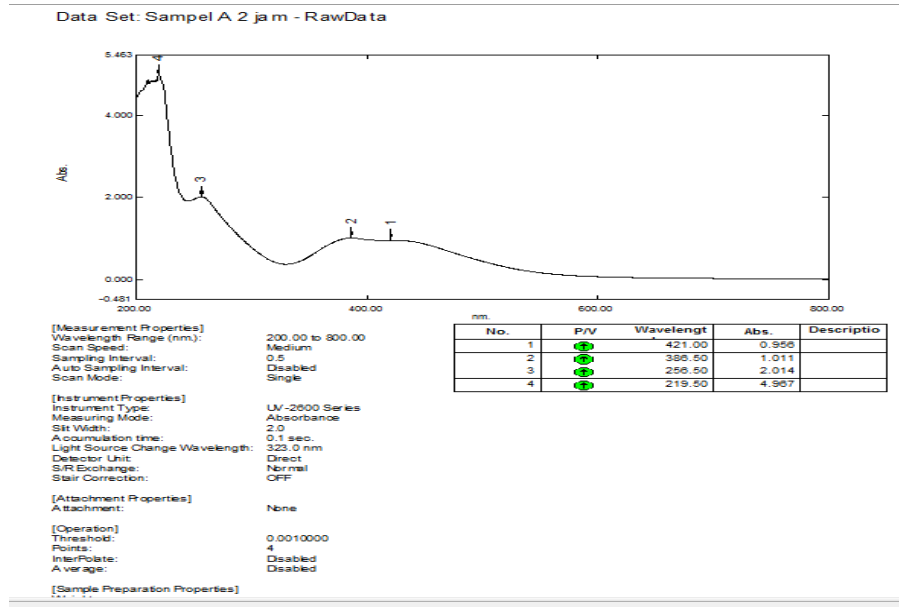


Hasil UV-Vis Sampel A 1 jam

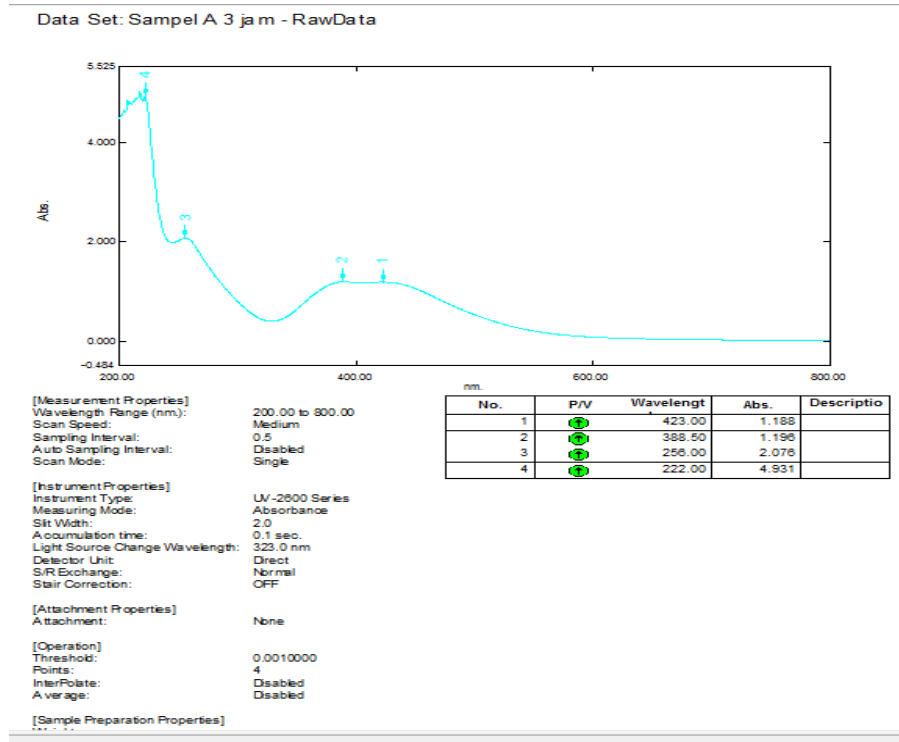


Lampiran 12

Hasil UV-Vis Sampel A 2 jam



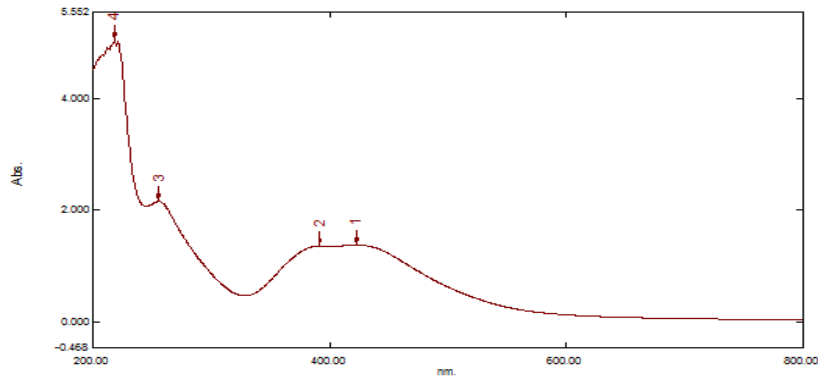
Hasil UV-Vis Sampel A 3 jam



Lampiran 13

Hasil UV-Vis Sampel A 4 jam

Data Set: Sampel A 4 jam - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 800.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Descriptio
1	●	422.50	1.373	
2	●	391.50	1.351	
3	●	255.50	2.153	
4	●	218.50	5.050	

[Instrument Properties]

Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Stair Correction: OFF

[Attachment Properties]

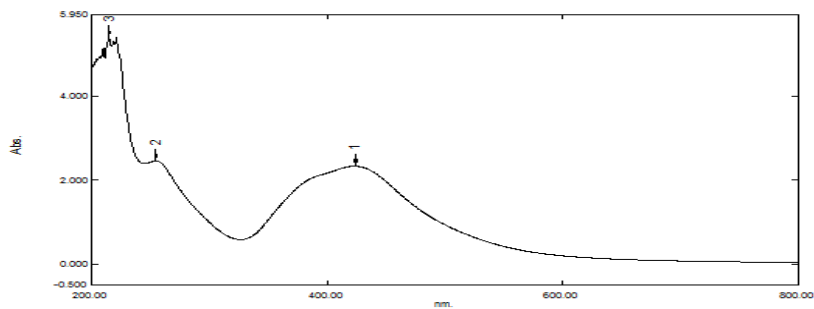
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Hasil UV-Vis Sampel A 1 hari

Spectrum Peak Pick Report

09/17/2013 01:03:09 PM

Data Set: Sampel A 1 hari - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 800.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Descriptio
1	●	423.50	2.335	
2	●	254.50	2.461	
3	●	215.00	5.413	

[Instrument Properties]

Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Stair Correction: OFF

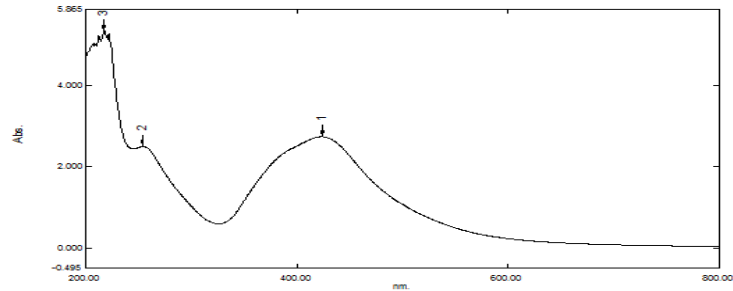
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Attachment: None

Lampiran 14

Hasil UV-Vis Sampel A 2hari

Data Set: Sampel A 2 hari - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 800.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Description
1	●	423.50	2.734	
2	●	254.00	2.489	
3	●	217.00	5.335	

[Instrument Properties]

Instrument Type: UV-2800 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Stair Correction: OFF

[Attachment Properties]

Attachment: None

[Operation]

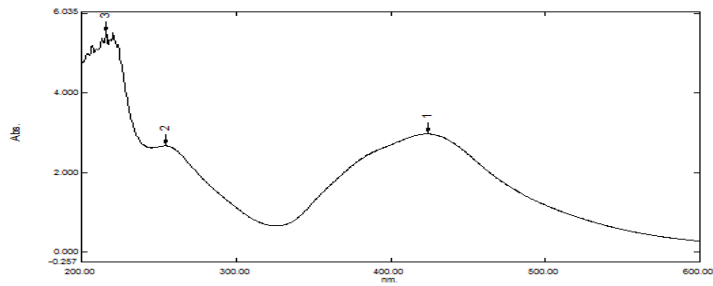
Threshold: 0.0010000
 Points: 4
 Interpolate: Disabled
 Average: Disabled

[Sample Preparation Properties]

Wavelength:

Hasil UV-Vis Sampel A 3 hari

Data Set: Sampel A 3 hari - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 600.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Description
1	●	424.00	2.982	
2	●	254.00	2.662	
3	●	215.50	5.511	

[Instrument Properties]

Instrument Type: UV-2800 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Stair Correction: OFF

[Attachment Properties]

Attachment: None

[Operation]

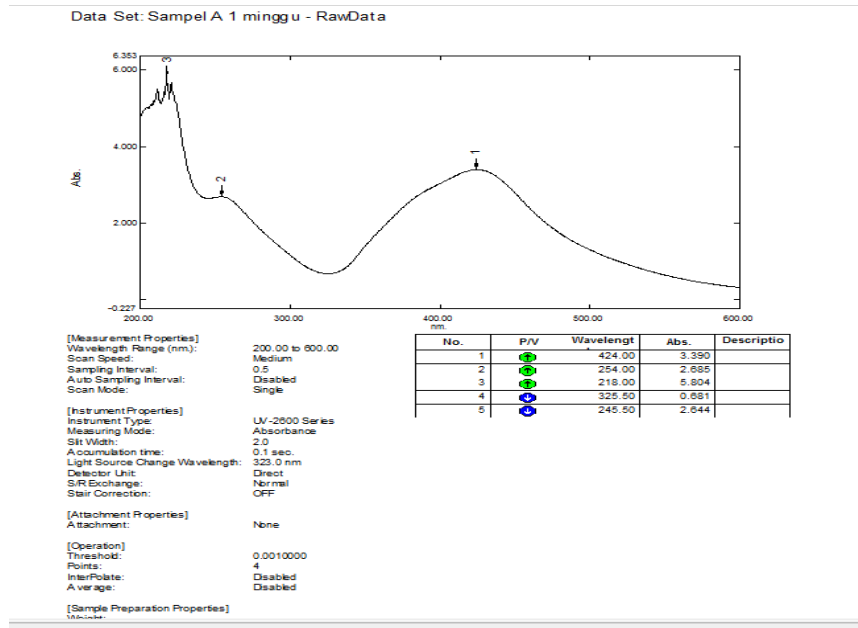
Threshold: 0.0010000
 Points: 4
 Interpolate: Disabled
 Average: Disabled

[Sample Preparation Properties]

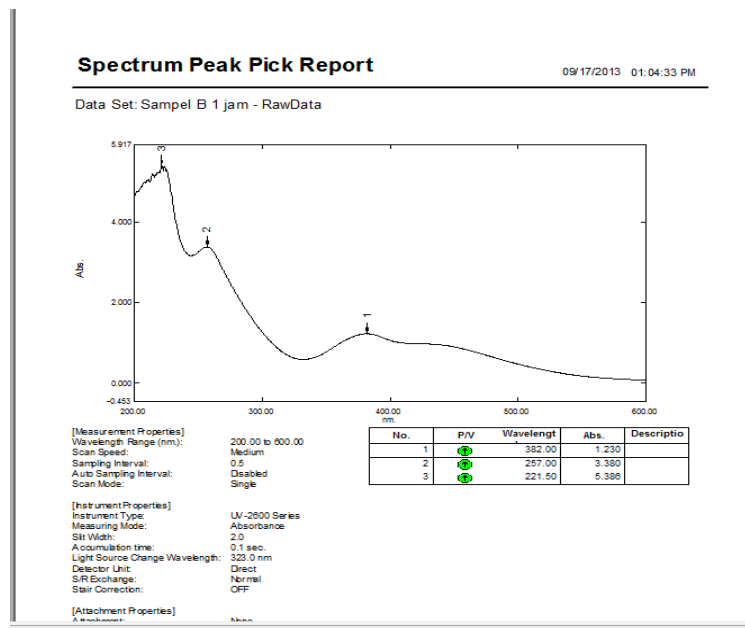
Wavelength:

Lampiran 15

Hasil UV-Vis Sampel A 7 hari

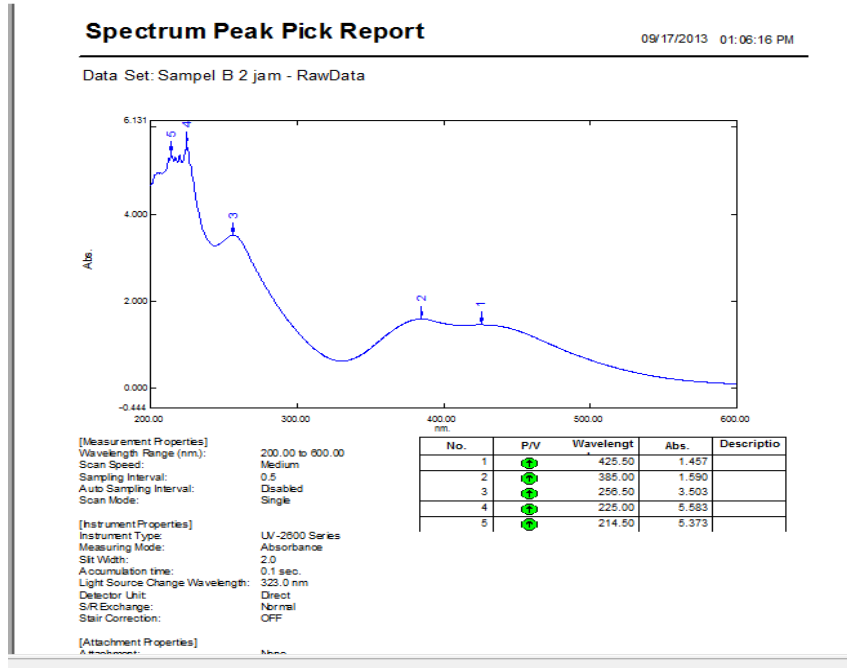


Hasil UV-Vis Sampel B 1 jam

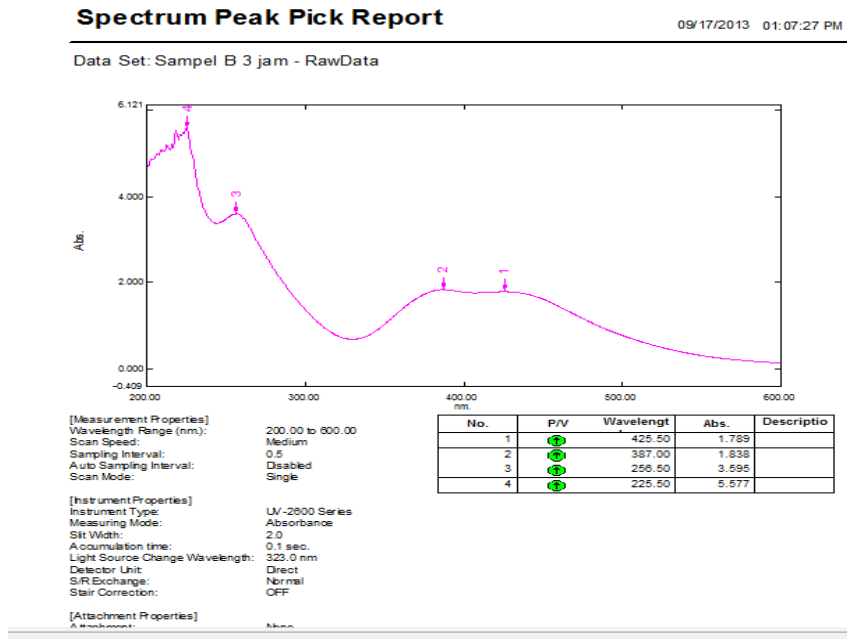


Lampiran 16

Hasil UV-Vis Sampel B 2 jam



Hasil UV-Vis Sampel B 3 jam



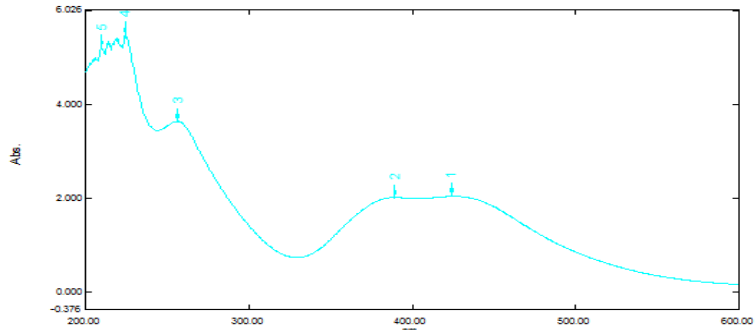
Lampiran 17

Hasil UV-Vis Sampel B 4 jam

Spectrum Peak Pick Report

09/17/2013 01:08:01 PM

Data Set: Sampel B 4 jam - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 600.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

[Instrument Properties]

Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Slair Correction: OFF

[Attachment Properties]

Attachment: None

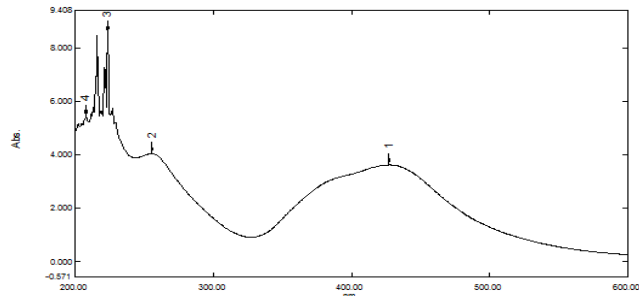
No.	P/V	Wavelength	Abs.	Description
1	●	424.50	2.039	
2	●	389.00	2.018	
3	●	256.50	3.645	
4	●	224.50	5.492	
5	●	210.00	5.220	

Hasil UV-Vis Sampel B 1 hari

Spectrum Peak Pick Report

09/17/2013 01:04:02 PM

Data Set: Sampel B 1 hari - RawData



[Measurement Properties]

Wavelength Range (nm): 200.00 to 600.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Disabled
 Scan Mode: Single

[Instrument Properties]

Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Slair Correction: OFF

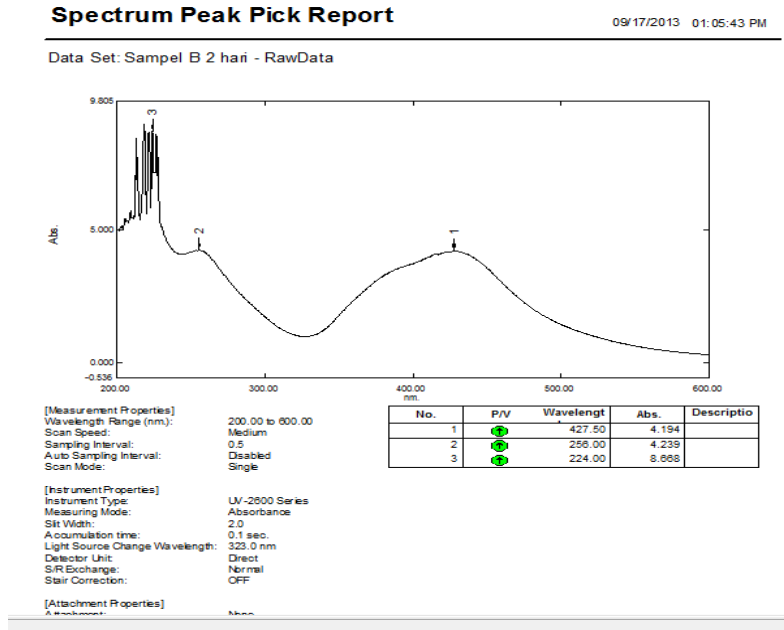
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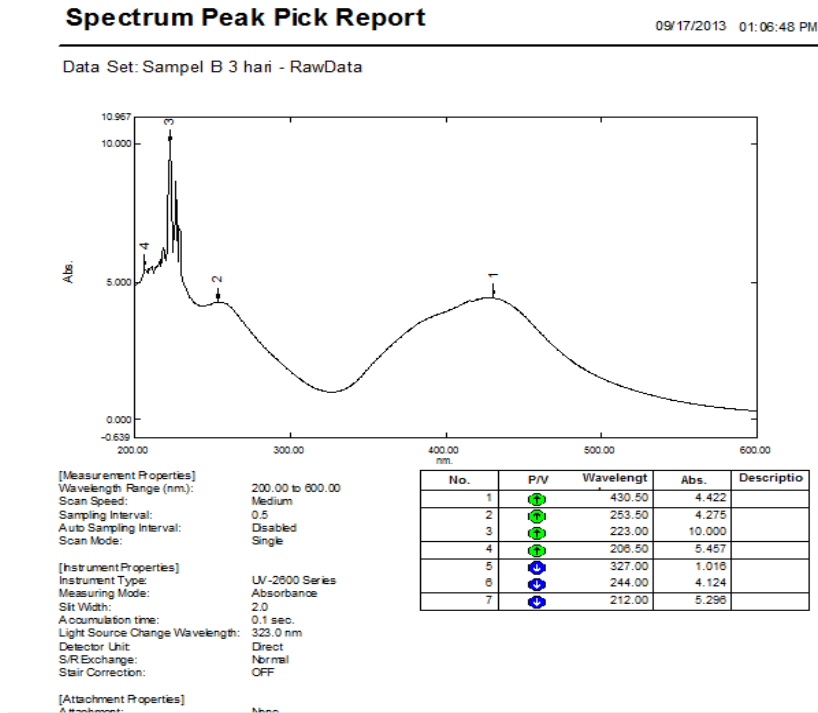
No.	P/V	Wavelength	Abs.	Description
1	●	427.00	3.625	
2	●	355.50	4.041	
3	●	223.50	8.576	
4	●	207.50	5.422	

Lampiran 18

Hasil UV-Vis Sampel B 2 hari

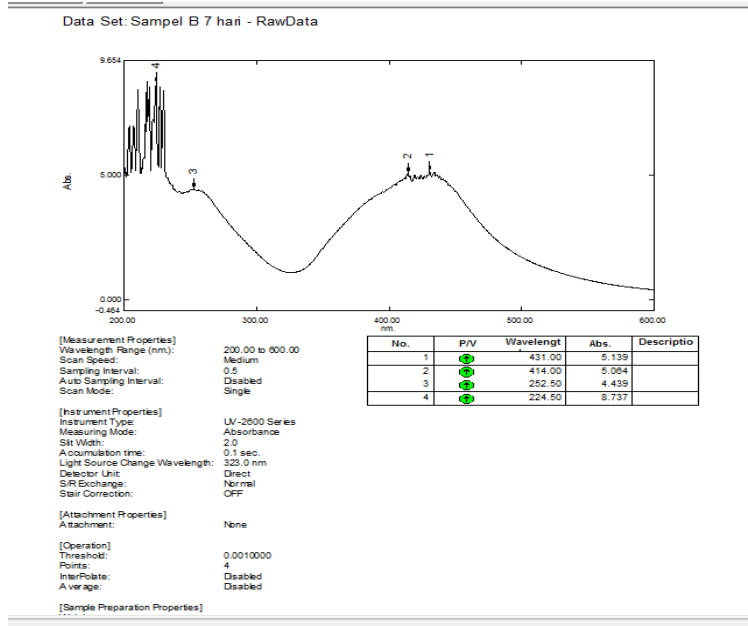


Hasil UV-Vis Sampel B 3 hari

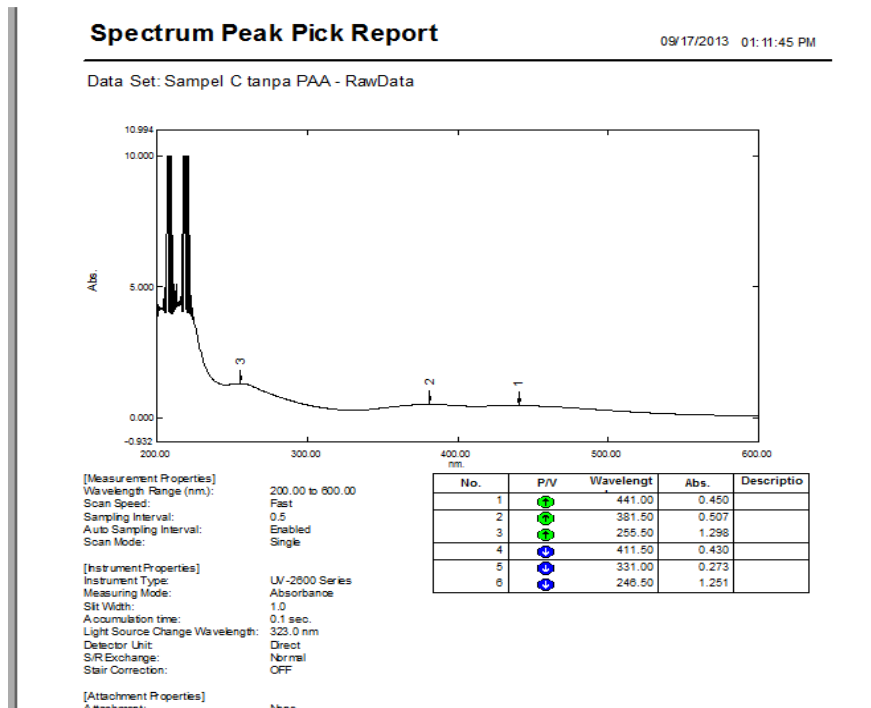


Lampiran 19

Hasil UV-Vis Sampel B 1 minggu

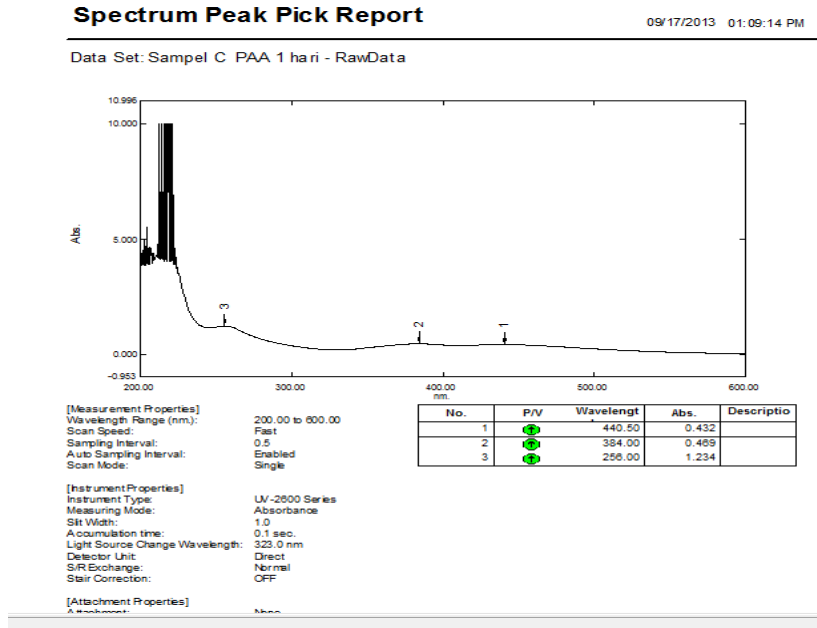


Hasil UV-Vis Sampel C tanpa PAA

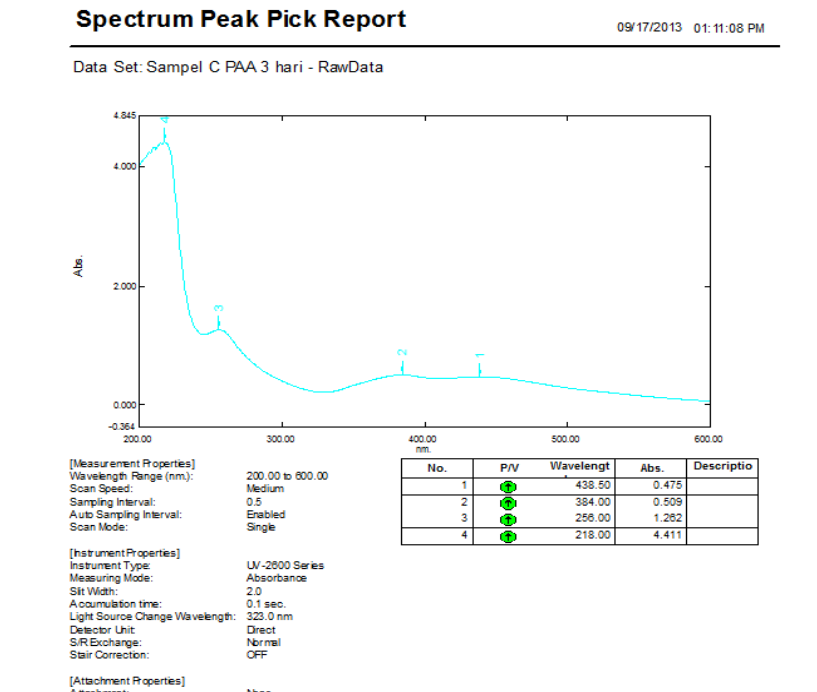


Lampiran 20

Hasil UV-Vis Sampel C 1 hari



Hasil UV-Vis Sampel C 3 hari



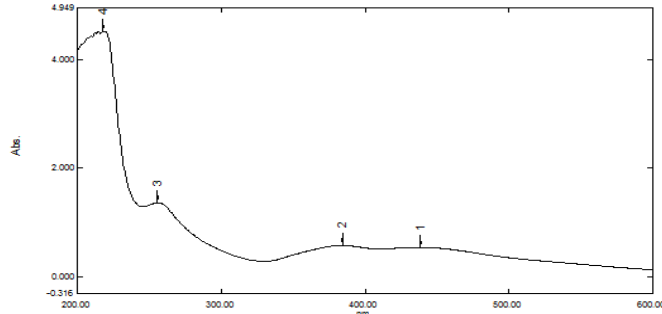
Lampiran 21

Hasil UV-Vis Sampel C 4 hari

Spectrum Peak Pick Report

09/17/2013 01:10:36 PM

Data Set: Sampel C PAA 4 hari - RawData



[Measurement Properties]
 Wavelength Range (nm): 200.00 to 600.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Enabled
 Scan Mode: Single

No.	P/V	Wavelength	Abs.	Description
1	●	438.50	0.532	
2	●	384.00	0.572	
3	●	256.00	1.357	
4	●	218.00	4.509	

[Instrument Properties]
 Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Slit Correction: OFF

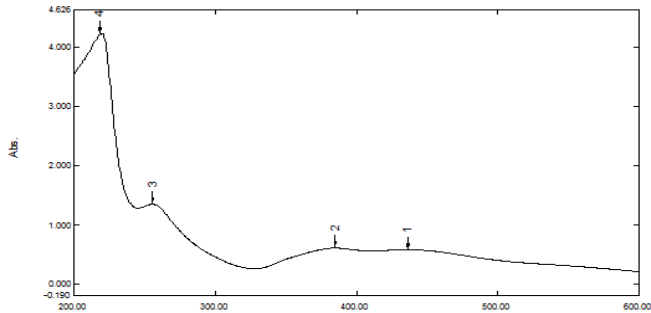
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Hasil UV-Vis Sampel C 7 hari

Spectrum Peak Pick Report

09/17/2013 01:10:03 PM

Data Set: Sampel C PAA 7 hari - RawData



[Measurement Properties]
 Wavelength Range (nm): 200.00 to 600.00
 Scan Speed: Medium
 Sampling Interval: 0.5
 Auto Sampling Interval: Enabled
 Scan Mode: Single

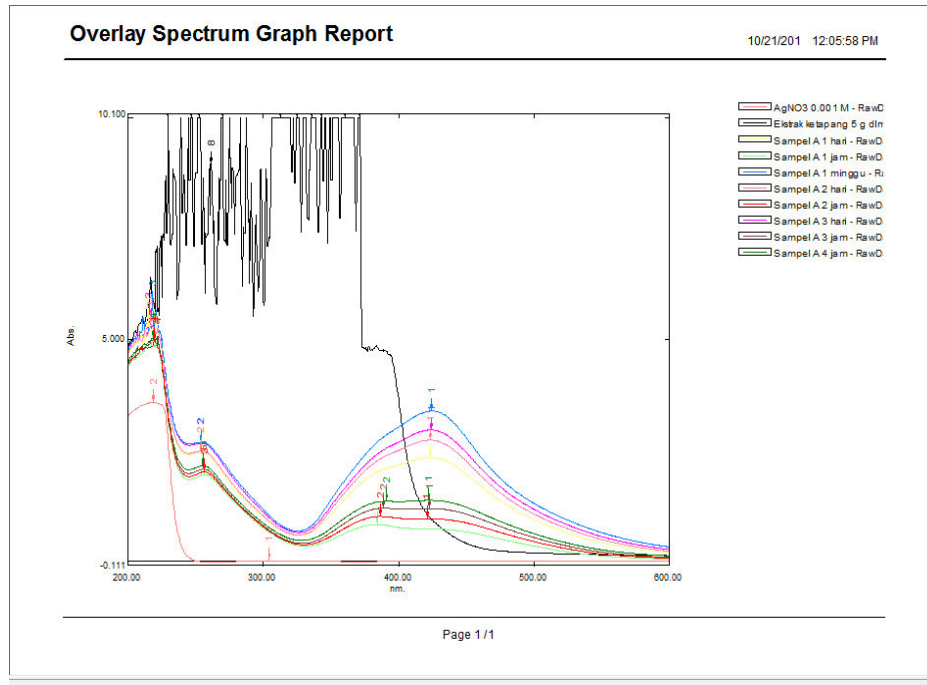
No.	P/V	Wavelength	Abs.	Description
1	●	438.50	0.580	
2	●	385.00	0.610	
3	●	256.00	1.347	
4	●	218.50	4.224	
5	●	410.00	0.564	
6	●	328.00	0.283	
7	●	245.50	1.285	

[Instrument Properties]
 Instrument Type: UV-2600 Series
 Measuring Mode: Absorbance
 Slit Width: 2.0
 Accumulation time: 0.1 sec.
 Light Source Change Wavelength: 323.0 nm
 Detector Unit: Direct
 S/R Exchange: Normal
 Slit Correction: OFF

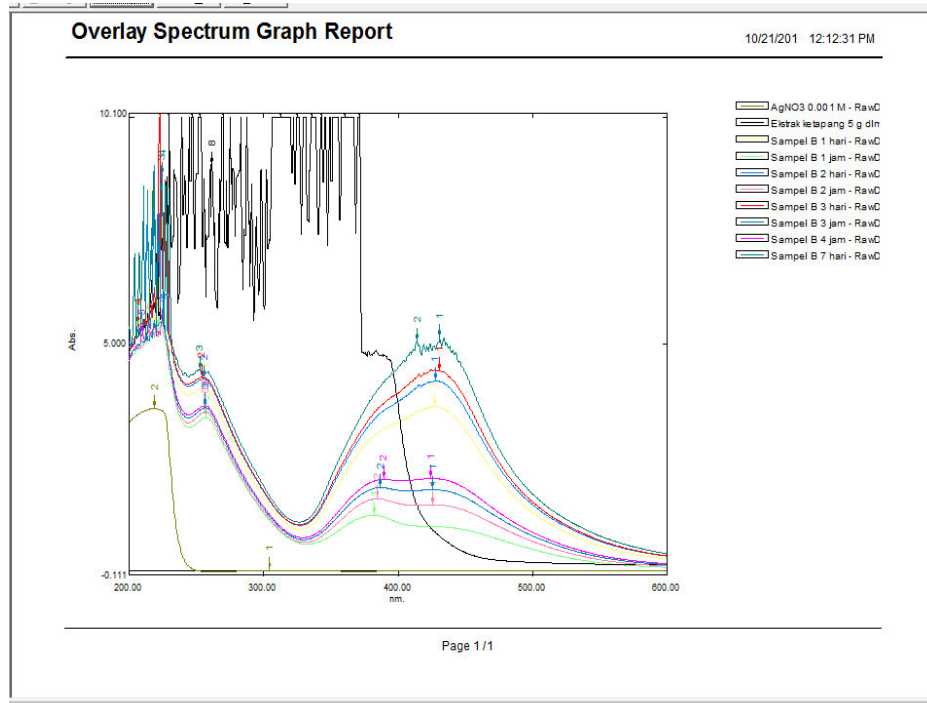
[Attachment Properties]
 Attachment: None

Lampiran 22

Hasil UV-Vis sampel A, ekstrak daun ketapang, dan AgNO₃ 1mM

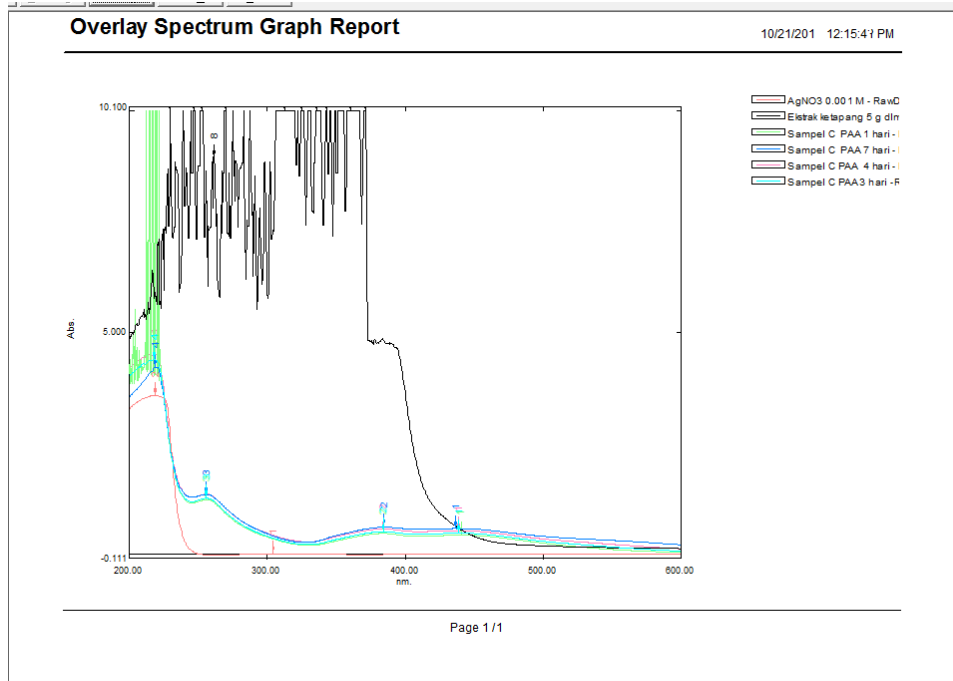


Hasil UV-Vis sampel B, ekstrak daun ketapang, dan AgNO₃ 1mM



Lampiran 23

Hasil UV-Vis sampel C, ekstrak daun ketapang, dan AgNO₃ 1mM



Lampiran 24

Serbuk Nanopartikel Perak Sampel A



Serbuk Nanopartikel Perak Sampel B



Serbuk Nanopartikel Perak Sampel C



Lampiran 25

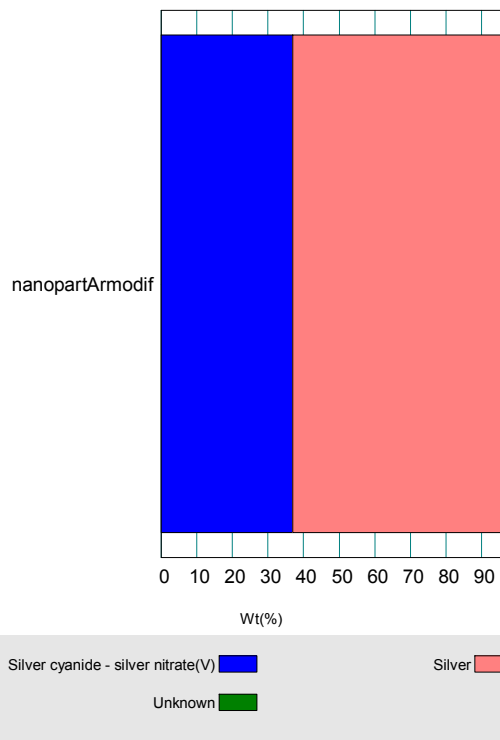
a. Gambar XRD



b. Analisis kuantitatif komponen sampel (%) endapan

Quantitative analysis results (RIR)

Phase name	Content (%)
Silver cyanide and silver nitrate	37
Silver	63



Lampiran 26

a. Gambar PSA (*Partice Size Analyzer*)



b. Hasil pengukuran PSA Sampel A, B dan C

Hasil PSA Sampel A



NanoQ Report

Sample

Name : Ag Np A
 Measured on : 10/9/2013 14:04:18
 by : admin
 Mode: Acquisition
 Profil: Admin

Comments from user:

SOP

Name defaultSOP Operating mode Statistical

<u>Dispersant / solvent properties</u>		<u>Particles refractive Index</u>	
Refractive Index (nd) :	1.33	Real Part :	1.339
Viscosity :	0.894	Imaginary Part :	0.10

Device settings

Time interval : 2.000µs
 Number of channels : 600

SOP comment :
 Default Procedure

- | | | | |
|----------------------|--|----------------|---|
| <u>Analysis mode</u> | <input checked="" type="checkbox"/> Cumulants | <u>Results</u> | <input checked="" type="checkbox"/> Intensity |
| | <input checked="" type="checkbox"/> Pade-Laplace | | <input checked="" type="checkbox"/> Volume |
| | | | <input checked="" type="checkbox"/> Number |

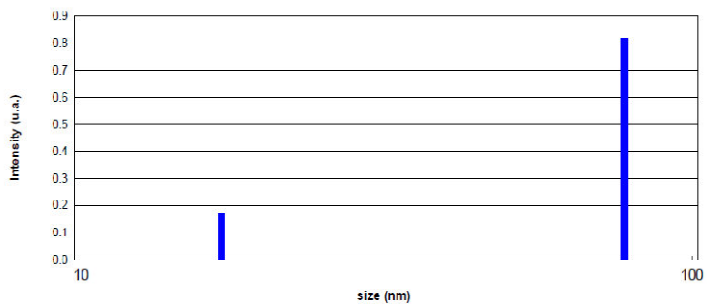
Measure conditions

Temperature :	25.0°C	Duration :	0h 2min 0s
Acquisitions :	20	Laser power :	41%
Average count rate :	1 354.14 kcps	DTC position :	DOWN
		Wavelength :	657.00

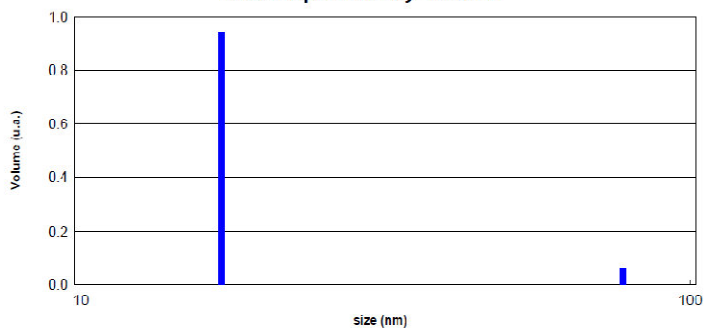
Pade-Laplace method

Dv10:	16.99	Dv50:	16.99	Dv90:	16.99
Dmean Intensity:	67.13	Dmean volume:	20.69	Dmean number:	17.03

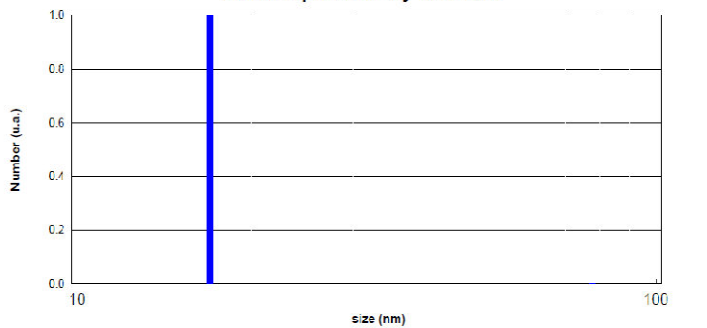
Size dispersion by Intensity



Size dispersion by Volume



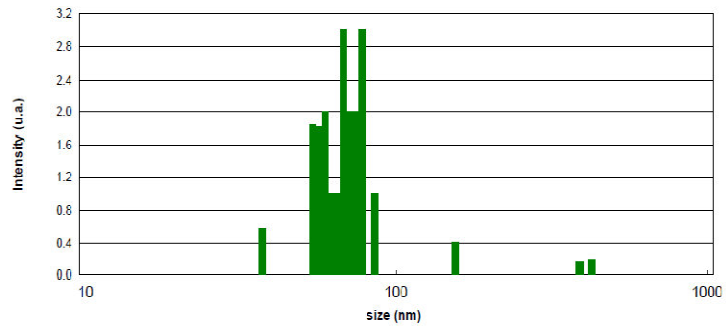
Size dispersion by Number



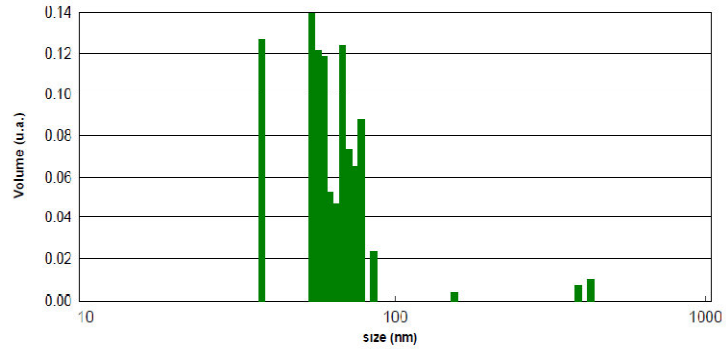
Statistical method

Dv10:	37.16	Dv50:	58.90	Dv90:	77.65
Dmean Intensity:	74.35	Dmean volume:	67.06	Dmean number:	51.35

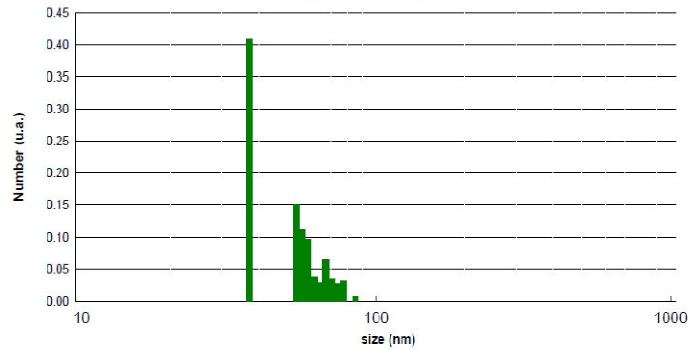
Size dispersion by Intensity



Size dispersion by Volume



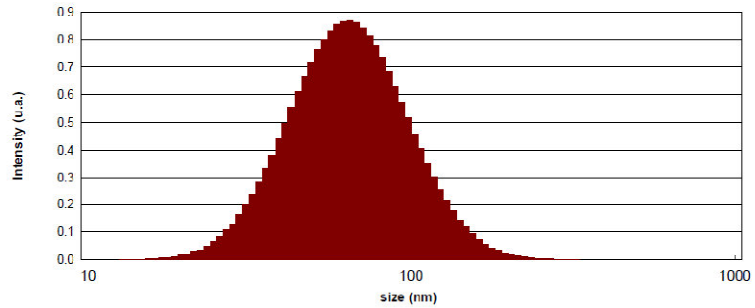
Size dispersion by Number



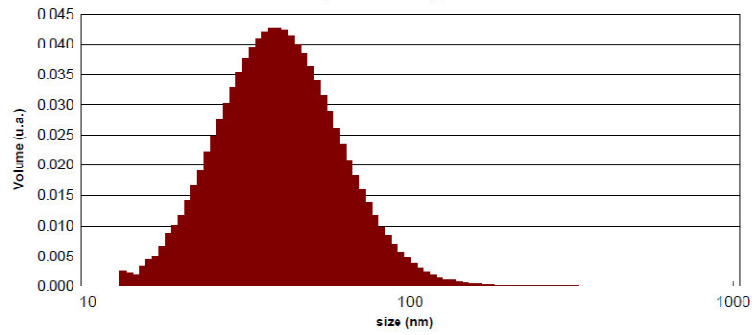
Cumulants method

			Zaverage (nm):	62.61	
Dv10:	22.39	Dv50:	38.91	Dv90: 67.63	PDI: 0.1010
Dmean Intensity:	69.62	Dmean volume:	43.09	Dmean number:	25.79

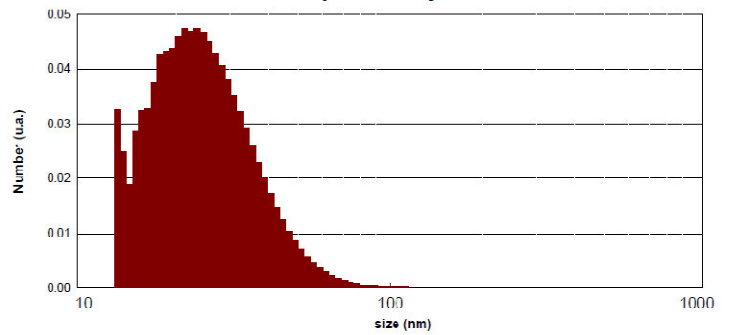
Size dispersion by Intensity



Size dispersion by Volume



Size dispersion by Number



Hasil PSA Sampel B



NanoQ Report

Sample

Name : Ag Np B
Measured on : 6/9/2013 14:00:28 **Mode:** Acquisition
by : admin **Profil:** Admin
Comments from user:

SOP

Name defaultSOP **Operating mode** Statistical

Dispersant / solvent properties

Refractive Index (nd) : 1.33
Viscosity : 0.894

Particles refractive Index

Real Part : 1.339
Imaginary Part : 0.10

Device settings

Time interval : 2.000µs
Number of channels : 600

SOP comment :
Default Procedure

Analysis mode

- Cumulants
 Pade-Laplace

Results

- Intensity
 Volume
 Number

Measure conditions

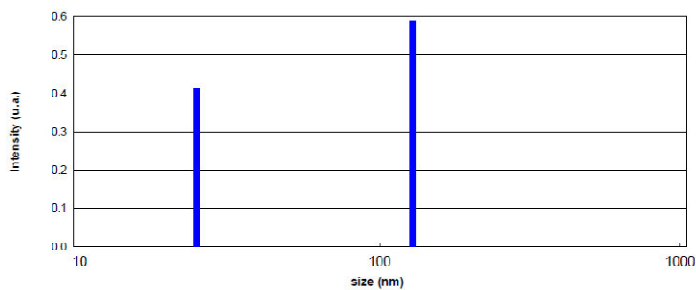
Temperature : 25.0°C
Acquisitions : 20
Average count rate : 2 577.65 kcps

Duration : 0h 2min 0s
Laser power : 47%
DTC position : DOWN
Wavelength : 657.00

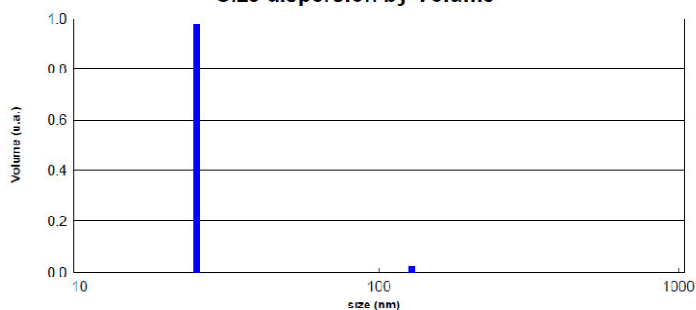
Pade-Laplace method

Dv10:	24.55	Dv50:	24.55	Dv90:	24.55
Dmean intensity:	85.82	Dmean volume:	26.75	Dmean number:	24.57

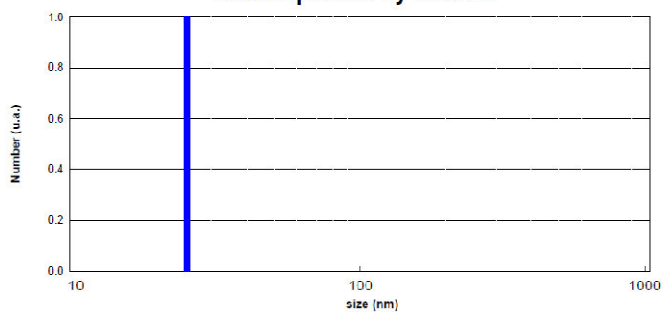
Size dispersion by Intensity



Size dispersion by Volume



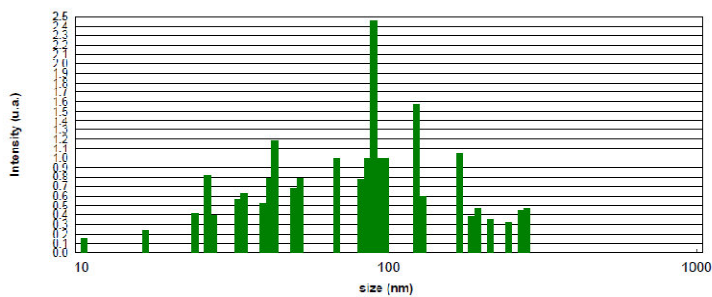
Size dispersion by Number



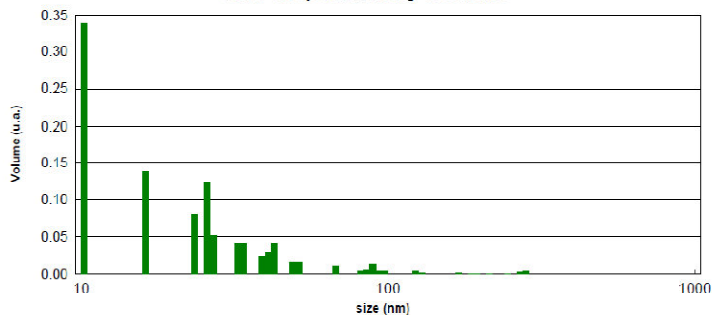
Statistical method

Dv10:	10.24	Dv50:	23.45	Dv90:	42.67
Dmean Intensity:	95.19	Dmean volume:	27.74	Dmean number:	11.71

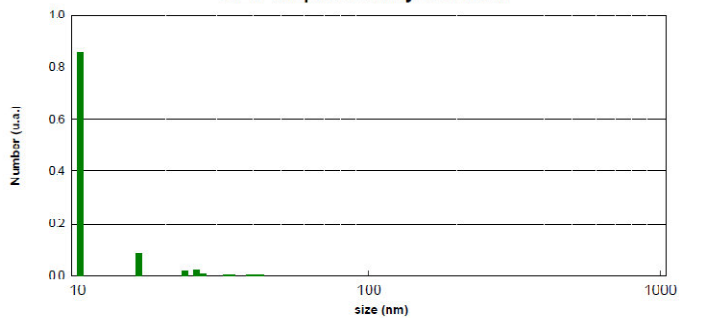
Size dispersion by Intensity



Size dispersion by Volume



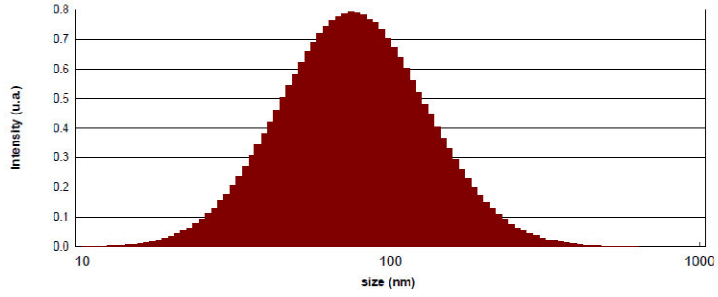
Size dispersion by Number



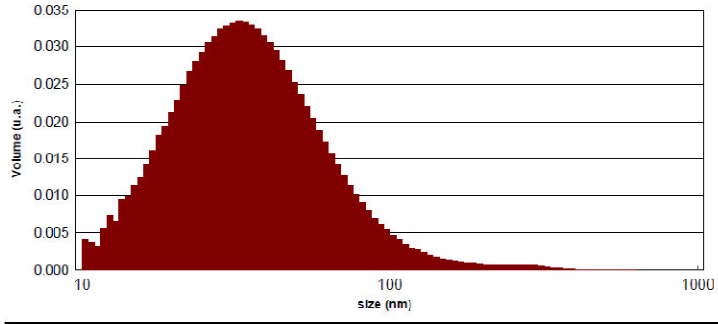
Cumulants method

			Zaverage (nm):	71.56			
Dv10:	16.99	Dv50:	33.89	Dv90:	70.81	PDI:	0.3100
Dmean Intensity:	87.43	Dmean volume:	42.02	Dmean number:	19.12		

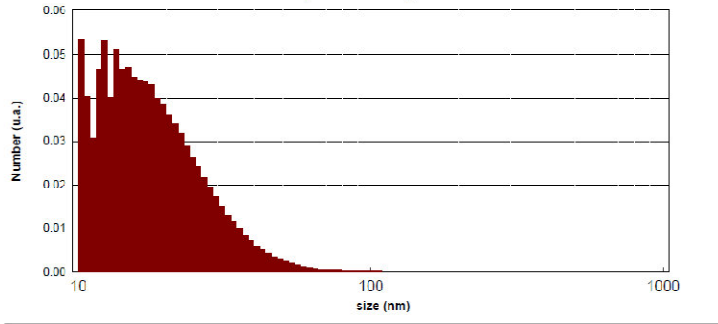
Size dispersion by Intensity



Size dispersion by Volume



Size dispersion by Number



Hasil PSA Sampel C



NanoQ Report

Sample

Name : Ag Np C
Measured on : 10/9/2013 13:58:03 **Mode:** Acquisition
by : admin **Profile:** Admin
Comments from user:

SOP

Name defaultSOP **Operating mode** Statistical

Dispersant / solvent properties

Refractive Index (nd) : 1.33
Viscosity : 0.894

Particles refractive Index

Real Part : 1.339
Imaginary Part : 0.10

Device settings

Time interval : 2.000µs
Number of channels : 600

SOP comment :

Default Procedure

Analysis mode

- Cumulants
 Pade-Laplace

Results

- Intensity
 Volume
 Number

Measure conditions

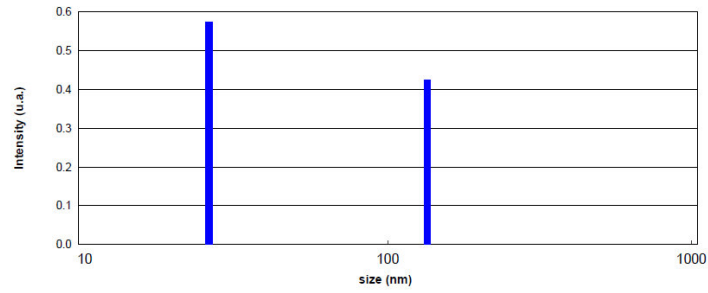
Temperature : 25.0°C
Acquisitions : 20
Average count rate : 1 436.02 kcps

Duration : 0h 2min 0s
Laser power : 40%
DTC position : DOWN
Wavelength : 657.00

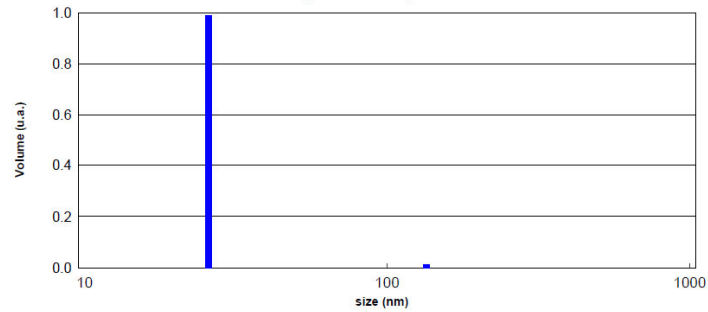
Pade-Laplace method

Dv10:	25.71	Dv50:	25.71	Dv90:	25.71
Dmean Intensity:	72.06	Dmean volume:	27.01	Dmean number:	25.72

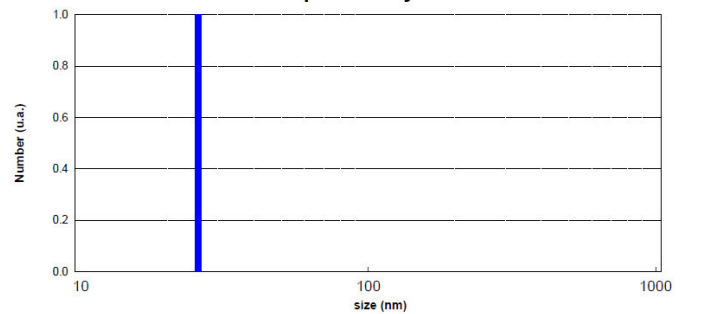
Size dispersion by Intensity



Size dispersion by Volume



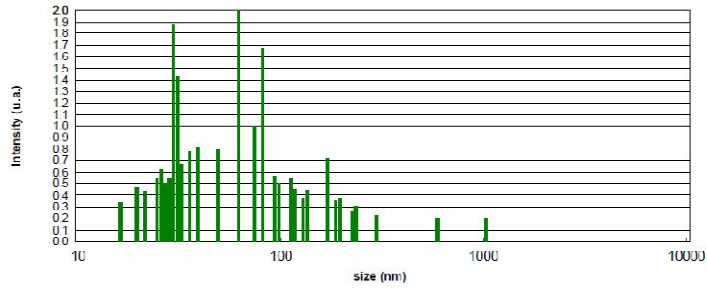
Size dispersion by Number



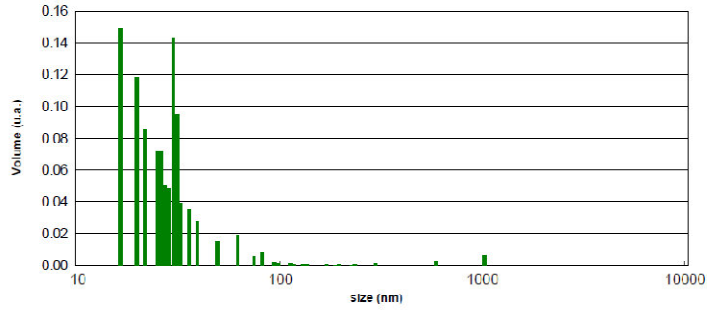
Statistical method

Dv10:	16.22	Dv50:	26.92	Dv90:	35.49
Dmean intensity:	86.65	Dmean volume:	36.33	Dmean number:	21.01

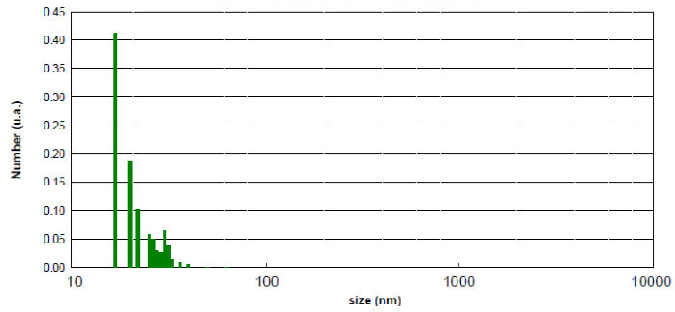
Size dispersion by Intensity



Size dispersion by Volume



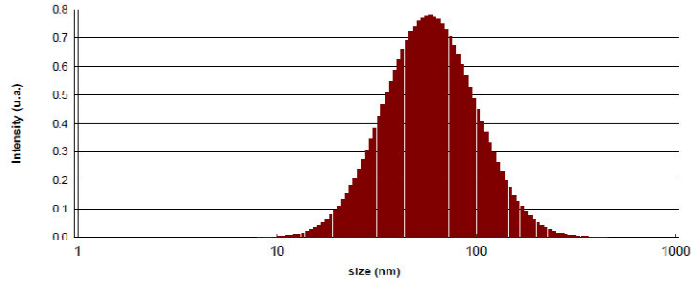
Size dispersion by Number



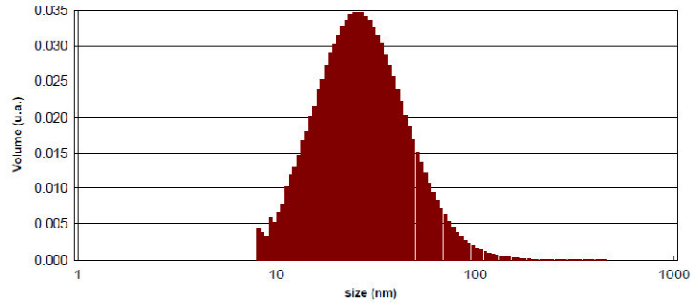
Cumulants method

			Zaverage (nm):	55.77			
Dv10:	13.49	Dv50:	25.71	Dv90:	53.72	PDI:	0.2970
Dmean Intensity:	67.49	Dmean volume:	31.03	Dmean number:	15.29		

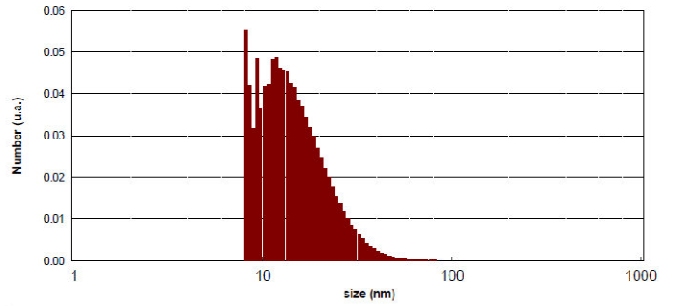
Size dispersion by Intensity



Size dispersion by Volume

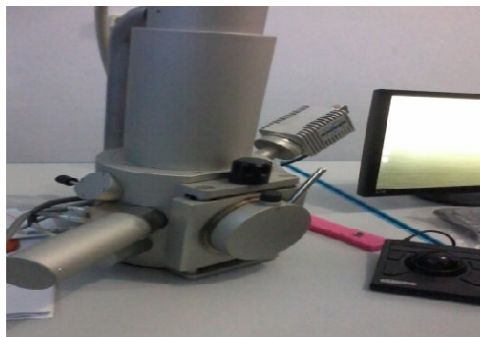
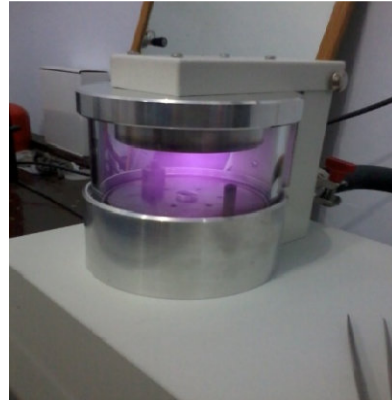


Size dispersion by Number



Lampiran 27

Gambar SEM



Lampiran 27

Gambar *Spray Dryer*

