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عنوان المحاضرة باللغة الانجليزية	Serial dilution and calibration curve
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المصادر والمراجع	Laboratory Manual of Biopharmaceutics and Pharmacokinetics, S. B. Bhise, R. J. Dias, S. C. Dhawale, K. K. Mali
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محتوى المحاضرة

Serial dilution is the stepwise dilution of a substance in solution. Usually, the dilution factor at each step is constant.

A ten-fold serial dilution could be 1 M, 0.1 M, 0.01 M, 0.001 M ... Serial dilutions are used to accurately create highly diluted solutions as well as solutions for experiments resulting in concentration curves with a logarithmic scale.

Building of standard curve:

After taking the absorbance by UV spectroscopy device, make (x , y) points on graph paper representing (Conc. , ABS).

#	Conc.	ABS
1		
2		
3		
4		
5		

Draw a straight line that passes among the points without deviation (not necessarily to hit all the points).

The standard curve is used to determine the concentration of any sample containing the same compound used in serial dilution, by obtaining the absorbance of that sample.

This can be done either by determination on plotting, or using the straight-line equation.

Least square method:

$$slope = \frac{\sum[(x - x') * (y - y')]}{\sum[(x - x')^2]}$$

x' is the average of x values

y' is the average of y values

UV spectrophotometer:

Cuvette

Blank

Lambda max (λmax)

Absorbance

Example:

The following results are documented after serial dilution of salicylic acid stock solution (200mg/100ml).

Build a standard curve, then find the conc. of a sample that has absorbance of 0.54 Au.

#	Conc. (µg/ml)	ABS (Au)
1	200	0.75
2	20	0.35
3	2	0.2
4	0.2	0.09
5	0.02	0.01