

PW n° 1.The calibration curve

But:

Mastering computer tools to plot a calibration curve in Excel

Method:

The example provided is based on monitoring absorbance as a function of concentration during the determination of the concentration of a chemical dye.

1- The first step is to create a table with the data used (here, the concentration and absorbance).

[] mg/l	0	25	50	75	100	125	150	175
absorbance	0	0.2	0.4	0.8	1.1	1.4	1.6	2

Questions:

- 1- Plot the calibration curve $A = f(C)$ (par Excel). (A : absorbance ; C : concentration of dye (methyl orange) in mg/L).
- 2- Exploit the equation of the curve ($Y = aX$ ($a = \epsilon C L$))
with : Y : absorbance ; X : concentration of Methyl orange (mg/L) ; a : the slope
- 3- Comment on the shape of the curve.
- 4-Using the calibration curve, determine the concentration C (in mg/L) of an orange methyl solution having an absorbance of 0.650.

Exercise

You have the table of biological activity obtained using a spectrophotometer, which represents the concentration of an extract and the percentage of free radical inhibition.

Table 2.

[] mg/l	Inhibition %	Inhibition%	Inhibition%
0	0	0	0
25	75	76	77
50	85	84	86
75	88	90	86
100	89	91	89
125	90	91	92
150	93	94	95
175	95	95	96
200	95	96	97

- Calculate the sum and the average of the percentage columns.
- Calculate the standard deviation (SD) for the three trials.
- Determine the inhibitory concentration IC_{50}