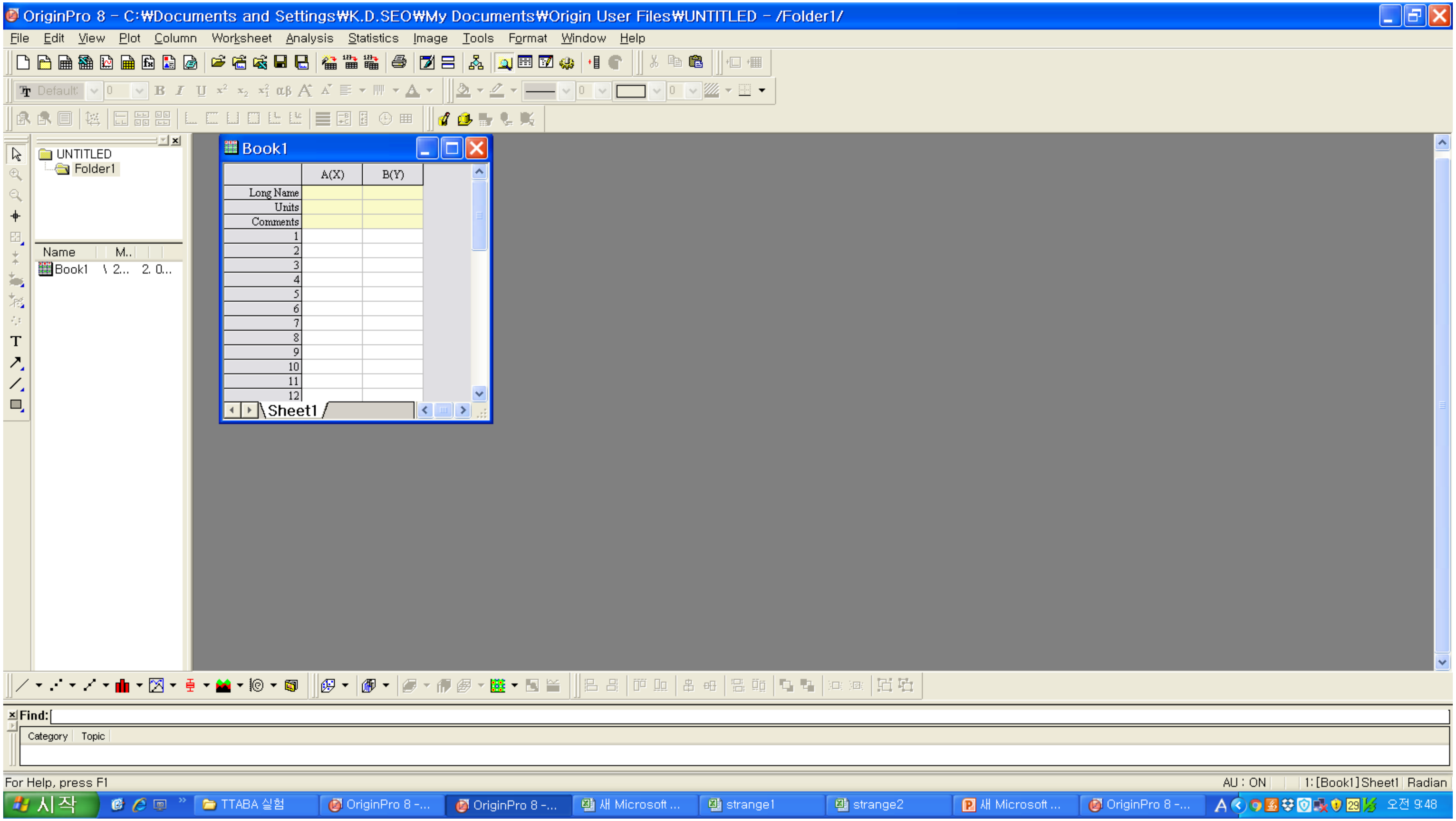
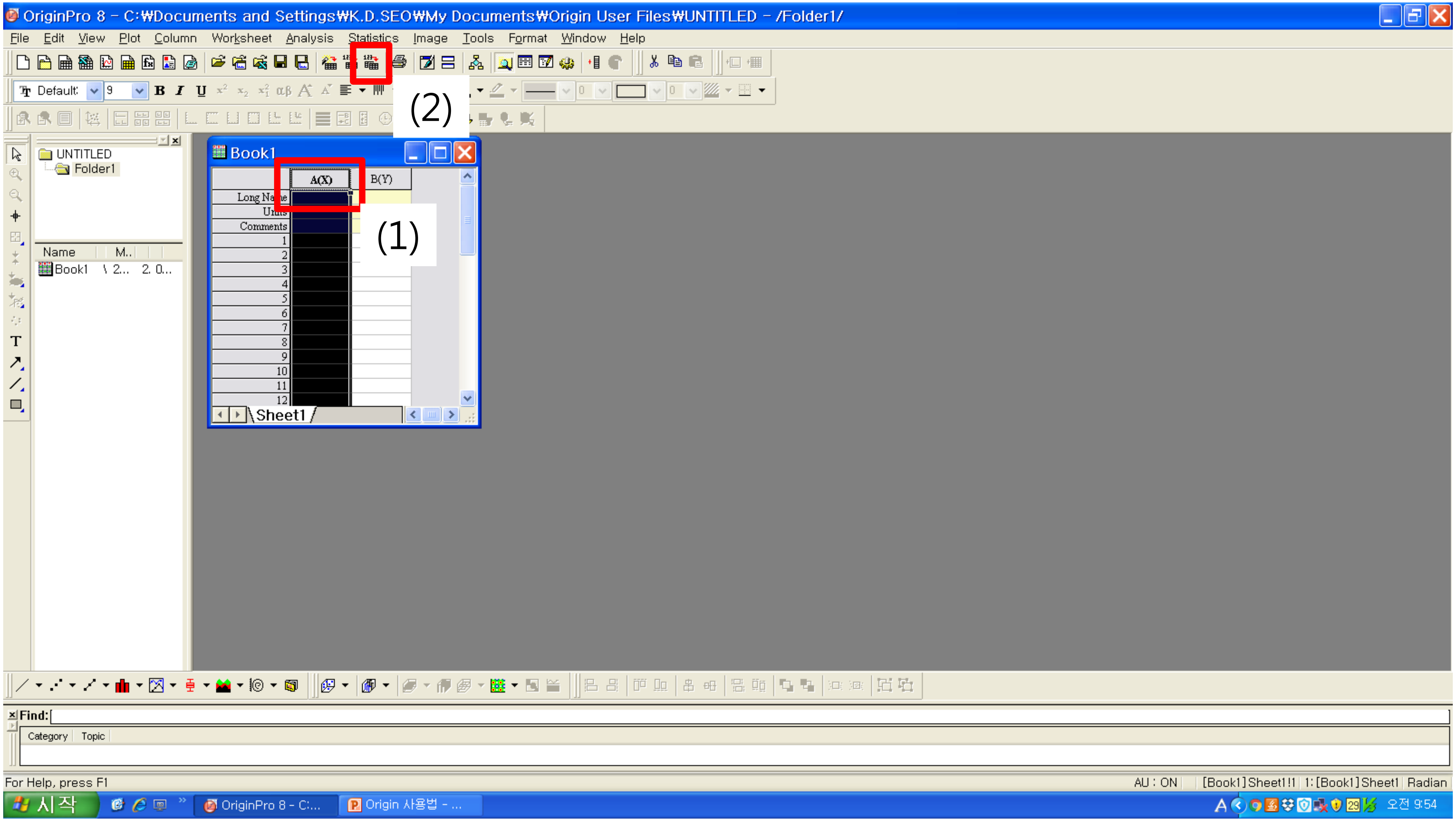
1. 오리진 첫 화면입니다.

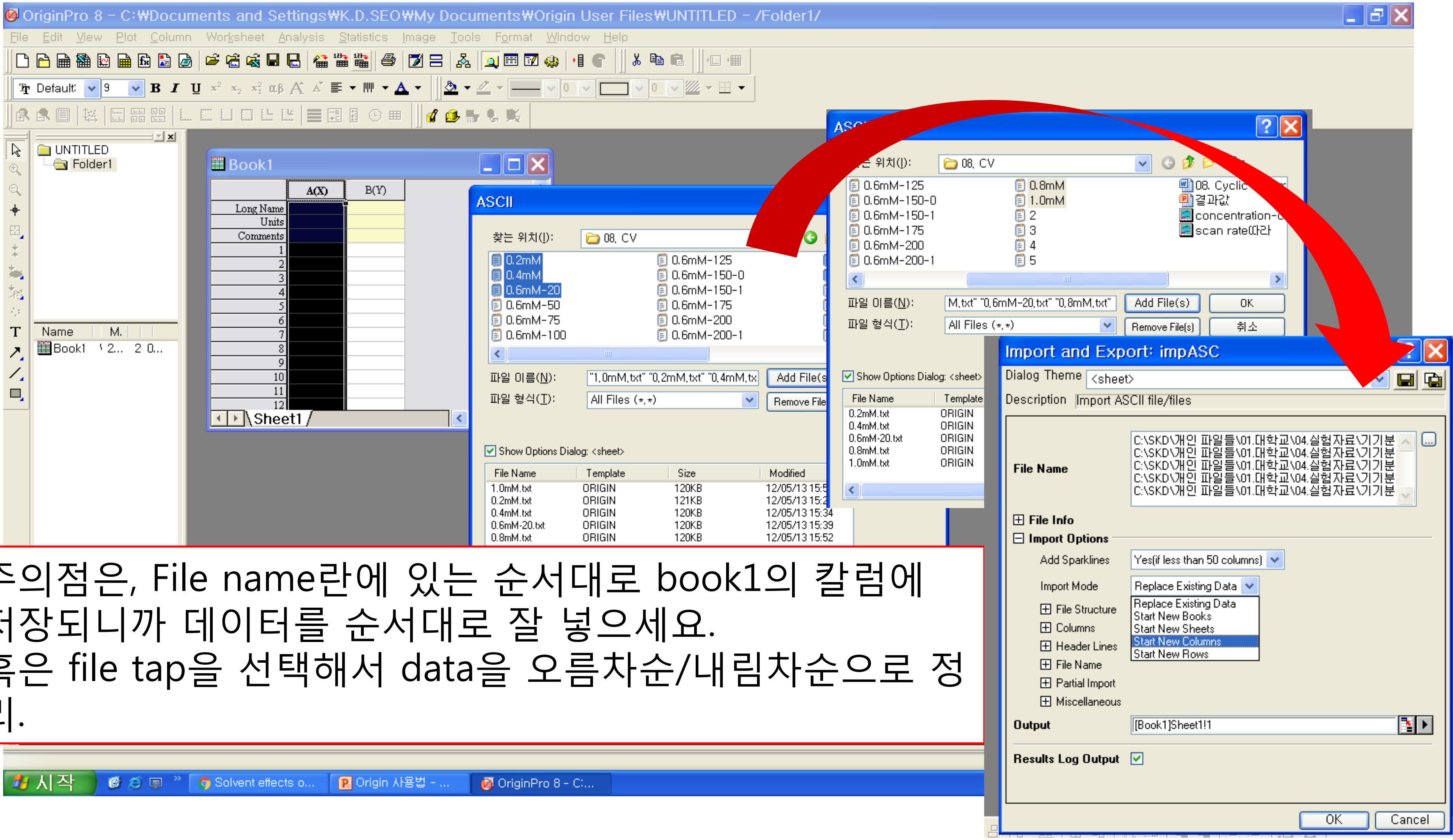

OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/
File Edit View Plot Column Worksheet Analysis Statistics Image Tools Format Window Help
Default
UNTITLED
Folder1
Name
M..
Book1
Book1
A(X)
B(Y)
Long Name
Units
Comments
Sheet1
Find:
Category
Topic
For Help, press F1
AU : ON
1:[Book1]Sheet1
Radian
시작
TTABA 실험
OriginPro 8 -...
새 Microsoft ...
strange1
strange2
오전 9:48

2. (1) 칼럼 하나 클릭해서 (2)에 보이는 아이콘 클릭



OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/
File Edit View Plot Column Worksheet Analysis Statistics Image Tools Format Window Help
(2)
Book1
A(X)
B(Y)
Long Name
Units
Comments
(1)
Sheet1
UNTITLED
Folder1
Name
Book1
Find:
Category
Topic
For Help, press F1
AU : ON
[Book1]Sheet1!1
1: [Book1]Sheet1
Radian
시작
OriginPro 8 - C:...
Origin 사용법 - ...
오전 9:54

3. 필요한 데이터들을 선택하고 Add files, 이후 OK
4. 작은 창 하나 뜨면, import mode에서 start new column



OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/

ASCII

찾는 위치(I): 08. CV

파일 이름(N): "1.0mM.txt" "0.2mM.txt" "0.4mM.tx

파일 형식(T): All Files (*.*)

☑ Show Options Dialog: <sheet>

File Name	Template	Size	Modified
1.0mM.txt	ORIGIN	120KB	12/05/13 15:5
0.2mM.txt	ORIGIN	121KB	12/05/13 15:2
0.4mM.txt	ORIGIN	120KB	12/05/13 15:34
0.6mM-20.txt	ORIGIN	120KB	12/05/13 15:39
0.8mM.txt	ORIGIN	120KB	12/05/13 15:52

찾는 위치(I): 08. CV

파일 이름(N): M.txt" "0.6mM-20.txt" "0.8mM.txt"

파일 형식(T): All Files (*.*)

☑ Show Options Dialog: <sheet>

File Name	Template
0.2mM.txt	ORIGIN
0.4mM.txt	ORIGIN
0.6mM-20.txt	ORIGIN
0.8mM.txt	ORIGIN
1.0mM.txt	ORIGIN

Import and Export: impASC

Dialog Theme: <sheet>

Description: Import ASCII file/files

File Name:
C:\SKD\개인 파일들\01.대학교\04.실험자료\기기분
C:\SKD\개인 파일들\01.대학교\04.실험자료\기기분
C:\SKD\개인 파일들\01.대학교\04.실험자료\기기분
C:\SKD\개인 파일들\01.대학교\04.실험자료\기기분
C:\SKD\개인 파일들\01.대학교\04.실험자료\기기분

Add Sparklines: Yes(if less than 50 columns)

Import Mode: Replace Existing Data

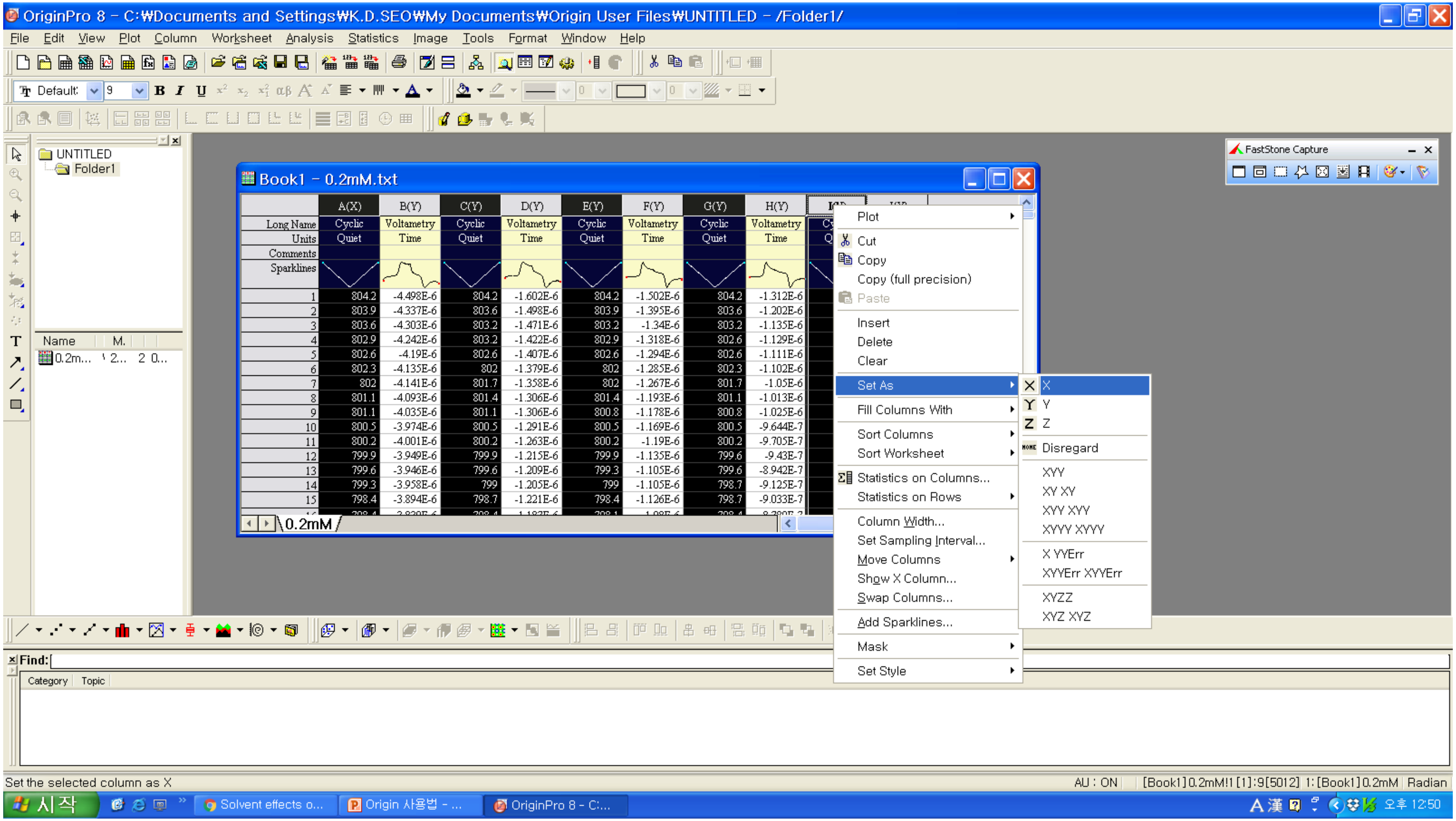
Output: [Book1]Sheet1!1

Results Log Output: ☑

File Edit View Plot Column Worksheet Analysis Statistics Image Tools Format Window Help
UNTITLED
Folder1
Book1
A(X) B(Y)
Long Name
Units
Comments
Sheet1
Name M.
0.2mM
0.4mM
0.6mM-20
0.6mM-50
0.6mM-75
0.6mM-100
0.6mM-125
0.6mM-150-0
0.6mM-150-1
0.6mM-175
0.6mM-200
0.6mM-200-1
0.8mM
1.0mM
08. Cyclic
결과값
concentration-
scan rate따라
Add File(s)
Remove File(s)
OK
취소
File Info
Import Options
File Structure
Columns
Header Lines
File Name
Partial Import
Miscellaneous
Replace Existing Data
Start New Books
Start New Sheets
Start New Columns
Start New Rows
OK
Cancel
시작
Solvent effects o...
Origin 사용법 - ...
OriginPro 8 - C:...

주의점은, File name란에 있는 순서대로 book1의 칼럼에 저장되니까 데이터를 순서대로 잘 넣으세요.
혹은 file tap을 선택해서 data을 오름차순/내림차순으로 정리.

5. X축으로 할 data column들을 선택하고 (ctrl + 클릭 클릭) 우클릭. Set as → X



OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/

Book1 - 0.2mM.txt

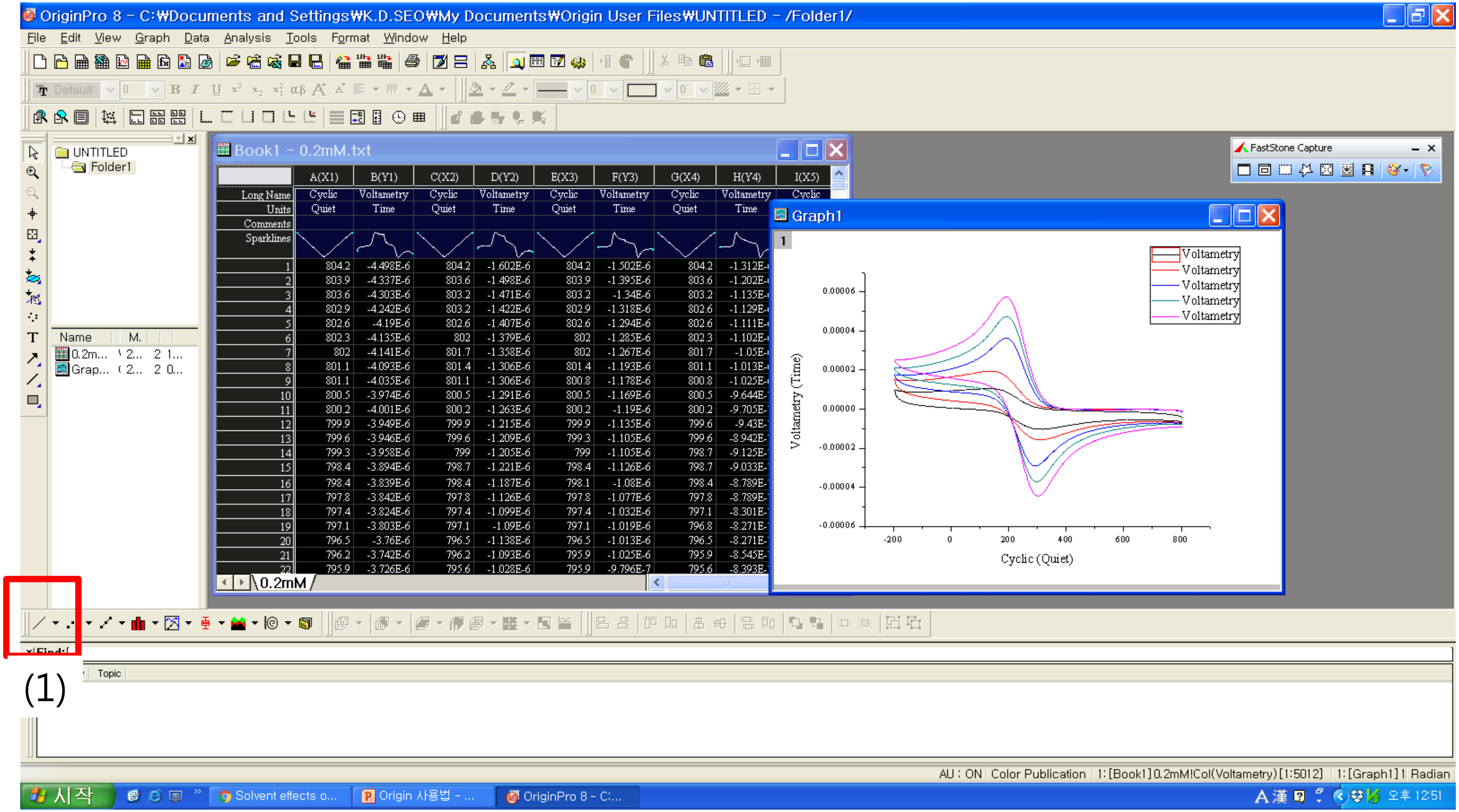
	A(X)	B(Y)	C(Y)	D(Y)	E(Y)	F(Y)	G(Y)	H(Y)
Long Name	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry
Units	Quiet	Time	Quiet	Time	Quiet	Time	Quiet	Time
Comments								
Sparklines								
1	804.2	-4.498E-6	804.2	-1.602E-6	804.2	-1.502E-6	804.2	-1.312E-6
2	803.9	-4.337E-6	803.6	-1.498E-6	803.9	-1.395E-6	803.6	-1.202E-6
3	803.6	-4.303E-6	803.2	-1.471E-6	803.2	-1.34E-6	803.2	-1.135E-6
4	802.9	-4.242E-6	803.2	-1.422E-6	802.9	-1.318E-6	802.6	-1.129E-6
5	802.6	-4.19E-6	802.6	-1.407E-6	802.6	-1.294E-6	802.6	-1.111E-6
6	802.3	-4.135E-6	802	-1.379E-6	802	-1.285E-6	802.3	-1.102E-6
7	802	-4.141E-6	801.7	-1.358E-6	802	-1.267E-6	801.7	-1.05E-6
8	801.1	-4.093E-6	801.4	-1.306E-6	801.4	-1.193E-6	801.1	-1.013E-6
9	801.1	-4.035E-6	801.1	-1.306E-6	800.8	-1.178E-6	800.8	-1.025E-6
10	800.5	-3.974E-6	800.5	-1.291E-6	800.5	-1.169E-6	800.5	-9.644E-7
11	800.2	-4.001E-6	800.2	-1.263E-6	800.2	-1.19E-6	800.2	-9.705E-7
12	799.9	-3.949E-6	799.9	-1.215E-6	799.9	-1.135E-6	799.6	-9.43E-7
13	799.6	-3.946E-6	799.6	-1.209E-6	799.3	-1.105E-6	799.6	-8.942E-7
14	799.3	-3.958E-6	799	-1.205E-6	799	-1.105E-6	798.7	-9.125E-7
15	798.4	-3.894E-6	798.7	-1.221E-6	798.4	-1.126E-6	798.7	-9.033E-7

Set the selected column as X

AU : ON [Book1]0.2mM!1[1]:9[5012] 1:[Book1]0.2mM Radian

File
Edit
View
Plot
Column
Worksheet
Analysis
Statistics
Image
Tools
Format
Window
Help
Default
9
UNTITLED
Folder1
Name
M.
0.2m...
FastStone Capture
0.2mM
Plot
Cut
Copy
Copy (full precision)
Paste
Insert
Delete
Clear
Set As
Fill Columns With
Sort Columns
Sort Worksheet
Statistics on Columns...
Statistics on Rows
Column Width...
Set Sampling Interval...
Move Columns
Show X Column...
Swap Columns...
Add Sparklines...
Mask
Set Style
X
Y
Z
Disregard
XYY
XY XY
XYY XYY
XYYY XYYY
X YYErr
XYYErr XYYErr
XYZZ
XYZ XYZ
Find:
Category
Topic
시작
Solvent effects o...
Origin 사용법 - ...
OriginPro 8 - C:...
오후 12:50

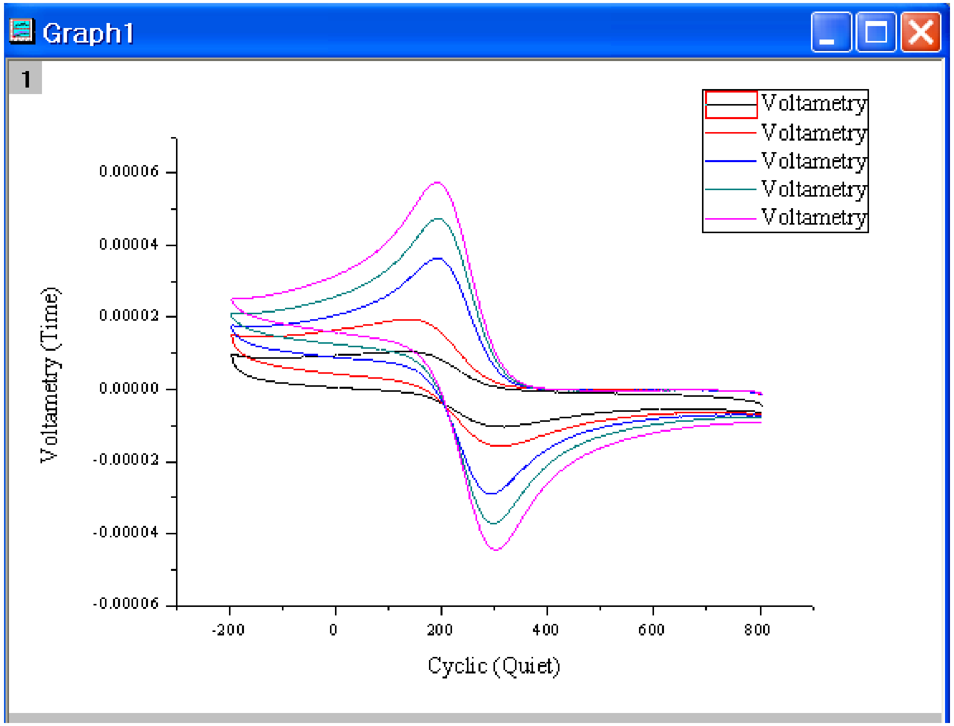
6. 모든 칼럼을 선택하고 (1) 이 버튼을 누르면 Cyclic voltammogram이 뜹니다.

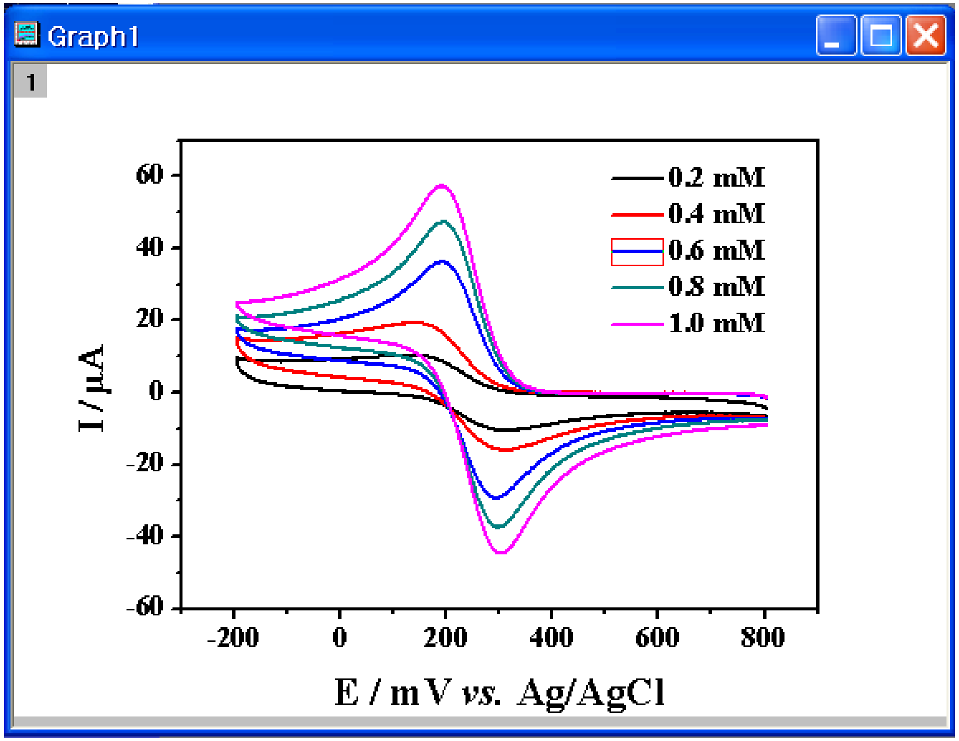

OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/
File Edit View Graph Data Analysis Tools Format Window Help
UNTITLED
Folder1
Name M.
0.2m... 2... 2 1...
Grap... 2... 2 0...
Book1 - 0.2mM.txt
0.2mM
Graph1
1
Voltametry
Voltametry
Voltametry
Voltametry
Voltametry
0.00006
0.00004
0.00002
0.00000
-0.00002
-0.00004
-0.00006
-200
0
200
400
600
800
Voltametry (Time)
Cyclic (Quiet)
FastStone Capture
Find:
Topic
(1)
시작
Solvent effects o...
Origin 사용법 - ...
OriginPro 8 - C:...
오후 12:51

	A(X1)	B(Y1)	C(X2)	D(Y2)	E(X3)	F(Y3)	G(X4)	H(Y4)	I(X5)
Long Name	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic
Units	Quiet	Time	Quiet	Time	Quiet	Time	Quiet	Time	
Comments									
Sparklines									
1	804.2	-4.498E-6	804.2	-1.602E-6	804.2	-1.502E-6	804.2	-1.312E-	
2	803.9	-4.337E-6	803.6	-1.498E-6	803.9	-1.395E-6	803.6	-1.202E-	
3	803.6	-4.303E-6	803.2	-1.471E-6	803.2	-1.34E-6	803.2	-1.135E-	
4	802.9	-4.242E-6	803.2	-1.422E-6	802.9	-1.318E-6	802.6	-1.129E-	
5	802.6	-4.19E-6	802.6	-1.407E-6	802.6	-1.294E-6	802.6	-1.111E-	
6	802.3	-4.135E-6	802	-1.379E-6	802	-1.285E-6	802.3	-1.102E-	
7	802	-4.141E-6	801.7	-1.358E-6	802	-1.267E-6	801.7	-1.05E-	
8	801.1	-4.093E-6	801.4	-1.306E-6	801.4	-1.193E-6	801.1	-1.013E-	
9	801.1	-4.035E-6	801.1	-1.306E-6	800.8	-1.178E-6	800.8	-1.025E-	
10	800.5	-3.974E-6	800.5	-1.291E-6	800.5	-1.169E-6	800.5	-9.644E-	
11	800.2	-4.001E-6	800.2	-1.263E-6	800.2	-1.19E-6	800.2	-9.705E-	
12	799.9	-3.949E-6	799.9	-1.215E-6	799.9	-1.135E-6	799.6	-9.43E-	
13	799.6	-3.946E-6	799.6	-1.209E-6	799.3	-1.105E-6	799.6	-8.942E-	
14	799.3	-3.958E-6	799	-1.205E-6	799	-1.105E-6	798.7	-9.125E-	
15	798.4	-3.894E-6	798.7	-1.221E-6	798.4	-1.126E-6	798.7	-9.033E-	
16	798.4	-3.839E-6	798.4	-1.187E-6	798.1	-1.08E-6	798.4	-8.789E-	
17	797.8	-3.842E-6	797.8	-1.126E-6	797.8	-1.077E-6	797.8	-8.789E-	
18	797.4	-3.824E-6	797.4	-1.099E-6	797.4	-1.032E-6	797.1	-8.301E-	
19	797.1	-3.803E-6	797.1	-1.09E-6	797.1	-1.019E-6	796.8	-8.271E-	
20	796.5	-3.76E-6	796.5	-1.138E-6	796.5	-1.013E-6	796.5	-8.271E-	
21	796.2	-3.742E-6	796.2	-1.093E-6	795.9	-1.025E-6	795.9	-8.545E-	
22	795.9	-3.726E-6	795.6	-1.028E-6	795.9	-9.796E-7	795.6	-8.393E-	

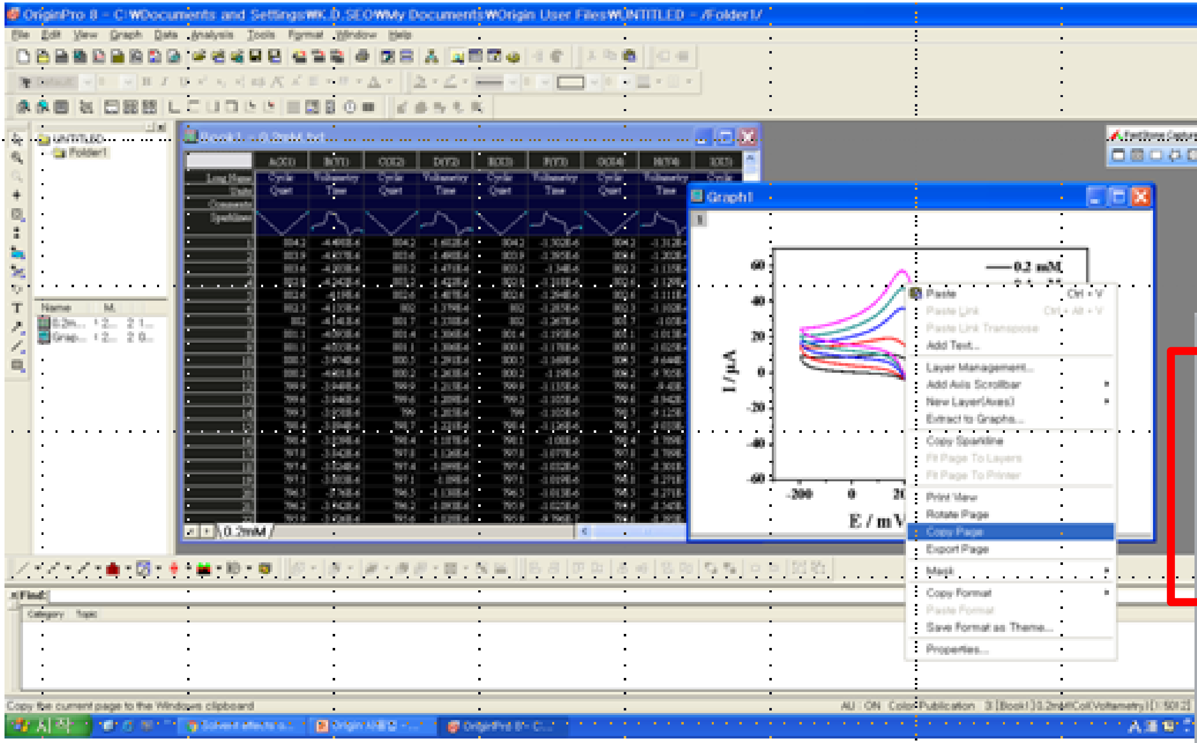
AU : ON | Color Publication | 1:[Book1]0.2mM!Col(Voltametry)[1:5012] | 1:[Graph1]1 Radian

7. 적당히 이쁘게 꾸미면... 저렇게 데이터가 만들어집니다.
축, 축에 있는 숫자, 선 등등 더블클릭하고 수정하시면 됩니다.

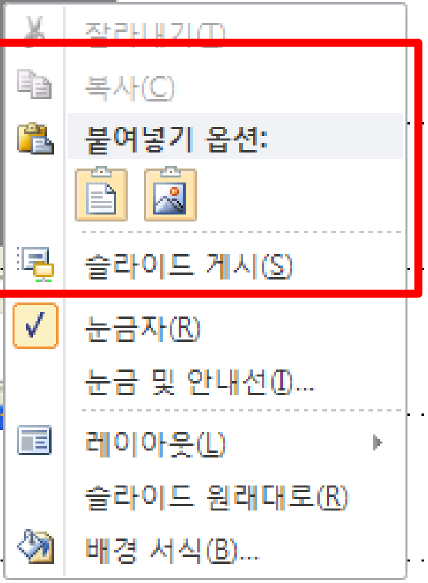

Graph1
1
Voltametry
Voltametry
Voltametry
Voltametry
Voltametry
0.00006
0.00004
0.00002
0.00000
-0.00002
-0.00004
-0.00006
Voltametry (Time)
-200
0
200
400
600
800
Cyclic (Quiet)

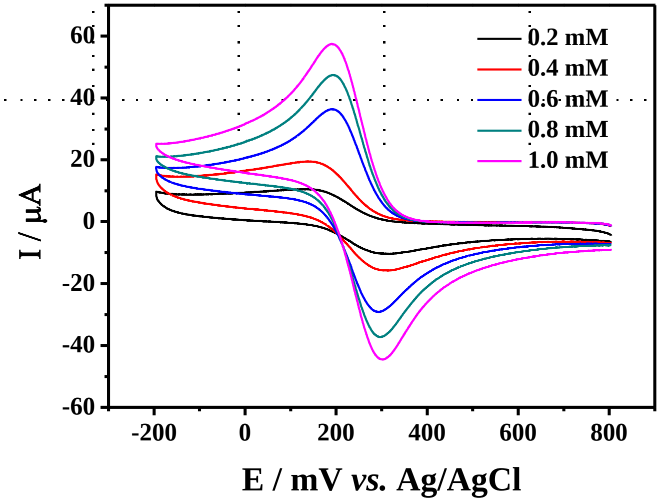

Graph1
1
0.2 mM
0.4 mM
0.6 mM
0.8 mM
1.0 mM
60
40
20
0
-20
-40
-60
I / μA
-200
0
200
400
600
800
E / mV vs. Ag/AgCl

7. 그래프 태두리 밖에서 우클릭 → copy page


OriginPro 8 - C:\Documents and Settings\K.D.SEO\My Documents\Origin User Files\UNTITLED - /Folder1/
File Edit View Graph Data Analysis Tools Format Window Help
Book1 - 0.2mM.txt
Graph1
0.2 mM
I / μA
E / mV
Paste
Paste Link
Paste Link Transpose
Add Text...
Layer Management...
Add Axis Scrollbar
New Layer(Axes)
Extract to Graphs...
Copy Sparkline
Fit Page To Layers
Fit Page To Printer
Print View
Rotate Page
Copy Page
Export Page
Mask
Copy Format
Paste Format
Save Format as Theme...
Properties...

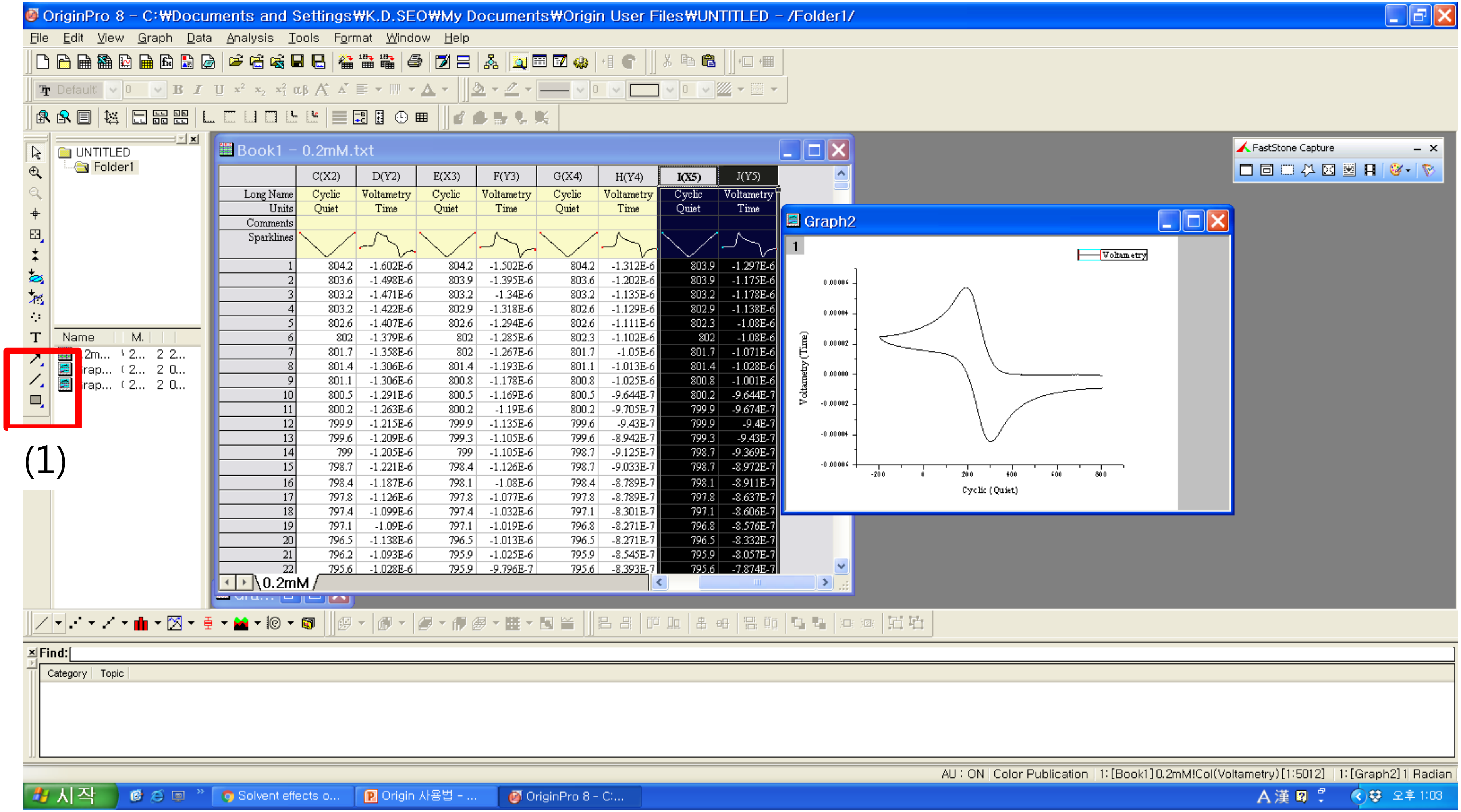
Copy the current page to the Windows clipboard


잘라내기(T)
복사(C)
붙여넣기 옵션:
슬라이드 게시(S)
눈금자(R)
눈금 및 안내선(I)...
레이아웃(L)
슬라이드 원래대로(R)
배경 서식(B)...



8. MS word 등에 붙여넣기.

8. 작도는, 필요한 data column을 선택하여 그래프 그리기. 이후 (1) 에 보이는 직선 아이콘 클릭



OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/

Book1 - 0.2mM.txt

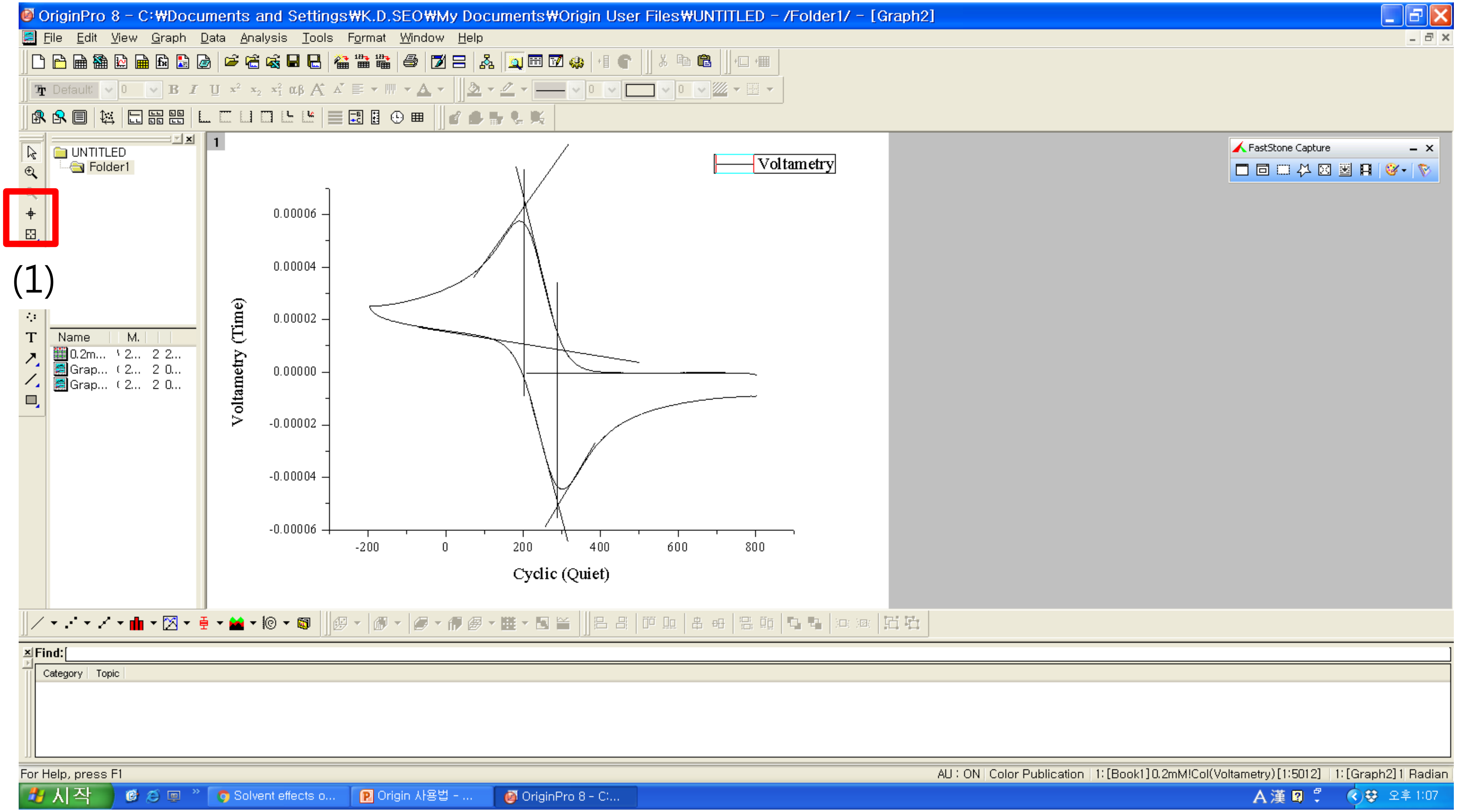
	C(X2)	D(Y2)	E(X3)	F(Y3)	G(X4)	H(Y4)	I(X5)	J(Y5)
Long Name	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry	Cyclic	Voltametry
Units	Quiet	Time	Quiet	Time	Quiet	Time	Quiet	Time
Comments								
Sparklines								
1	804.2	-1.602E-6	804.2	-1.502E-6	804.2	-1.312E-6	803.9	-1.297E-6
2	803.6	-1.498E-6	803.9	-1.395E-6	803.6	-1.202E-6	803.9	-1.175E-6
3	803.2	-1.471E-6	803.2	-1.34E-6	803.2	-1.135E-6	803.2	-1.178E-6
4	803.2	-1.422E-6	802.9	-1.318E-6	802.6	-1.129E-6	802.9	-1.138E-6
5	802.6	-1.407E-6	802.6	-1.294E-6	802.6	-1.111E-6	802.3	-1.08E-6
6	802	-1.379E-6	802	-1.285E-6	802.3	-1.102E-6	802	-1.08E-6
7	801.7	-1.358E-6	802	-1.267E-6	801.7	-1.05E-6	801.7	-1.071E-6
8	801.4	-1.306E-6	801.4	-1.193E-6	801.1	-1.013E-6	801.4	-1.028E-6
9	801.1	-1.306E-6	800.8	-1.178E-6	800.8	-1.025E-6	800.8	-1.001E-6
10	800.5	-1.291E-6	800.5	-1.169E-6	800.5	-9.644E-7	800.2	-9.644E-7
11	800.2	-1.263E-6	800.2	-1.19E-6	800.2	-9.705E-7	799.9	-9.674E-7
12	799.9	-1.215E-6	799.9	-1.135E-6	799.6	-9.43E-7	799.9	-9.4E-7
13	799.6	-1.209E-6	799.3	-1.105E-6	799.6	-8.942E-7	799.3	-9.43E-7
14	799	-1.205E-6	799	-1.105E-6	798.7	-9.125E-7	798.7	-9.369E-7
15	798.7	-1.221E-6	798.4	-1.126E-6	798.7	-9.033E-7	798.7	-8.972E-7
16	798.4	-1.187E-6	798.1	-1.08E-6	798.4	-8.789E-7	798.1	-8.911E-7
17	797.8	-1.126E-6	797.8	-1.077E-6	797.8	-8.789E-7	797.8	-8.637E-7
18	797.4	-1.099E-6	797.4	-1.032E-6	797.1	-8.301E-7	797.1	-8.606E-7
19	797.1	-1.09E-6	797.1	-1.019E-6	796.8	-8.271E-7	796.8	-8.576E-7
20	796.5	-1.138E-6	796.5	-1.013E-6	796.5	-8.271E-7	796.5	-8.332E-7
21	796.2	-1.093E-6	795.9	-1.025E-6	795.9	-8.545E-7	795.9	-8.057E-7
22	795.6	-1.028E-6	795.9	-9.796E-7	795.6	-8.393E-7	795.6	-7.874E-7

AU : ON Color Publication 1:[Book1]0.2mM!Col(Voltametry)[1:5012] 1:[Graph2]1 Radian

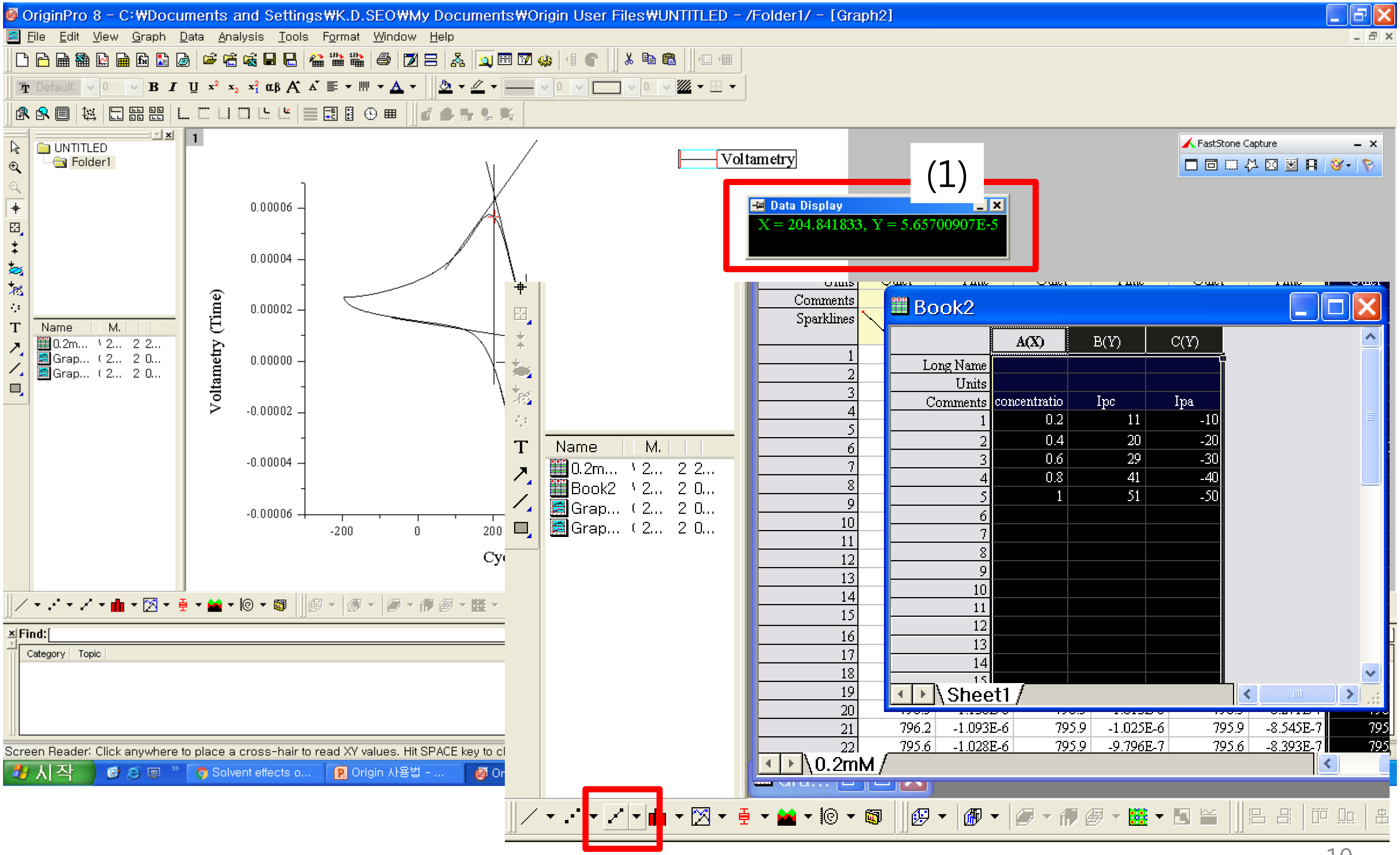
File
Edit
View
Graph
Data
Analysis
Tools
Format
Window
Help
UNTITLED
Folder1
Name
M.
0.2mM
Graph2
1
Voltametry
0.00006
0.00004
0.00002
0.00000
-0.00002
-0.00004
-0.00006
-200
0
200
400
600
800
Cyclic (Quiet)
Voltametry (Time)
FastStone Capture
Find:
Category
Topic
시작
Solvent effects o...
Origin 사용법 - ...
OriginPro 8 - C:...
오후 1:03

(1)

8. 적당히 잘 작도하시고 (1)에 보이는 직교 아이콘 클릭


OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/ - [Graph2]
File Edit View Graph Data Analysis Tools Format Window Help
UNTITLED
Folder1
(1)
Name
Voltametry
Voltametry (Time)
Cyclic (Quiet)
0.00006
0.00004
0.00002
0.00000
-0.00002
-0.00004
-0.00006
-200
0
200
400
600
800
FastStone Capture
Find:
Category
Topic
For Help, press F1
AU : ON
Color Publication
1:[Book1]0.2mM!Col(Voltametry)[1:5012]
1:[Graph2]1
Radian
시작
Solvent effects o...
Origin 사용법 - ...
OriginPro 8 - C:...
오후 1:07

8. (1) Data display에 보이는 값을 excel등에 기록한다.
9. 기록 후, 계산하여 File → new → Workbook으로 만든 Book 2에 기입
(2)을 눌러 그래프를 그린다.


OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩My Documents₩Origin User Files₩UNTITLED - /Folder1/ - [Graph2]
File Edit View Graph Data Analysis Tools Format Window Help
UNTITLED
Folder1
Voltametry
Voltametry (Time)
0.00006
0.00004
0.00002
0.00000
-0.00002
-0.00004
-0.00006
-200
0
200
(1)
Data Display
FastStone Capture
Name
0.2m...
Book2
Grap...
Book2
A(X)
B(Y)
C(Y)
Sheet1
0.2mM
Find:
Category
Topic
시작
Solvent effects o...
Origin 사용법 - ...

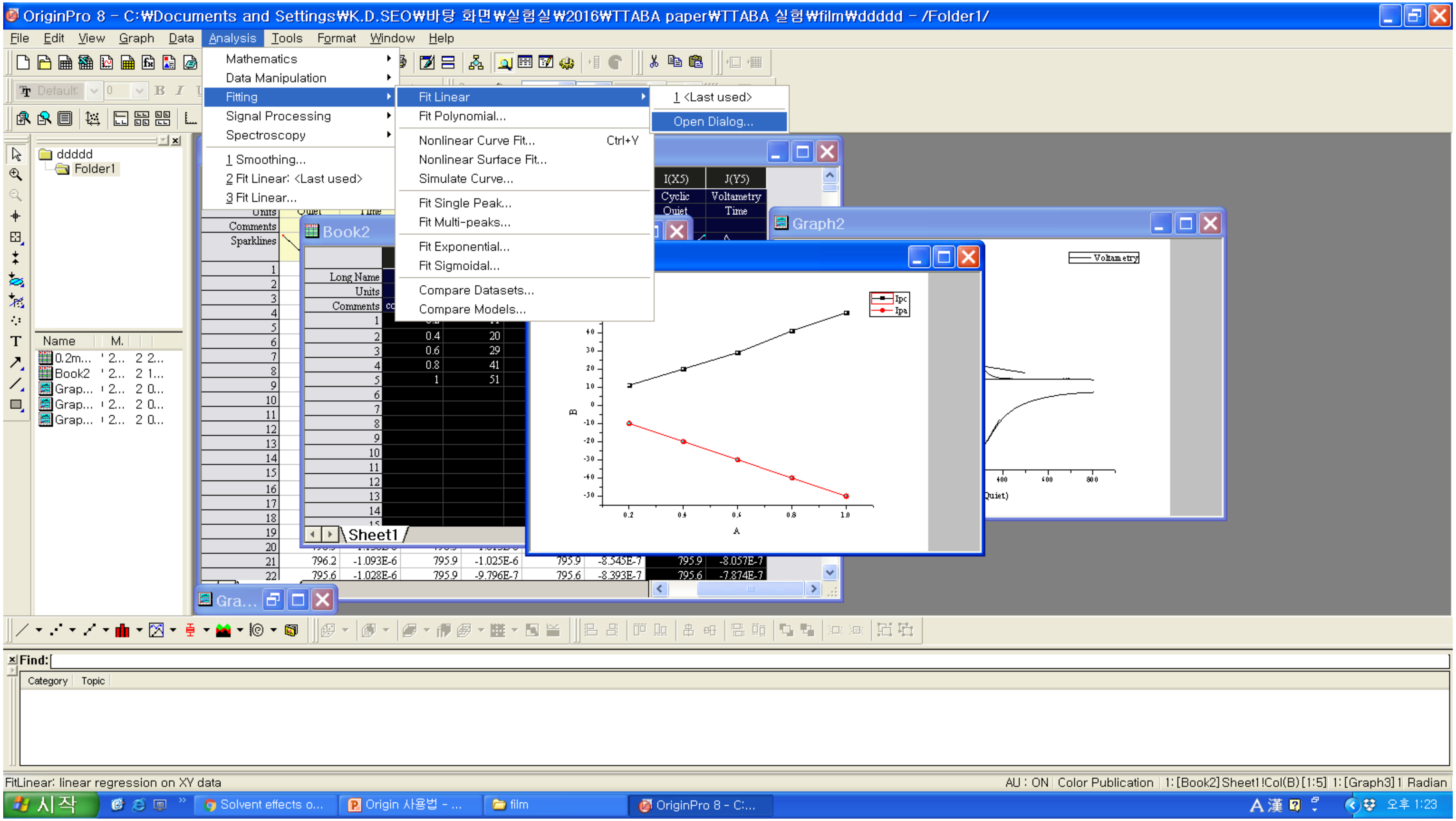
X = 204.841833, Y = 5.65700907E-5

	A(X)	B(Y)	C(Y)
Long Name			
Units			
Comments	concentratio	Ipc	Ipa
1	0.2	11	-10
2	0.4	20	-20
3	0.6	29	-30
4	0.8	41	-40
5	1	51	-50

21	796.2	-1.093E-6	795.9	-1.025E-6	795.9	-8.545E-7
22	795.6	-1.028E-6	795.9	-9.796E-7	795.6	-8.393E-7

Screen Reader: Click anywhere to place a cross-hair to read XY values. Hit SPACE key to cl

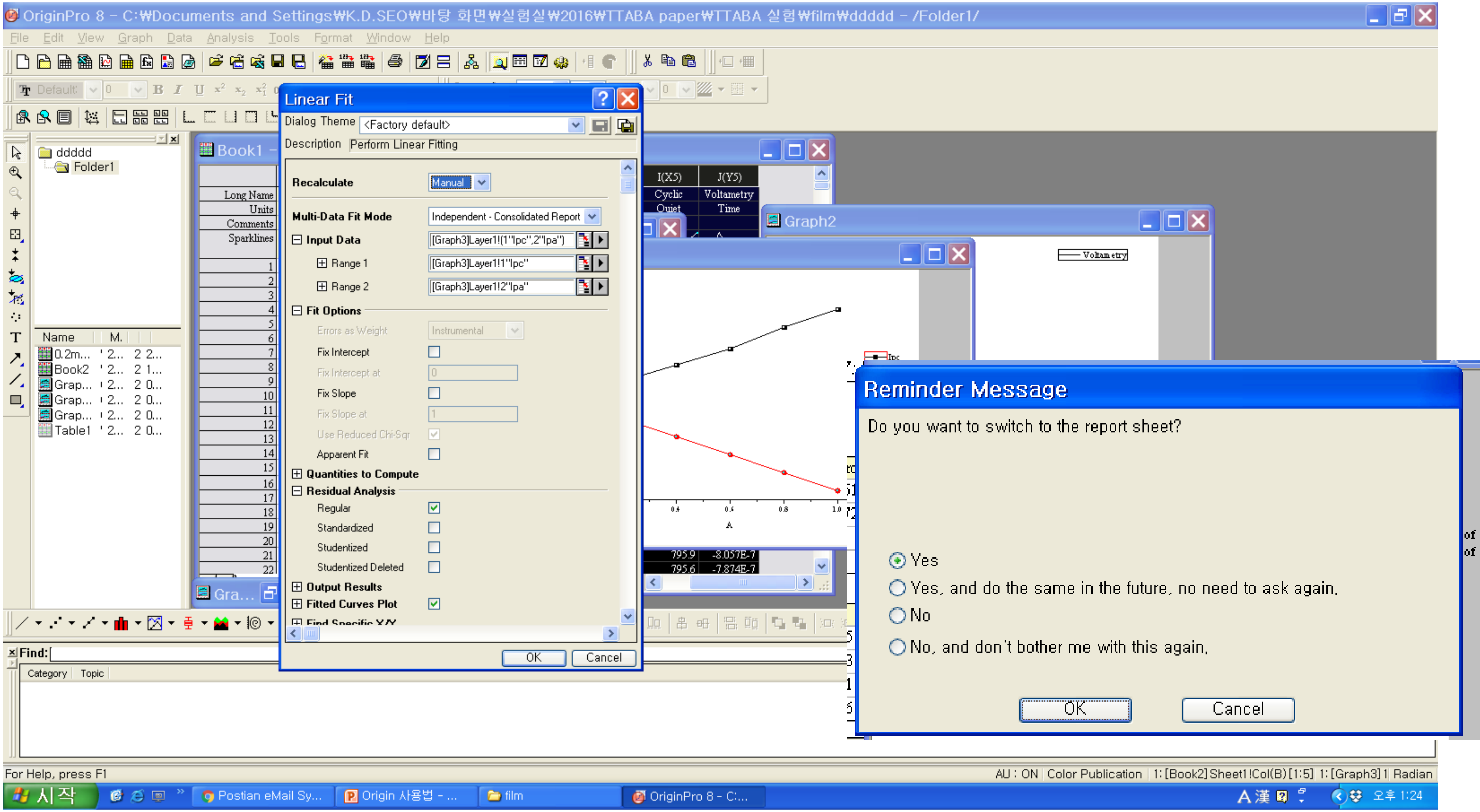
8. 생성된 그래프에서 직선 선택 후 fit linear


OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩바탕 화면₩실험실₩2016₩TTABA paper₩TTABA 실험₩film₩ddddd - /Folder1/
File
Edit
View
Graph
Data
Analysis
Tools
Format
Window
Help
Mathematics
Data Manipulation
Fitting
Signal Processing
Spectroscopy
1 Smoothing...
2 Fit Linear: <Last used>
3 Fit Linear...
Fit Linear
Fit Polynomial...
Nonlinear Curve Fit... Ctrl+Y
Nonlinear Surface Fit...
Simulate Curve...
Fit Single Peak...
Fit Multi-peaks...
Fit Exponential...
Fit Sigmoidal...
Compare Datasets...
Compare Models...
1 <Last used>
Open Dialog...
ddddd
Folder1
Book2
Graph2
Sheet1
Ipc
Ipa
Voltametry
A
B
Find:
Category
Topic

FitLinear: linear regression on XY data

AU : ON Color Publication 1: [Book2]Sheet1!Col(B)[1:5] 1: [Graph3]1 Radian

9. 설정값 확인하고 ok (어지간하면 초기값이 맞아요)
경고창 뜨면 그냥 취소.


OriginPro 8 - C:₩Documents and Settings₩K.D.SEO₩바탕 화면₩실험실₩2016₩TTABA paper₩TTABA 실험₩film₩ddddd - /Folder1/
File Edit View Graph Data Analysis Tools Format Window Help
Book1
Graph2
For Help, press F1
AU : ON Color Publication 1:[Book2]Sheet1!Col(B)[1:5] 1:[Graph3]1 Radian
시작
오후 1:24

Linear Fit

Dialog Theme <Factory default>

Description Perform Linear Fitting

Recalculate	Manual
Multi-Data Fit Mode	Independent - Consolidated Report
⊟ **Input Data**	[Graph3]Layer1!(1"Ipc",2"Ipa")
⊞ Range 1	[Graph3]Layer1!1"Ipc"
⊞ Range 2	[Graph3]Layer1!2"Ipa"
⊟ **Fit Options**	
Errors as Weight	Instrumental
Fix Intercept	☐
Fix Intercept at	0
Fix Slope	☐
Fix Slope at	1
Use Reduced Chi-Sqr	☑
Apparent Fit	☐
⊞ **Quantities to Compute**	
⊟ **Residual Analysis**	
Regular	☑
Standardized	☐
Studentized	☐
Studentized Deleted	☐
⊞ **Output Results**	
⊞ **Fitted Curves Plot**	☑
⊞ **Find Specific X/Y**	

OK Cancel

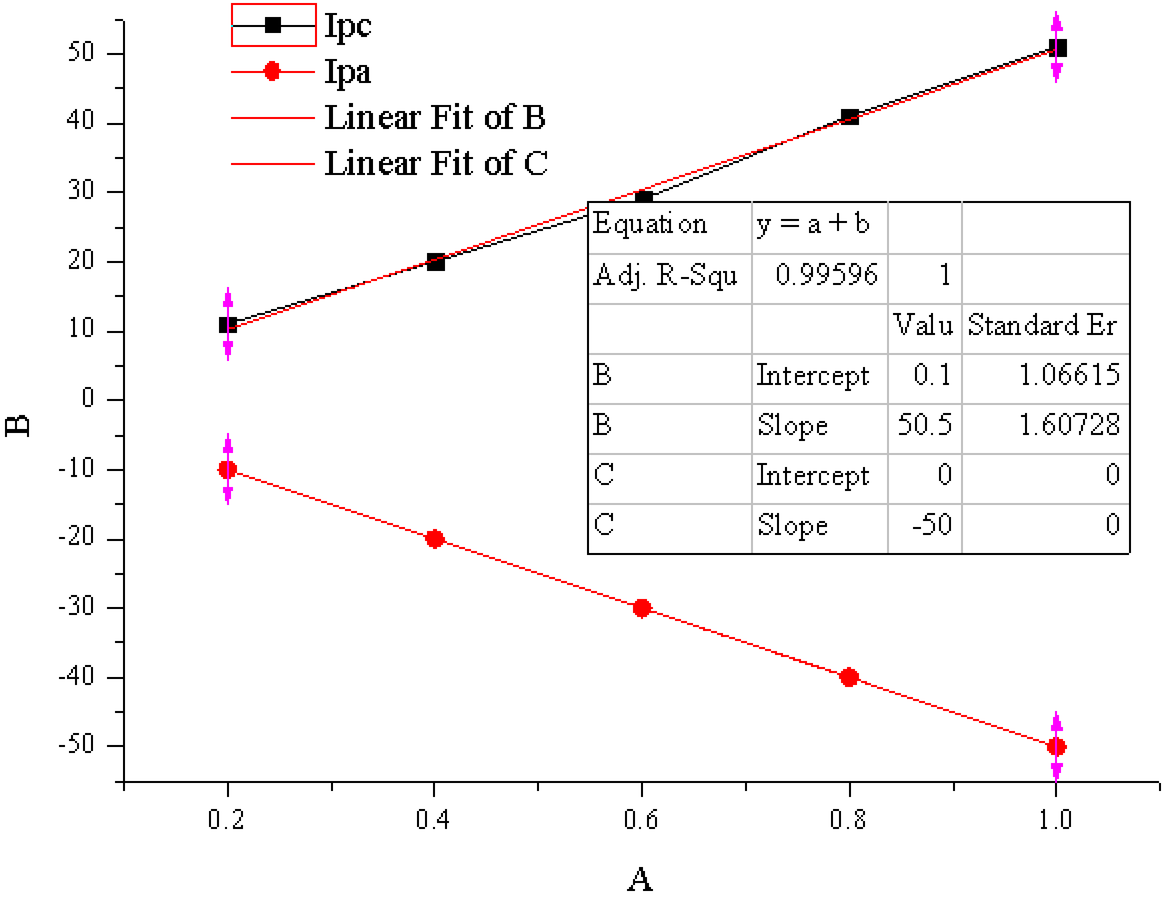
Reminder Message

Do you want to switch to the report sheet?

● Yes
○ Yes, and do the same in the future, no need to ask again.
○ No
○ No, and don't bother me with this again.

OK Cancel

10. 얻어진 그래프를 적당히 꾸미세요.
선형 회귀 검사 결과 0.99이상이니, 좋은 데이터 입니다.



Equation	y = a + b		
Adj. R-Squ	0.99596	1	
		Valu	Standard Er
B	Intercept	0.1	1.06615
B	Slope	50.5	1.60728
C	Intercept	0	0
C	Slope	-50	0